Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	125	10	113	72	10	79	84	847	133	150	1056	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.862			0.934			0.980				0.850
Flt Protected	0.950				0.978		0.950			0.950		
Satd. Flow (prot)	1770	1606	0	0	1702	0	1719	3369	0	1719	3438	1538
Flt Permitted	0.588				0.729		0.950			0.950		
Satd. Flow (perm)	1095	1606	0	0	1268	0	1719	3369	0	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		510			371			748			991	
Travel Time (s)		13.9			10.1			11.3			15.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	139	11	126	80	11	88	93	941	148	167	1173	106
Shared Lane Traffic (%)												
Lane Group Flow (vph)	139	137	0	0	179	0	93	1089	0	167	1173	106
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm			Perm			Prot			Prot		Perm
Protected Phases		3			8		1	6		5	2	
Permitted Phases	3			8								2
Detector Phase	3	3		8	8		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	12.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0		14.0	19.0	19.0
Total Split (s)	40.0	40.0	0.0	40.0	40.0	0.0	21.0	71.0	0.0	29.0	79.0	79.0
Total Split (%)	28.6%	28.6%	0.0%	28.6%	28.6%	0.0%	15.0%	50.7%	0.0%	20.7%	56.4%	56.4%
Maximum Green (s)	33.0	33.0		33.0	33.0		14.0	64.0		22.0	72.0	72.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?								Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	Max		None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	35.0	35.0			35.0		13.9	69.9		20.1	76.1	76.1
Actuated g/C Ratio	0.25	0.25			0.25		0.10	0.50		0.14	0.54	0.54
v/c Ratio	0.51	0.34			0.56		0.55	0.65		0.68	0.63	0.13
Control Delay	52.7	46.0			53.9		71.8	28.8		70.4	24.4	16.7
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	52.7	46.0			53.9		71.8	28.8		70.4	24.4	16.7
LOS	D	D			D		E	C		E	C	B
Approach Delay		49.4			53.9			32.2			29.1	
Approach LOS		D			D			C			C	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 33.5 Intersection LOS: C
Intersection Capacity Utilization 69.5% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 111: Roland Drive & US 74

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	86	916	50	237	1108	96	33	22	129	123	51	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992				0.850		0.872				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3411	0	1719	3438	1538	1770	1624	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3411	0	1719	3438	1538	1770	1624	0	1770	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		822			734			281			279	
Travel Time (s)		12.5			11.1			5.5			7.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	96	1018	56	263	1231	107	37	24	143	137	57	149
Shared Lane Traffic (%)												
Lane Group Flow (vph)	96	1074	0	263	1231	107	37	167	0	137	57	149
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot		pm+ov	Split			Split		pm+ov
Protected Phases	1	6		5	2	8	4	4		8	8	1
Permitted Phases						2						8
Detector Phase	1	6		5	2	8	4	4		8	8	1
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	7.0	7.0	7.0		7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0		14.0	19.0	14.0	14.0	14.0		14.0	14.0	14.0
Total Split (s)	20.0	60.0	0.0	34.0	74.0	21.0	25.0	25.0	0.0	21.0	21.0	20.0
Total Split (%)	14.3%	42.9%	0.0%	24.3%	52.9%	15.0%	17.9%	17.9%	0.0%	15.0%	15.0%	14.3%
Maximum Green (s)	13.0	53.0		27.0	67.0	14.0	18.0	18.0		14.0	14.0	13.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	C-Max		None	C-Max	Max	None	None		Max	Max	Max
Act Effct Green (s)	15.0	57.5		26.5	69.0	86.2	18.8	18.8		17.2	17.2	37.2
Actuated g/C Ratio	0.11	0.41		0.19	0.49	0.62	0.13	0.13		0.12	0.12	0.27
v/c Ratio	0.52	0.77		0.81	0.73	0.11	0.16	0.77		0.63	0.25	0.35
Control Delay	70.0	40.5		73.4	31.2	6.1	54.6	80.8		72.7	59.6	45.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	70.0	40.5		73.4	31.2	6.1	54.6	80.8		72.7	59.6	45.1
LOS	E	D		E	C	A	D	F		E	E	D
Approach Delay		42.9			36.5			76.0			58.5	
Approach LOS		D			D			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 43.4		Intersection LOS: D	
Intersection Capacity Utilization 72.6%		ICU Level of Service C	
Analysis Period (min) 15			

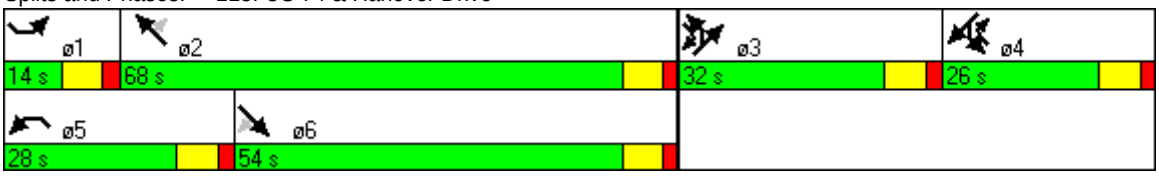
Splits and Phases: 112: US 74 & Williams Road

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	16	1061	110	257	1303	589	101	103	193	467	109	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850			0.850		0.902			0.982	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	1752	1664	0	3400	1811	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	1752	1664	0	3400	1811	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		338			529			376			313	
Travel Time (s)		5.1			8.0			7.3			8.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	18	1179	122	286	1448	654	112	114	214	519	121	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	18	1179	122	286	1448	654	112	328	0	519	138	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Split			Split		
Protected Phases	1	6	3	5	2	4	3	3		4	4	
Permitted Phases			6			2						
Detector Phase	1	6	3	5	2	4	3	3		4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0		14.0	14.0	
Total Split (s)	14.0	54.0	32.0	28.0	68.0	26.0	32.0	32.0	0.0	26.0	26.0	0.0
Total Split (%)	10.0%	38.6%	22.9%	20.0%	48.6%	18.6%	22.9%	22.9%	0.0%	18.6%	18.6%	0.0%
Maximum Green (s)	7.0	47.0	25.0	21.0	61.0	19.0	25.0	25.0		19.0	19.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Act Effct Green (s)	9.0	49.0	81.0	23.0	71.4	95.4	27.0	27.0		21.0	21.0	
Actuated g/C Ratio	0.06	0.35	0.58	0.16	0.51	0.68	0.19	0.19		0.15	0.15	
v/c Ratio	0.16	0.98	0.14	1.01	0.83	0.62	0.33	1.02		1.02	0.51	
Control Delay	65.6	66.5	14.0	114.3	35.1	15.0	52.0	110.8		102.3	62.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	65.6	66.5	14.0	114.3	35.1	15.0	52.0	110.8		102.3	62.0	
LOS	E	E	B	F	D	B	D	F		F	E	
Approach Delay		61.6			39.1			95.8			93.9	
Approach LOS		E			D			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.02			
Intersection Signal Delay: 58.0		Intersection LOS: E	
Intersection Capacity Utilization 90.8%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 113: US 74 & Hanover Drive

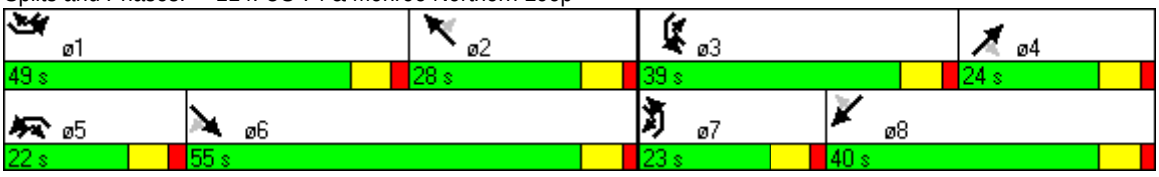


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	744	532	482	227	736	715	394	504	134	675	805	972
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3335	4940	1538	3335	4940	1538	3335	3438	1538	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	4940	1538	3335	4940	1538	3335	3438	1538	3433	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		858			915			405			209	
Travel Time (s)		13.0			13.9			7.9			3.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	2%	2%	2%
Adj. Flow (vph)	827	591	536	252	818	794	438	560	149	750	894	1080
Shared Lane Traffic (%)												
Lane Group Flow (vph)	827	591	536	252	818	794	438	560	149	750	894	1080
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	49.0	55.0	23.0	22.0	28.0	39.0	23.0	24.0	22.0	39.0	40.0	49.0
Total Split (%)	35.0%	39.3%	16.4%	15.7%	20.0%	27.9%	16.4%	17.1%	15.7%	27.9%	28.6%	35.0%
Maximum Green (s)	42.0	48.0	16.0	15.0	21.0	32.0	16.0	17.0	15.0	32.0	33.0	42.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	44.0	50.9	73.9	16.1	23.0	62.0	18.0	19.0	40.1	34.0	35.0	84.0
Actuated g/C Ratio	0.31	0.36	0.53	0.12	0.16	0.44	0.13	0.14	0.29	0.24	0.25	0.60
v/c Ratio	0.79	0.33	0.66	0.65	1.01	1.17	1.02	1.20	0.34	0.90	1.01	1.14
Control Delay	50.2	33.0	29.1	67.8	91.0	126.0	108.0	159.0	41.8	66.1	84.5	102.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.2	33.0	29.1	67.8	91.0	126.0	108.0	159.0	41.8	66.1	84.5	102.6
LOS	D	C	C	E	F	F	F	F	D	E	F	F
Approach Delay		39.3			102.8			124.3			86.6	
Approach LOS		D			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 140			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.20			
Intersection Signal Delay: 84.1		Intersection LOS: F	
Intersection Capacity Utilization 98.1%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 114: US 74 & Monroe Northern Loop

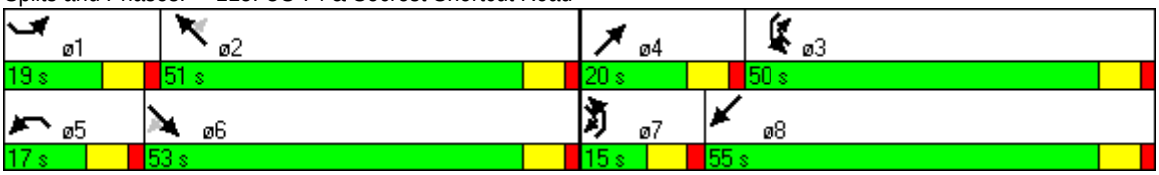


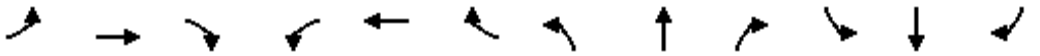
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	151	1122	57	157	1429	479	55	46	119	519	66	209
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.892			0.886	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	3335	4940	1538	1770	1662	0	1770	1650	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	3335	4940	1538	1770	1662	0	1770	1650	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		413			1354			238			233	
Travel Time (s)		6.3			20.5			6.5			4.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	168	1247	63	174	1588	532	61	51	132	577	73	232
Shared Lane Traffic (%)												
Lane Group Flow (vph)	168	1247	63	174	1588	532	61	183	0	577	305	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot			Prot		
Protected Phases	1	6	7	5	2	3	7	4		3	8	
Permitted Phases			6			2						
Detector Phase	1	6	7	5	2	3	7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0		14.0	14.0	
Total Split (s)	19.0	53.0	15.0	17.0	51.0	50.0	15.0	20.0	0.0	50.0	55.0	0.0
Total Split (%)	13.6%	37.9%	10.7%	12.1%	36.4%	35.7%	10.7%	14.3%	0.0%	35.7%	39.3%	0.0%
Maximum Green (s)	12.0	46.0	8.0	10.0	44.0	43.0	8.0	13.0		43.0	48.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Act Effct Green (s)	14.0	48.2	63.0	11.8	46.0	91.0	9.8	15.0		45.0	50.2	
Actuated g/C Ratio	0.10	0.34	0.45	0.08	0.33	0.65	0.07	0.11		0.32	0.36	
v/c Ratio	0.98	0.73	0.09	0.62	0.98	0.53	0.49	1.03		1.01	0.52	
Control Delay	124.8	43.4	22.6	72.0	64.1	8.8	76.7	134.9		88.0	39.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	124.8	43.4	22.6	72.0	64.1	8.8	76.7	134.9		88.0	39.2	
LOS	F	D	C	E	E	A	E	F		F	D	
Approach Delay		51.8			51.9			120.3			71.2	
Approach LOS		D			D			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.03			
Intersection Signal Delay: 58.7		Intersection LOS: E	
Intersection Capacity Utilization 91.1%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 115: US 74 & Secrest Shortcut Road





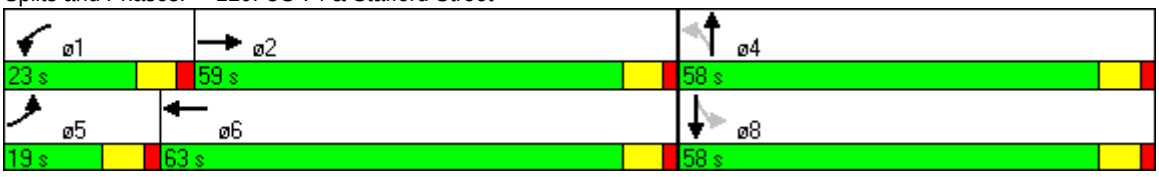
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	185	1625	151	225	2033	138	253	136	302	155	114	259
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.987			0.990			0.897			0.896	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4876	0	1719	4891	0	1770	1671	0	1770	1669	0
Flt Permitted	0.950			0.950			0.313			0.236		
Satd. Flow (perm)	1719	4876	0	1719	4891	0	583	1671	0	440	1669	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		443			590			549			636	
Travel Time (s)		6.7			8.9			15.0			12.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	206	1806	168	250	2259	153	281	151	336	172	127	288
Shared Lane Traffic (%)												
Lane Group Flow (vph)	206	1974	0	250	2412	0	281	487	0	172	415	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

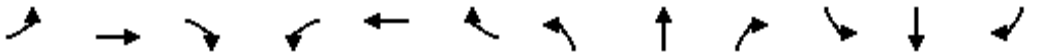
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	19.0	59.0	0.0	23.0	63.0	0.0	58.0	58.0	0.0	58.0	58.0	0.0
Total Split (%)	13.6%	42.1%	0.0%	16.4%	45.0%	0.0%	41.4%	41.4%	0.0%	41.4%	41.4%	0.0%
Maximum Green (s)	12.0	52.0		16.0	56.0		51.0	51.0		51.0	51.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	14.0	54.0		18.0	58.0		53.0	53.0		53.0	53.0	
Actuated g/C Ratio	0.10	0.39		0.13	0.41		0.38	0.38		0.38	0.38	
v/c Ratio	1.20	1.05		1.13	1.19		1.27	0.77		1.03	0.66	
Control Delay	183.6	76.7		153.7	127.9		189.6	47.8		120.9	42.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	183.6	76.7		153.7	127.9		189.6	47.8		120.9	42.0	
LOS	F	E		F	F		F	D		F	D	
Approach Delay		86.8			130.4			99.7			65.1	
Approach LOS		F			F			F			E	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 160
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.27
Intersection Signal Delay: 105.1 Intersection LOS: F
Intersection Capacity Utilization 105.2% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 120: US 74 & Stafford Street





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	78	1772	159	195	2169	53	117	10	117	107	10	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.988			0.996			0.862			0.857	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4881	0	1719	4920	0	1770	1606	0	1770	1596	0
Flt Permitted	0.950			0.950			0.372			0.561		
Satd. Flow (perm)	1719	4881	0	1719	4920	0	693	1606	0	1045	1596	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			20	
Link Distance (ft)		493			536			238			211	
Travel Time (s)		7.5			8.1			6.5			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	87	1969	177	217	2410	59	130	11	130	119	11	217
Shared Lane Traffic (%)												
Lane Group Flow (vph)	87	2146	0	217	2469	0	130	141	0	119	228	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	15.0	75.0	0.0	28.0	88.0	0.0	37.0	37.0	0.0	37.0	37.0	0.0
Total Split (%)	10.7%	53.6%	0.0%	20.0%	62.9%	0.0%	26.4%	26.4%	0.0%	26.4%	26.4%	0.0%
Maximum Green (s)	8.0	68.0		21.0	81.0		30.0	30.0		30.0	30.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	10.6	74.8		21.8	86.1		28.3	28.3		28.3	28.3	
Actuated g/C Ratio	0.08	0.53		0.16	0.62		0.20	0.20		0.20	0.20	
v/c Ratio	0.67	0.82		0.81	0.82		0.93	0.43		0.56	0.71	
Control Delay	87.4	31.6		79.8	24.4		112.7	52.2		60.1	63.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	87.4	31.6		79.8	24.4		112.7	52.2		60.1	63.7	
LOS	F	C		E	C		F	D		E	E	
Approach Delay		33.8			28.9			81.2			62.5	
Approach LOS		C			C			F			E	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 35.5 Intersection LOS: D
Intersection Capacity Utilization 84.7% ICU Level of Service E
Analysis Period (min) 15

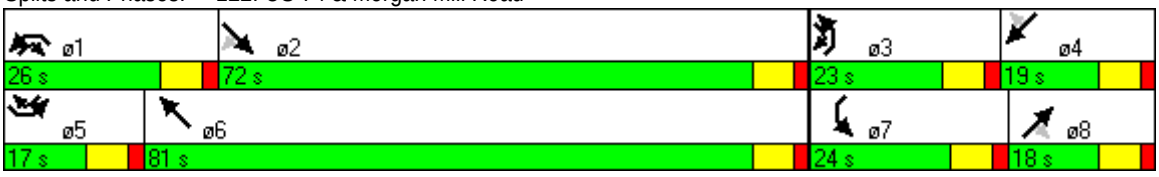
Splits and Phases: 121: US 74 & Boyte Street

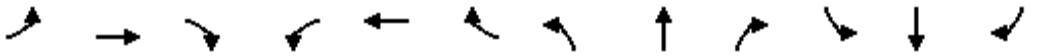
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	121	1674	178	139	2080	128	174	89	109	163	145	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.991				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	1719	4896	0	1687	1776	1509	1687	1776	1509
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	1719	4896	0	1687	1776	1509	1687	1776	1509
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		515			499			502			475	
Travel Time (s)		7.8			7.6			9.8			9.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	7%	7%	7%	7%	7%	7%
Adj. Flow (vph)	134	1860	198	154	2311	142	193	99	121	181	161	214
Shared Lane Traffic (%)												
Lane Group Flow (vph)	134	1860	198	154	2453	0	193	99	121	181	161	214
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot			Prot		pm+ov	Prot		pm+ov
Protected Phases	5	2	3	1	6		3	8	1	7	4	5
Permitted Phases			2						8			4
Detector Phase	5	2	3	1	6		3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0		7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0		14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	17.0	72.0	23.0	26.0	81.0	0.0	23.0	18.0	26.0	24.0	19.0	17.0
Total Split (%)	12.1%	51.4%	16.4%	18.6%	57.9%	0.0%	16.4%	12.9%	18.6%	17.1%	13.6%	12.1%
Maximum Green (s)	10.0	65.0	16.0	19.0	74.0		16.0	11.0	19.0	17.0	12.0	10.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max		None	None	None	None	None	None
Act Effct Green (s)	12.0	69.6	92.6	18.4	76.0		18.0	13.6	37.0	18.4	14.0	31.0
Actuated g/C Ratio	0.09	0.50	0.66	0.13	0.54		0.13	0.10	0.26	0.13	0.10	0.22
v/c Ratio	0.91	0.76	0.19	0.68	0.92		0.89	0.57	0.30	0.82	0.90	0.64
Control Delay	116.5	31.3	10.2	73.1	36.4		97.7	74.6	43.1	86.4	108.1	59.4
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	116.5	31.3	10.2	73.1	36.4		97.7	74.6	43.1	86.4	108.1	59.4
LOS	F	C	B	E	D		F	E	D	F	F	E
Approach Delay		34.6			38.6			76.2			82.3	
Approach LOS		C			D			E			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 44.0		Intersection LOS: D	
Intersection Capacity Utilization 83.7%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 122: US 74 & Morgan Mill Road





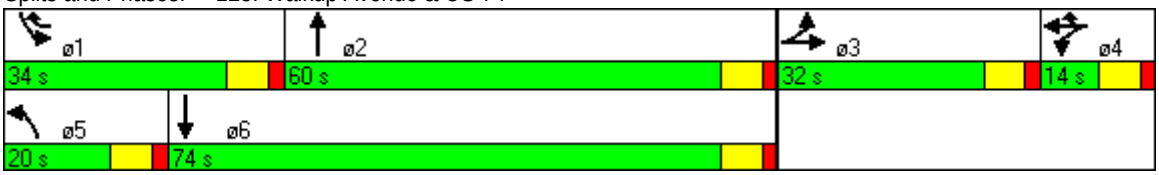
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	89	188	92	31	135	348	91	1900	43	382	1504	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.966				0.850		0.997			0.993	
Flt Protected		0.988		0.950			0.950			0.950		
Satd. Flow (prot)	0	1778	0	1770	1863	1583	1719	4925	0	1719	4905	0
Flt Permitted		0.988		0.950			0.950			0.950		
Satd. Flow (perm)	0	1778	0	1770	1863	1583	1719	4925	0	1719	4905	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		443			502			602			356	
Travel Time (s)		12.1			9.8			9.1			5.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	99	209	102	34	150	387	101	2111	48	424	1671	77
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	410	0	34	150	387	101	2159	0	424	1748	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pt+ov	Prot			Prot		
Protected Phases	3	3		4	4	4 1	5	2		1	6	
Permitted Phases												
Detector Phase	3	3		4	4	4 1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0		14.0	19.0	
Total Split (s)	32.0	32.0	0.0	14.0	14.0	48.0	20.0	60.0	0.0	34.0	74.0	0.0
Total Split (%)	22.9%	22.9%	0.0%	10.0%	10.0%	34.3%	14.3%	42.9%	0.0%	24.3%	52.9%	0.0%
Maximum Green (s)	25.0	25.0		7.0	7.0		13.0	53.0		27.0	67.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lead		Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)		27.0		9.0	9.0	43.0	13.7	55.0		29.0	70.3	
Actuated g/C Ratio		0.19		0.06	0.06	0.31	0.10	0.39		0.21	0.50	
v/c Ratio		1.20		0.30	1.25	0.80	0.60	1.12		1.19	0.71	
Control Delay		160.5		69.7	215.0	58.0	75.3	99.6		157.5	29.2	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		160.5		69.7	215.0	58.0	75.3	99.6		157.5	29.2	
LOS		F		E	F	E	E	F		F	C	
Approach Delay		160.5			99.9			98.5			54.3	
Approach LOS		F			F			F			D	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 170
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.25
Intersection Signal Delay: 85.6 Intersection LOS: F
Intersection Capacity Utilization 103.0% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 123: Walkup Avenue & US 74



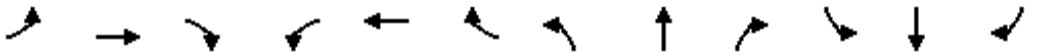
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	115	1359	210	66	1699	208	169	235	43	139	244	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.984			0.977			0.958	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	1719	4861	0	1752	1802	0	1752	1767	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	1719	4861	0	1752	1802	0	1752	1767	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		425			487			426			331	
Travel Time (s)		6.4			7.4			11.6			6.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	128	1510	233	73	1888	231	188	261	48	154	271	107
Shared Lane Traffic (%)												
Lane Group Flow (vph)	128	1510	233	73	2119	0	188	309	0	154	378	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot			Prot			Prot		
Protected Phases	1	6	7	5	2		7	4		3	8	
Permitted Phases			6									
Detector Phase	1	6	7	5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	16.0	67.0	21.0	17.0	68.0	0.0	21.0	35.0	0.0	21.0	35.0	0.0
Total Split (%)	11.4%	47.9%	15.0%	12.1%	48.6%	0.0%	15.0%	25.0%	0.0%	15.0%	25.0%	0.0%
Maximum Green (s)	9.0	60.0	14.0	10.0	61.0		14.0	28.0		14.0	28.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes			Yes			Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max		None	None		None	None	
Act Effct Green (s)	11.0	65.5	86.5	11.3	63.0		16.0	30.4		15.6	30.0	
Actuated g/C Ratio	0.08	0.47	0.62	0.08	0.45		0.11	0.22		0.11	0.21	
v/c Ratio	0.95	0.65	0.25	0.53	0.97		0.94	0.79		0.79	1.00	
Control Delay	127.9	31.0	13.7	75.7	50.8		110.6	67.4		87.7	100.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	127.9	31.0	13.7	75.7	50.8		110.6	67.4		87.7	100.1	
LOS	F	C	B	E	D		F	E		F	F	
Approach Delay		35.5			51.6			83.7			96.5	
Approach LOS		D			D			F			F	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.00
Intersection Signal Delay: 53.5 Intersection LOS: D
Intersection Capacity Utilization 88.5% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 124: US 74 & Sutherland Avenue



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	2	34	27	24	48	115	61	1784	38	150	1447	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.934			0.894				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1740	0	1770	1665	0	1719	4940	1538	1719	4940	1538
Flt Permitted	0.402			0.713			0.950			0.950		
Satd. Flow (perm)	749	1740	0	1328	1665	0	1719	4940	1538	1719	4940	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		163			218			356			257	
Travel Time (s)		5.6			4.2			5.4			3.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	2	38	30	27	53	128	68	1982	42	167	1608	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	68	0	27	181	0	68	1982	42	167	1608	4
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm			Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	12.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	19.0
Total Split (s)	32.0	32.0	0.0	32.0	32.0	0.0	17.0	79.0	79.0	29.0	91.0	91.0
Total Split (%)	22.9%	22.9%	0.0%	22.9%	22.9%	0.0%	12.1%	56.4%	56.4%	20.7%	65.0%	65.0%
Maximum Green (s)	25.0	25.0		25.0	25.0		10.0	72.0	72.0	22.0	84.0	84.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	21.9	21.9		21.9	21.9		11.7	83.0	83.0	20.1	94.2	94.2
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.08	0.59	0.59	0.14	0.67	0.67
v/c Ratio	0.02	0.25		0.13	0.70		0.47	0.68	0.05	0.68	0.48	0.00
Control Delay	47.0	52.7		50.2	69.6		72.0	22.1	14.6	70.4	13.0	10.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.0	52.7		50.2	69.6		72.0	22.1	14.6	70.4	13.0	10.2
LOS	D	D		D	E		E	C	B	E	B	B
Approach Delay		52.5			67.1			23.5			18.4	
Approach LOS		D			E			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay: 24.0		Intersection LOS: C	
Intersection Capacity Utilization 64.9%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 125: Dove Street & US 74

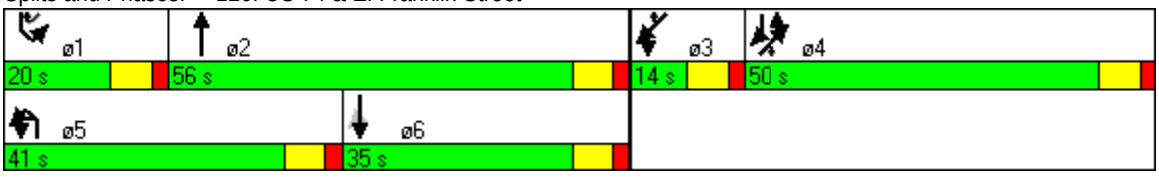
Lane Group	NBU	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT
Lane Configurations												
Volume (vph)	22	984	1413	127	128	1075	255	355	84	1043	129	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.86	0.97	0.86	0.86	1.00	0.91	1.00	1.00	1.00	0.88	1.00	1.00
Frt			0.988				0.850			0.850		
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	3335	6150	0	1719	4940	1538	1752	1845	2760	1752	1845
Flt Permitted		0.950			0.950			0.950			0.950	
Satd. Flow (perm)	0	3335	6150	0	1719	4940	1538	1752	1845	2760	1752	1845
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			45			35			20
Link Distance (ft)			341			436			391			335
Travel Time (s)			5.2			6.6			7.6			11.4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%
Adj. Flow (vph)	24	1093	1570	141	142	1194	283	394	93	1159	143	89
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1117	1711	0	142	1194	283	394	93	1159	143	89
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			24			24			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1	1	2		1	2	1	1	2	1	1	2
Detector Template	Left	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru
Leading Detector (ft)	20	20	100		20	100	20	20	100	20	20	100
Trailing Detector (ft)	0	0	0		0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0		0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	6		20	6	20	20	6	20	20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94			94			94			94
Detector 2 Size(ft)			6			6			6			6
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			0.0
Turn Type	Prot	Prot			Prot		pm+ov	Split		Prot	Split	
Protected Phases	5	5	2		1	6	4	4	4	4	3	3
Permitted Phases							6					
Detector Phase	5	5	2		1	6	4	4	4	4	3	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	12.0		7.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SWR
Lane Configurations	
Volume (vph)	171
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1568
Flt Permitted	
Satd. Flow (perm)	1568
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	3%
Adj. Flow (vph)	190
Shared Lane Traffic (%)	
Lane Group Flow (vph)	190
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	pt+ov
Protected Phases	3 1
Permitted Phases	
Detector Phase	3 1
Switch Phase	
Minimum Initial (s)	

Lane Group	NBU	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT
Minimum Split (s)	14.0	14.0	19.0		14.0	19.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	41.0	41.0	56.0	0.0	20.0	35.0	50.0	50.0	50.0	50.0	14.0	14.0
Total Split (%)	29.3%	29.3%	40.0%	0.0%	14.3%	25.0%	35.7%	35.7%	35.7%	35.7%	10.0%	10.0%
Maximum Green (s)	34.0	34.0	49.0		13.0	28.0	43.0	43.0	43.0	43.0	7.0	7.0
Yellow Time (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag		Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max		None	C-Max	None	None	None	None	None	None
Act Effct Green (s)		36.0	51.3		14.7	30.0	75.0	45.0	45.0	45.0	9.0	9.0
Actuated g/C Ratio		0.26	0.37		0.10	0.21	0.54	0.32	0.32	0.32	0.06	0.06
v/c Ratio		1.30	0.76		0.79	1.13	0.34	0.70	0.16	1.31	1.27	0.75
Control Delay		185.7	41.6		90.0	118.9	12.2	49.4	34.9	184.7	222.6	98.8
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		185.7	41.6		90.0	118.9	12.2	49.4	34.9	184.7	222.6	98.8
LOS		F	D		F	F	B	D	C	F	F	F
Approach Delay			98.6			97.7			143.9			117.3
Approach LOS			F			F			F			F

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 160			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.31			
Intersection Signal Delay: 111.0		Intersection LOS: F	
Intersection Capacity Utilization 109.8%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 126: US 74 & E. Franklin Street



Lane Group	SWR
Minimum Split (s)	
Total Split (s)	34.0
Total Split (%)	24.3%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Act Effct Green (s)	23.7
Actuated g/C Ratio	0.17
v/c Ratio	0.72
Control Delay	46.7
Queue Delay	0.0
Total Delay	46.7
LOS	D
Approach Delay	
Approach LOS	

Intersection Summary

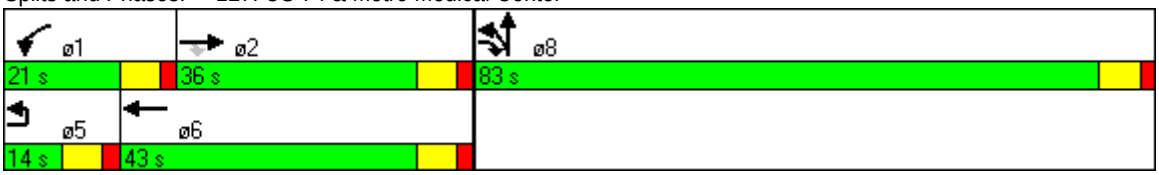
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	10	0	1105	931	219	1273	25	1536	0	322	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.91	0.91	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.997			0.947			
Flt Protected	0.950				0.950			0.950	0.969			
Satd. Flow (prot)	1719	0	4940	1538	1736	4973	0	1504	1453	0	0	0
Flt Permitted	0.950				0.950			0.950	0.969			
Satd. Flow (perm)	1719	0	4940	1538	1736	4973	0	1504	1453	0	0	0
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			55			45			25
Link Distance (ft)			239			375			459			142
Travel Time (s)			3.6			4.6			7.0			3.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	4%	4%	4%	14%	14%	14%	2%	2%
Adj. Flow (vph)	11	0	1228	1034	243	1414	28	1707	0	358	0	0
Shared Lane Traffic (%)								38%				
Lane Group Flow (vph)	11	0	1228	1034	243	1442	0	1058	1007	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			12			12			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1		2	1	1	2		1	2			
Detector Template	Left		Thru	Right	Left	Thru		Left	Thru			
Leading Detector (ft)	20		100	20	20	100		20	100			
Trailing Detector (ft)	0		0	0	0	0		0	0			
Detector 1 Position(ft)	0		0	0	0	0		0	0			
Detector 1 Size(ft)	20		6	20	20	6		20	6			
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 2 Position(ft)			94			94			94			
Detector 2 Size(ft)			6			6			6			
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			
Turn Type	Prot			pm+ov	Prot			Split				
Protected Phases	5		2	8	1	6		8	8			
Permitted Phases				2								
Detector Phase	5		2	8	1	6		8	8			
Switch Phase												
Minimum Initial (s)	7.0		12.0	12.0	7.0	14.0		12.0	12.0			

Lane Group	SBR
Lane Configurations	
Volume (vph)	39
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.865
Flt Protected	
Satd. Flow (prot)	1611
Flt Permitted	
Satd. Flow (perm)	1611
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	2%
Adj. Flow (vph)	43
Shared Lane Traffic (%)	
Lane Group Flow (vph)	43
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Detector Phase	
Switch Phase	
Minimum Initial (s)	

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Minimum Split (s)	14.0		19.0	19.0	14.0	21.0		19.0	19.0			
Total Split (s)	14.0	0.0	36.0	83.0	21.0	43.0	0.0	83.0	83.0	0.0	0.0	0.0
Total Split (%)	10.0%	0.0%	25.7%	59.3%	15.0%	30.7%	0.0%	59.3%	59.3%	0.0%	0.0%	0.0%
Maximum Green (s)	7.0		29.0	76.0	14.0	36.0		76.0	76.0			
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0		5.0	5.0			
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0		2.0	2.0			
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	2.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	2.0	2.0
Lead/Lag	Lead		Lag		Lead	Lag						
Lead-Lag Optimize?			Yes			Yes						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0		3.0	3.0			
Recall Mode	None		C-Max	None	None	C-Max		None	None			
Act Effct Green (s)	9.0		31.0	114.0	16.0	46.4		78.0	78.0			
Actuated g/C Ratio	0.06		0.22	0.81	0.11	0.33		0.56	0.56			
v/c Ratio	0.10		1.12	0.83	1.23	0.88		1.26	1.24			
Control Delay	63.9		116.4	14.7	188.4	51.2		157.0	149.3			
Queue Delay	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Total Delay	63.9		116.4	14.7	188.4	51.2		157.0	149.3			
LOS	E		F	B	F	D		F	F			
Approach Delay			69.9			71.0			153.3			
Approach LOS			E			E			F			

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 170			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.26			
Intersection Signal Delay: 98.1		Intersection LOS: F	
Intersection Capacity Utilization 98.3%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 127: US 74 & Metro Medical Center



Lane Group	SBR
Minimum Split (s)	
Total Split (s)	0.0
Total Split (%)	0.0%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	2.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Act Effct Green (s)	140.0
Actuated g/C Ratio	1.00
v/c Ratio	0.03
Control Delay	0.0
Queue Delay	0.0
Total Delay	0.0
LOS	A
Approach Delay	
Approach LOS	

Intersection Summary

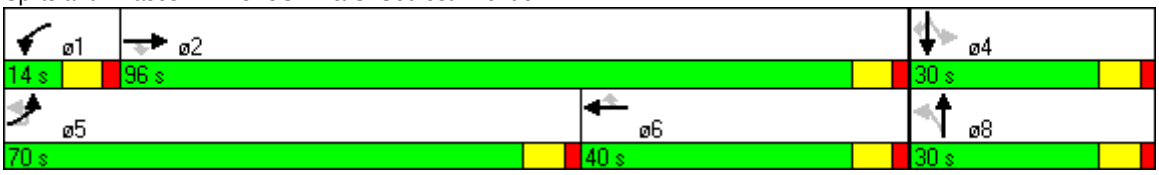
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	19	300	1044	36	9	1313	249	47	238	9	109	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850			0.850		0.996			
Flt Protected		0.950			0.950				0.992			0.974
Satd. Flow (prot)	0	1736	3471	1553	1736	3471	1553	0	1840	0	0	1814
Flt Permitted		0.062			0.950				0.508			0.335
Satd. Flow (perm)	0	113	3471	1553	1736	3471	1553	0	942	0	0	624
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			55			55			35			35
Link Distance (ft)			411			374			242			283
Travel Time (s)			5.1			4.6			4.7			5.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%
Adj. Flow (vph)	21	333	1160	40	10	1459	277	52	264	10	121	110
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	354	1160	40	10	1459	277	0	326	0	0	231
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			12			12			0			0
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1	1	2	1	1	2	1	1	2		1	2
Detector Template	Left	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru
Leading Detector (ft)	20	20	100	20	20	100	20	20	100		20	100
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0		0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0		0	0
Detector 1 Size(ft)	20	20	6	20	20	6	20	20	6		20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)			94			94			94			94
Detector 2 Size(ft)			6			6			6			6
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			0.0
Turn Type	custom	Prot		Perm	Prot		Perm	Perm			Perm	
Protected Phases		5	2		1	6			8			4
Permitted Phases	5			2			6	8			4	
Detector Phase	5	5	2	2	1	6	6	8	8		4	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	14.0	14.0	7.0	14.0	14.0	7.0	7.0		7.0	7.0

Lane Group	SBR
Lane Configurations	
Volume (vph)	165
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	2%
Adj. Flow (vph)	183
Shared Lane Traffic (%)	
Lane Group Flow (vph)	183
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Detector Phase	4
Switch Phase	
Minimum Initial (s)	7.0

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Minimum Split (s)	14.0	14.0	21.0	21.0	14.0	21.0	21.0	14.0	14.0		14.0	14.0
Total Split (s)	70.0	70.0	96.0	96.0	14.0	40.0	40.0	30.0	30.0	0.0	30.0	30.0
Total Split (%)	50.0%	50.0%	68.6%	68.6%	10.0%	28.6%	28.6%	21.4%	21.4%	0.0%	21.4%	21.4%
Maximum Green (s)	63.0	63.0	89.0	89.0	7.0	33.0	33.0	23.0	23.0		23.0	23.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Time Before Reduce (s)	0.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0	0.0		0.0	0.0
Time To Reduce (s)	0.0	0.0	50.0	50.0	0.0	50.0	50.0	0.0	0.0		0.0	0.0
Recall Mode	None	None	C-Min	C-Min	None	C-Min	C-Min	None	None		None	None
Act Effct Green (s)		65.0	102.2	102.2	9.0	35.0	35.0		25.0			25.0
Actuated g/C Ratio		0.46	0.73	0.73	0.06	0.25	0.25		0.18			0.18
v/c Ratio		6.81	0.46	0.04	0.09	1.68	0.71		1.94			2.08
Control Delay		2661.7	8.9	6.4	63.7	344.5	59.5		474.5			544.2
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0
Total Delay		2661.7	8.9	6.4	63.7	344.5	59.5		474.5			544.2
LOS		F	A	A	E	F	E		F			F
Approach Delay			613.2			297.7			474.5			332.4
Approach LOS			F			F			F			F

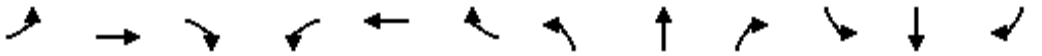
Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 6.81			
Intersection Signal Delay: 436.8		Intersection LOS: F	
Intersection Capacity Utilization 96.5%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 128: US 74 & S. Secrest Avenue



Lane Group	SBR
Minimum Split (s)	14.0
Total Split (s)	30.0
Total Split (%)	21.4%
Maximum Green (s)	23.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Minimum Gap (s)	3.0
Time Before Reduce (s)	0.0
Time To Reduce (s)	0.0
Recall Mode	None
Act Effct Green (s)	25.0
Actuated g/C Ratio	0.18
v/c Ratio	0.65
Control Delay	65.1
Queue Delay	0.0
Total Delay	65.1
LOS	E
Approach Delay	
Approach LOS	

Intersection Summary

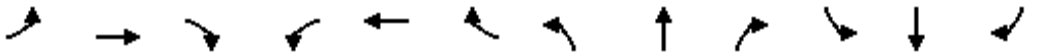


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	109	1102	32	6	1367	101	20	18	3	59	20	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.990			0.991				0.850
Flt Protected	0.950			0.950				0.976			0.964	
Satd. Flow (prot)	1736	3457	0	1736	3436	0	0	1802	0	0	1796	1583
Flt Permitted	0.950			0.950				0.767			0.790	
Satd. Flow (perm)	1736	3457	0	1736	3436	0	0	1416	0	0	1472	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			20			25	
Link Distance (ft)		245			259			179			276	
Travel Time (s)		4.8			5.0			6.1			7.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	121	1224	36	7	1519	112	22	20	3	66	22	88
Shared Lane Traffic (%)												
Lane Group Flow (vph)	121	1260	0	7	1631	0	0	45	0	0	88	88
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		pm+ov
Protected Phases	5	2		1	6			8			4	5
Permitted Phases							8			4		4
Detector Phase	5	2		1	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	17.0		14.0	17.0		14.0	14.0		14.0	14.0	14.0
Total Split (s)	25.0	106.0	0.0	14.0	95.0	0.0	20.0	20.0	0.0	20.0	20.0	25.0
Total Split (%)	17.9%	75.7%	0.0%	10.0%	67.9%	0.0%	14.3%	14.3%	0.0%	14.3%	14.3%	17.9%
Maximum Green (s)	18.0	99.0		7.0	88.0		13.0	13.0		13.0	13.0	18.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None
Act Effct Green (s)	16.5	112.8		9.0	94.1			14.4			14.4	35.9
Actuated g/C Ratio	0.12	0.81		0.06	0.67			0.10			0.10	0.26
v/c Ratio	0.59	0.45		0.06	0.71			0.31			0.58	0.22
Control Delay	70.2	5.4		63.0	17.3			63.2			75.1	40.9
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Delay	70.2	5.4		63.0	17.3			63.2			75.1	40.9
LOS	E	A		E	B			E			E	D
Approach Delay		11.1			17.5			63.2			58.0	
Approach LOS		B			B			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 17.6		Intersection LOS: B	
Intersection Capacity Utilization 68.4%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 129: US 74 & Bivens Street

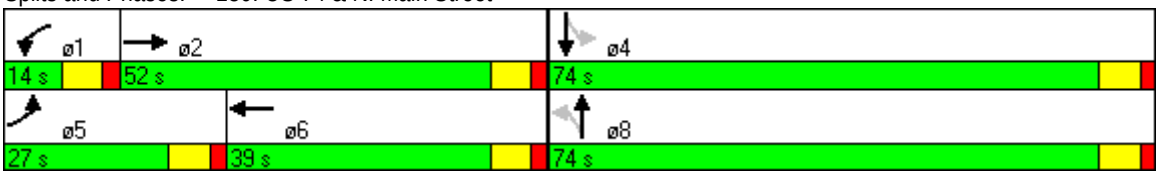


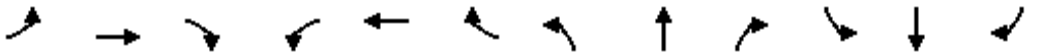
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	374	789	43	51	1007	101	54	439	51	77	336	362
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992			0.986			0.987			0.922	
Flt Protected	0.950			0.950				0.995		0.950		
Satd. Flow (prot)	1736	3443	0	1736	3423	0	0	1829	0	1770	1717	0
Flt Permitted	0.950			0.950				0.397		0.345		
Satd. Flow (perm)	1736	3443	0	1736	3423	0	0	730	0	643	1717	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		282			333			173			197	
Travel Time (s)		5.5			6.5			3.4			3.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	416	877	48	57	1119	112	60	488	57	86	373	402
Shared Lane Traffic (%)												
Lane Group Flow (vph)	416	925	0	57	1231	0	0	605	0	86	775	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	17.0		14.0	17.0		14.0	14.0		14.0	14.0	
Total Split (s)	27.0	52.0	0.0	14.0	39.0	0.0	74.0	74.0	0.0	74.0	74.0	0.0
Total Split (%)	19.3%	37.1%	0.0%	10.0%	27.9%	0.0%	52.9%	52.9%	0.0%	52.9%	52.9%	0.0%
Maximum Green (s)	20.0	45.0		7.0	32.0		67.0	67.0		67.0	67.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	None		None	None		None	None	
Act Effct Green (s)	22.0	49.8		9.0	34.0			69.0		69.0	69.0	
Actuated g/C Ratio	0.16	0.36		0.06	0.24			0.49		0.49	0.49	
v/c Ratio	1.52	0.76		0.51	1.48			1.68		0.27	0.92	
Control Delay	292.5	45.3		79.7	260.4			345.2		23.7	49.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	292.5	45.3		79.7	260.4			345.2		23.7	49.8	
LOS	F	D		E	F			F		C	D	
Approach Delay		122.0			252.4			345.2			47.2	
Approach LOS		F			F			F			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT, Start of Green			
Natural Cycle: 170			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.68			
Intersection Signal Delay: 180.2		Intersection LOS: F	
Intersection Capacity Utilization 136.1%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 130: US 74 & N. Main Street





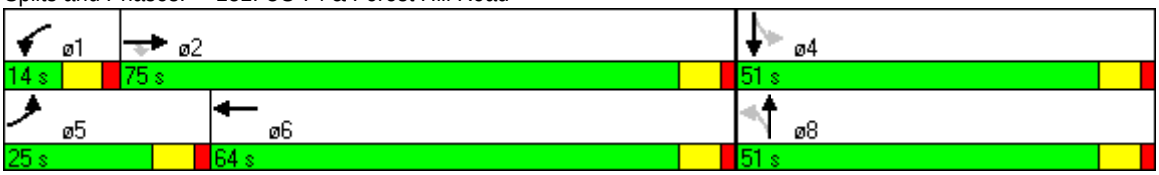
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	109	743	111	34	916	11	120	26	30	11	31	137
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.998			0.977			0.896	
Flt Protected	0.950			0.950				0.967			0.997	
Satd. Flow (prot)	1736	3471	1553	1736	3464	0	0	1678	0	0	1632	0
Flt Permitted	0.950			0.950				0.522			0.976	
Satd. Flow (perm)	1736	3471	1553	1736	3464	0	0	906	0	0	1598	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			35	
Link Distance (ft)		576			646			376			353	
Travel Time (s)		7.1			8.0			4.7			6.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	7%	7%	7%	4%	4%	4%
Adj. Flow (vph)	121	826	123	38	1018	12	133	29	33	12	34	152
Shared Lane Traffic (%)												
Lane Group Flow (vph)	121	826	123	38	1030	0	0	195	0	0	198	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		Perm	Prot			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8			4		
Detector Phase	5	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	14.0	14.0	7.0	14.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	21.0	21.0	14.0	21.0		14.0	14.0		14.0	14.0	
Total Split (s)	25.0	75.0	75.0	14.0	64.0	0.0	51.0	51.0	0.0	51.0	51.0	0.0
Total Split (%)	17.9%	53.6%	53.6%	10.0%	45.7%	0.0%	36.4%	36.4%	0.0%	36.4%	36.4%	0.0%
Maximum Green (s)	18.0	68.0	68.0	7.0	57.0		44.0	44.0		44.0	44.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	
Act Effct Green (s)	16.5	83.9	83.9	9.9	74.5			33.9			33.9	
Actuated g/C Ratio	0.12	0.60	0.60	0.07	0.53			0.24			0.24	
v/c Ratio	0.59	0.40	0.13	0.31	0.56			0.89			0.51	
Control Delay	69.9	17.5	15.6	68.6	25.4			87.4			49.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Delay	69.9	17.5	15.6	68.6	25.4			87.4			49.0	
LOS	E	B	B	E	C			F			D	
Approach Delay		23.2			27.0			87.4			49.0	
Approach LOS		C			C			F			D	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 31.8 Intersection LOS: C
Intersection Capacity Utilization 68.9% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 131: US 74 & Forest Hill Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	527	58	305	237	31	80	138	4382	478	220	3483	325
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1719	3438	1538	1719	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	1719	3438	1538	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			45			55			55	
Link Distance (ft)		1096			1168			1536			3465	
Travel Time (s)		21.4			17.7			19.0			43.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	586	64	339	263	34	89	153	4869	531	244	3870	361
Shared Lane Traffic (%)												
Lane Group Flow (vph)	586	64	339	263	34	89	153	4869	531	244	3870	361
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	1	6	7	5	2	3
Permitted Phases			4			8			6			2
Detector Phase	7	4	5	3	8	1	1	6	7	5	2	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	14.0	7.0	7.0	14.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0	14.0	14.0	21.0	14.0	14.0	21.0	14.0
Total Split (s)	21.0	14.0	18.0	21.0	14.0	15.0	15.0	87.0	21.0	18.0	90.0	21.0
Total Split (%)	15.0%	10.0%	12.9%	15.0%	10.0%	10.7%	10.7%	62.1%	15.0%	12.9%	64.3%	15.0%
Maximum Green (s)	14.0	7.0	11.0	14.0	7.0	8.0	8.0	80.0	14.0	11.0	83.0	14.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	18.8	9.0	27.0	16.0	9.0	21.2	12.8	82.0	105.8	15.8	85.0	106.0
Actuated g/C Ratio	0.13	0.06	0.19	0.11	0.06	0.15	0.09	0.59	0.76	0.11	0.61	0.76
v/c Ratio	1.27	0.28	1.11	0.67	0.15	0.37	0.97	2.42	0.46	1.26	1.85	0.31
Control Delay	185.2	65.8	135.7	68.7	63.6	57.8	127.0	658.9	8.2	198.1	409.2	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	185.2	65.8	135.7	68.7	63.6	57.8	127.0	658.9	8.2	198.1	409.2	6.2
LOS	F	E	F	E	E	E	F	F	A	F	F	A
Approach Delay		160.5			65.7			582.1			365.2	
Approach LOS		F			E			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 2.42			
Intersection Signal Delay: 442.9		Intersection LOS: F	
Intersection Capacity Utilization 167.5%		ICU Level of Service H	
Analysis Period (min) 15			

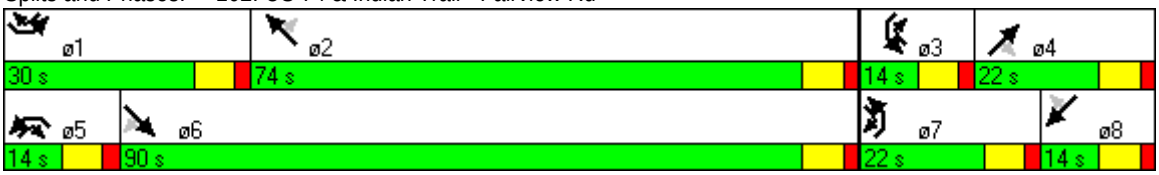
Splits and Phases: 101: Stallings Road & US 74

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	613	2080	394	82	1704	193	408	261	104	133	137	335
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3335	3438	1538	1719	3438	1538	3335	3438	1538	3335	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3438	1538	1719	3438	1538	3335	3438	1538	3335	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			35			35	
Link Distance (ft)		2103			2380			902			1112	
Travel Time (s)		26.1			29.5			17.6			21.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	681	2311	438	91	1893	214	453	290	116	148	152	372
Shared Lane Traffic (%)												
Lane Group Flow (vph)	681	2311	438	91	1893	214	453	290	116	148	152	372
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	7.0	14.0	7.0	7.0	14.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	21.0	14.0	14.0	21.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	30.0	90.0	22.0	14.0	74.0	14.0	22.0	22.0	14.0	14.0	14.0	30.0
Total Split (%)	21.4%	64.3%	15.7%	10.0%	52.9%	10.0%	15.7%	15.7%	10.0%	10.0%	10.0%	21.4%
Maximum Green (s)	23.0	83.0	15.0	7.0	67.0	7.0	15.0	15.0	7.0	7.0	7.0	23.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	25.0	85.0	107.0	9.0	69.0	83.0	17.0	17.0	31.0	9.0	9.0	39.0
Actuated g/C Ratio	0.18	0.61	0.76	0.06	0.49	0.59	0.12	0.12	0.22	0.06	0.06	0.28
v/c Ratio	1.14	1.11	0.37	0.82	1.12	0.23	1.12	0.70	0.34	0.69	0.69	0.87
Control Delay	133.3	83.6	6.5	111.1	95.5	14.3	135.5	68.6	49.3	81.2	80.4	69.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	133.3	83.6	6.5	111.1	95.5	14.3	135.5	68.6	49.3	81.2	80.4	69.3
LOS	F	F	A	F	F	B	F	E	D	F	F	E
Approach Delay		83.6			88.3			101.3			74.4	
Approach LOS		F			F			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 170			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.14			
Intersection Signal Delay: 86.3		Intersection LOS: F	
Intersection Capacity Utilization 98.7%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 102: US 74 & Indian Trail - Fairview Rd

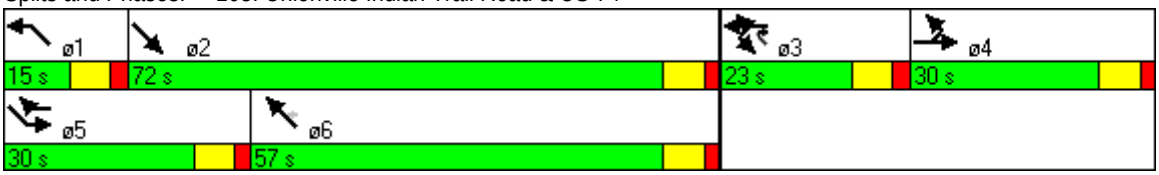


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	56	364	238	322	151	396	682	1661	40	139	1361	454
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Frt		0.946				0.850		0.997				0.850
Flt Protected		0.996		0.950	0.982		0.950			0.950		
Satd. Flow (prot)	0	3302	0	1665	1721	1568	3335	3428	0	1719	3438	1538
Flt Permitted		0.996		0.950	0.982		0.950			0.950		
Satd. Flow (perm)	0	3302	0	1665	1721	1568	3335	3428	0	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			45			55			55	
Link Distance (ft)		795			1304			1032			1062	
Travel Time (s)		15.5			19.8			12.8			13.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	62	404	264	358	168	440	758	1846	44	154	1512	504
Shared Lane Traffic (%)				28%								
Lane Group Flow (vph)	0	730	0	258	268	440	758	1890	0	154	1512	504
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pt+ov	Prot			Prot		pm+ov
Protected Phases	4	4		3	3	3 5	5	2		1	6	3
Permitted Phases												6
Detector Phase	4	4		3	3	3 5	5	2		1	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	14.0		7.0	14.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	21.0		14.0	21.0	14.0
Total Split (s)	30.0	30.0	0.0	23.0	23.0	53.0	30.0	72.0	0.0	15.0	57.0	23.0
Total Split (%)	21.4%	21.4%	0.0%	16.4%	16.4%	37.9%	21.4%	51.4%	0.0%	10.7%	40.7%	16.4%
Maximum Green (s)	23.0	23.0		16.0	16.0		23.0	65.0		8.0	50.0	16.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	None
Act Effct Green (s)		25.0		18.0	18.0	43.0	25.0	67.0		10.0	52.0	75.0
Actuated g/C Ratio		0.18		0.13	0.13	0.31	0.18	0.48		0.07	0.37	0.54
v/c Ratio		1.24		1.21	1.21	0.91	1.27	1.15		1.25	1.18	0.61
Control Delay		167.6		178.3	179.8	55.8	180.7	110.1		214.4	130.3	26.5
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay		167.6		178.3	179.8	55.8	180.7	110.1		214.4	130.3	26.5
LOS		F		F	F	E	F	F		F	F	C
Approach Delay		167.6			122.9			130.3			112.2	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 170			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.27			
Intersection Signal Delay: 127.4		Intersection LOS: F	
Intersection Capacity Utilization 105.9%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 103: Unionville Indian Trail Road & US 74

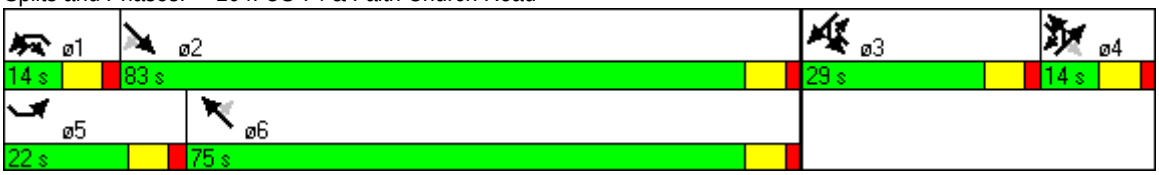


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	199	2025	40	53	1634	201	24	7	39	320	14	256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.858	
Flt Protected	0.950			0.950				0.963		0.950		
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	0	1679	1482	1770	1598	0
Flt Permitted	0.950			0.950				0.963		0.950		
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	0	1679	1482	1770	1598	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			15			35	
Link Distance (ft)		1177			2588			625			368	
Travel Time (s)		14.6			32.1			28.4			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	9%	9%	9%	2%	2%	2%
Adj. Flow (vph)	221	2250	44	59	1816	223	27	8	43	356	16	284
Shared Lane Traffic (%)												
Lane Group Flow (vph)	221	2250	44	59	1816	223	0	35	43	356	300	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	5	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	5	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Split		pm+ov	Split		
Protected Phases	5	2	4	1	6	3	4	4	1	3	3	
Permitted Phases			2			6			4			
Detector Phase	5	2	4	1	6	3	4	4	1	3	3	
Switch Phase												
Minimum Initial (s)	7.0	14.0	7.0	7.0	14.0	7.0	7.0	7.0	7.0	7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	21.0	14.0	14.0	21.0	14.0	14.0	14.0	14.0	14.0	14.0	
Total Split (s)	22.0	83.0	14.0	14.0	75.0	29.0	14.0	14.0	14.0	29.0	29.0	0.0
Total Split (%)	15.7%	59.3%	10.0%	10.0%	53.6%	20.7%	10.0%	10.0%	10.0%	20.7%	20.7%	0.0%
Maximum Green (s)	15.0	76.0	7.0	7.0	68.0	22.0	7.0	7.0	7.0	22.0	22.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	
Act Effct Green (s)	19.4	83.6	90.8	9.0	70.4	99.4		9.0	20.2	24.0	24.0	
Actuated g/C Ratio	0.14	0.60	0.65	0.06	0.50	0.71		0.06	0.14	0.17	0.17	
v/c Ratio	0.92	1.10	0.04	0.53	1.05	0.20		0.32	0.20	1.17	1.09	
Control Delay	101.4	80.4	5.7	81.2	70.6	7.5		71.1	53.2	157.2	134.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	101.4	80.4	5.7	81.2	70.6	7.5		71.1	53.2	157.2	134.8	
LOS	F	F	A	F	E	A		E	D	F	F	
Approach Delay		80.9			64.2			61.2			147.0	
Approach LOS		F			E			E			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.17			
Intersection Signal Delay: 82.2		Intersection LOS: F	
Intersection Capacity Utilization 98.7%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 104: US 74 & Faith Church Road



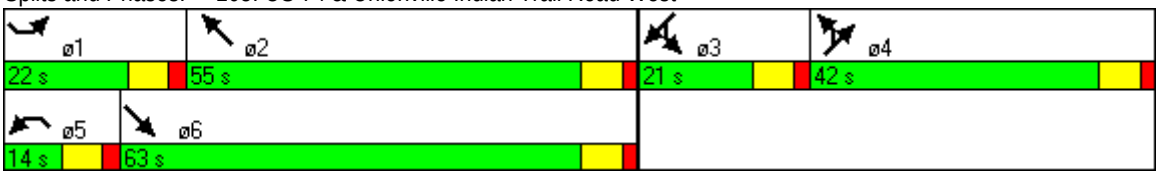
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	306	1300	727	132	964	315	783	193	191	251	106	181
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.946			0.963			0.925			0.905	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3252	0	1719	3311	0	1770	1723	0	1770	1686	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3252	0	1719	3311	0	1770	1723	0	1770	1686	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		606			973			698			813	
Travel Time (s)		7.5			12.1			10.6			12.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	340	1444	808	147	1071	350	870	214	212	279	118	201
Shared Lane Traffic (%)												
Lane Group Flow (vph)	340	2252	0	147	1421	0	870	426	0	279	319	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	5	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	5	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Split			Split		
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases												
Detector Phase	1	6		5	2		4	4		3	3	
Switch Phase												
Minimum Initial (s)	7.0	14.0		7.0	14.0		7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	21.0		14.0	21.0		14.0	14.0		14.0	14.0	
Total Split (s)	22.0	63.0	0.0	14.0	55.0	0.0	42.0	42.0	0.0	21.0	21.0	0.0
Total Split (%)	15.7%	45.0%	0.0%	10.0%	39.3%	0.0%	30.0%	30.0%	0.0%	15.0%	15.0%	0.0%
Maximum Green (s)	15.0	56.0		7.0	48.0		35.0	35.0		14.0	14.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	17.0	58.0		9.0	50.0		37.0	37.0		16.0	16.0	
Actuated g/C Ratio	0.12	0.41		0.06	0.36		0.26	0.26		0.11	0.11	
v/c Ratio	1.63	1.67		1.32	1.20		1.86	0.94		1.38	1.65	
Control Delay	340.3	334.7		243.5	138.4		424.5	79.3		243.6	352.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	340.3	334.7		243.5	138.4		424.5	79.3		243.6	352.8	
LOS	F	F		F	F		F	E		F	F	
Approach Delay		335.4			148.3			311.0			301.9	
Approach LOS		F			F			F			F	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 180
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.86
Intersection Signal Delay: 278.4 Intersection LOS: F
Intersection Capacity Utilization 143.3% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 105: US 74 & Unionville Indian Trail Road West

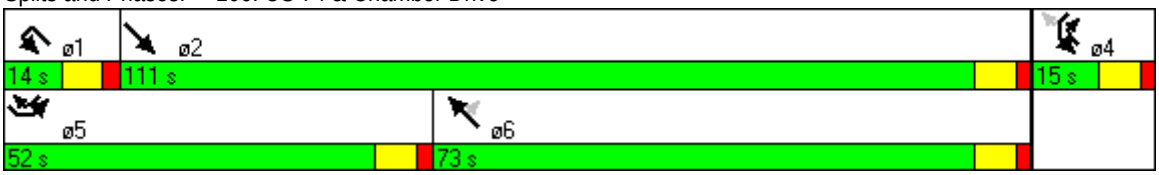


Lane Group	SEL	SET	NWU	NWT	NWR	SWL	SWR
Lane Configurations							
Volume (vph)	372	1448	10	1224	125	52	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Frt					0.850		0.850
Flt Protected	0.950		0.950			0.950	
Satd. Flow (prot)	1719	3438	1719	3438	1538	1770	1583
Flt Permitted	0.950		0.950			0.950	
Satd. Flow (perm)	1719	3438	1719	3438	1538	1770	1583
Right Turn on Red					No		No
Satd. Flow (RTOR)							
Link Speed (mph)		55		55		35	
Link Distance (ft)		2407		1378		1258	
Travel Time (s)		29.8		17.1		24.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	2%	2%
Adj. Flow (vph)	413	1609	11	1360	139	58	144
Shared Lane Traffic (%)							
Lane Group Flow (vph)	413	1609	11	1360	139	58	144
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Left	R NA	Left	Right	Left	Right
Median Width(ft)		12		12		12	
Link Offset(ft)		0		0		0	
Crosswalk Width(ft)		0		0		0	
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9		9	15	9
Number of Detectors	1	2	1	2	1	1	1
Detector Template	Left	Thru	Left	Thru	Right	Left	Right
Leading Detector (ft)	20	100	20	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94		94			
Detector 2 Size(ft)		6		6			
Detector 2 Type		Cl+Ex		Cl+Ex			
Detector 2 Channel							
Detector 2 Extend (s)		0.0		0.0			
Turn Type	Prot		Prot		pm+ov		pm+ov
Protected Phases	5	2	1	6	4	4	5
Permitted Phases					6		4
Detector Phase	5	2	1	6	4	4	5
Switch Phase							
Minimum Initial (s)	7.0	14.0	7.0	14.0	7.0	7.0	7.0

Lane Group	SEL	SET	NWU	NWT	NWR	SWL	SWR
Minimum Split (s)	14.0	21.0	14.0	21.0	14.0	14.0	14.0
Total Split (s)	52.0	111.0	14.0	73.0	15.0	15.0	52.0
Total Split (%)	37.1%	79.3%	10.0%	52.1%	10.7%	10.7%	37.1%
Maximum Green (s)	45.0	104.0	7.0	66.0	8.0	8.0	45.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag			Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	C-Max	None	None	None
Act Effct Green (s)	40.1	114.6	9.0	75.1	89.9	9.8	54.9
Actuated g/C Ratio	0.29	0.82	0.06	0.54	0.64	0.07	0.39
v/c Ratio	0.84	0.57	0.10	0.74	0.14	0.47	0.23
Control Delay	62.2	6.1	63.9	29.1	11.4	75.4	28.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.2	6.1	63.9	29.1	11.4	75.4	28.3
LOS	E	A	E	C	B	E	C
Approach Delay		17.5		27.7		41.8	
Approach LOS		B		C		D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 23.0		Intersection LOS: C	
Intersection Capacity Utilization 72.8%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 106: US 74 & Chamber Drive

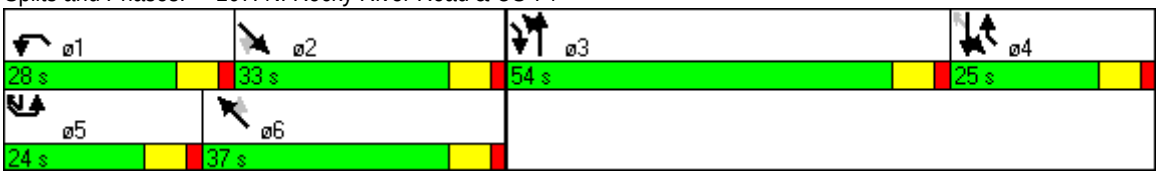


Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	433	123	274	189	141	193	294	692	753	375	546	228
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.955				0.850			0.850			0.850
Flt Protected		0.975			0.972		0.950			0.950		
Satd. Flow (prot)	0	1734	0	0	1811	1583	1719	3438	1538	1719	3438	1538
Flt Permitted		0.975			0.972		0.950			0.950		
Satd. Flow (perm)	0	1734	0	0	1811	1583	1719	3438	1538	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		1176			418			3021			3350	
Travel Time (s)		17.8			6.3			37.5			41.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	481	137	304	210	157	214	327	769	837	417	607	253
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	922	0	0	367	214	327	769	837	417	607	253
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	3	3		4	4	5	5	2	3	1	6	4
Permitted Phases						4			2			6
Detector Phase	3	3		4	4	5	5	2	3	1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	14.0	7.0	7.0	14.0	7.0

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0	14.0	14.0	21.0	14.0	14.0	21.0	14.0
Total Split (s)	54.0	54.0	0.0	25.0	25.0	24.0	24.0	33.0	54.0	28.0	37.0	25.0
Total Split (%)	38.6%	38.6%	0.0%	17.9%	17.9%	17.1%	17.1%	23.6%	38.6%	20.0%	26.4%	17.9%
Maximum Green (s)	47.0	47.0		18.0	18.0	17.0	17.0	26.0	47.0	21.0	30.0	18.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead		Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)		49.0			20.0	44.0	19.0	28.0	82.0	23.0	32.0	52.0
Actuated g/C Ratio		0.35			0.14	0.31	0.14	0.20	0.59	0.16	0.23	0.37
v/c Ratio		1.52			1.42	0.43	1.40	1.12	0.93	1.48	0.77	0.44
Control Delay		275.1			251.2	41.4	248.2	121.7	44.3	273.5	58.3	21.3
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		275.1			251.2	41.4	248.2	121.7	44.3	273.5	58.3	21.3
LOS		F			F	D	F	F	D	F	E	C
Approach Delay		275.1			173.9			109.6			121.2	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.52			
Intersection Signal Delay: 153.0		Intersection LOS: F	
Intersection Capacity Utilization 121.6%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 107: N. Rocky River Road & US 74



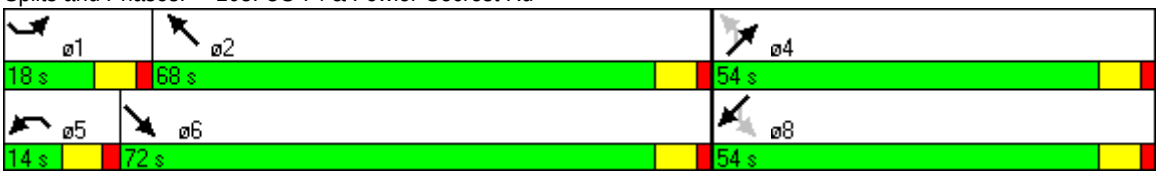
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	85	1169	29	58	936	173	33	120	83	138	66	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.977			0.953			0.972	
Flt Protected	0.950			0.950				0.993			0.974	
Satd. Flow (prot)	1719	3424	0	1719	3359	0	0	1763	0	0	1764	0
Flt Permitted	0.950			0.950				0.916			0.570	
Satd. Flow (perm)	1719	3424	0	1719	3359	0	0	1626	0	0	1032	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		2601			2354			277			1205	
Travel Time (s)		39.4			35.7			5.4			18.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	94	1299	32	64	1040	192	37	133	92	153	73	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	94	1331	0	64	1232	0	0	262	0	0	286	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		
Detector Phase	1	6		5	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	18.0	72.0	0.0	14.0	68.0	0.0	54.0	54.0	0.0	54.0	54.0	0.0
Total Split (%)	12.9%	51.4%	0.0%	10.0%	48.6%	0.0%	38.6%	38.6%	0.0%	38.6%	38.6%	0.0%
Maximum Green (s)	11.0	65.0		7.0	61.0		47.0	47.0		47.0	47.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	12.7	75.2		10.1	69.8			42.5			42.5	
Actuated g/C Ratio	0.09	0.54		0.07	0.50			0.30			0.30	
v/c Ratio	0.60	0.72		0.51	0.74			0.53			0.91	
Control Delay	77.4	29.7		77.7	32.6			43.7			79.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	77.4	29.7		77.7	32.6			43.7			79.4	
LOS	E	C		E	C			D			E	
Approach Delay		32.8			34.8			43.7			79.4	
Approach LOS		C			C			D			E	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 38.6 Intersection LOS: D
Intersection Capacity Utilization 83.3% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 108: US 74 & Fowler-Secrest Rd



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	74	1251	157	16	1028	9	124	13	15	7	10	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00											
Frt		0.983				0.850		0.986			0.901	
Flt Protected	0.950			0.950				0.961			0.994	
Satd. Flow (prot)	1719	3380	0	1719	3266	1538	0	1765	0	0	1668	0
Flt Permitted	0.950			0.950				0.701			0.965	
Satd. Flow (perm)	1717	3380	0	1719	3266	1538	0	1288	0	0	1620	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		309			978			474			425	
Travel Time (s)		4.7			14.8			12.9			11.6	
Confl. Peds. (#/hr)	1											
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Parking (#/hr)					0							
Adj. Flow (vph)	82	1390	174	18	1142	10	138	14	17	8	11	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	82	1564	0	18	1142	10	0	169	0	0	71	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.07	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot		Perm	Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases						2	4			8		

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector Phase	1	6		5	2	2	4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	12.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	19.0		14.0	19.0	19.0	14.0	14.0		14.0	14.0	
Total Split (s)	18.0	90.0	0.0	14.0	86.0	86.0	36.0	36.0	0.0	36.0	36.0	0.0
Total Split (%)	12.9%	64.3%	0.0%	10.0%	61.4%	61.4%	25.7%	25.7%	0.0%	25.7%	25.7%	0.0%
Maximum Green (s)	11.0	83.0		7.0	79.0	79.0	29.0	29.0		29.0	29.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		None	None	
Act Effct Green (s)	12.7	99.6		9.2	87.7	87.7		24.6			24.6	
Actuated g/C Ratio	0.09	0.71		0.07	0.63	0.63		0.18			0.18	
v/c Ratio	0.53	0.65		0.16	0.56	0.01		0.75			0.25	
Control Delay	72.8	14.7		65.2	17.4	12.2		74.0			50.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	
Total Delay	72.8	14.7		65.2	17.4	12.2		74.0			50.1	
LOS	E	B		E	B	B		E			D	
Approach Delay		17.6			18.0			74.0			50.1	
Approach LOS		B			B			E			D	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 21.6 Intersection LOS: C
Intersection Capacity Utilization 73.0% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 110: US 74 & Rolling Hill Drive

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	133	10	150	95	10	84	79	1056	125	113	847	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.859			0.940			0.984				0.850
Flt Protected	0.950				0.975		0.950			0.950		
Satd. Flow (prot)	1770	1600	0	0	1707	0	1719	3383	0	1719	3438	1538
Flt Permitted	0.592				0.638		0.950			0.950		
Satd. Flow (perm)	1103	1600	0	0	1117	0	1719	3383	0	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		510			371			748			991	
Travel Time (s)		13.9			10.1			11.3			15.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	148	11	167	106	11	93	88	1173	139	126	941	80
Shared Lane Traffic (%)												
Lane Group Flow (vph)	148	178	0	0	210	0	88	1312	0	126	941	80
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm			Perm			Prot			Prot		Perm
Protected Phases		3			8		1	6		5	2	
Permitted Phases	3			8								2
Detector Phase	3	3		8	8		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	12.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0		14.0	19.0	19.0
Total Split (s)	45.0	45.0	0.0	45.0	45.0	0.0	19.0	72.0	0.0	23.0	76.0	76.0
Total Split (%)	32.1%	32.1%	0.0%	32.1%	32.1%	0.0%	13.6%	51.4%	0.0%	16.4%	54.3%	54.3%
Maximum Green (s)	38.0	38.0		38.0	38.0		12.0	65.0		16.0	69.0	69.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?								Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	Max		None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	40.0	40.0			40.0		12.8	68.9		16.1	72.2	72.2
Actuated g/C Ratio	0.29	0.29			0.29		0.09	0.49		0.12	0.52	0.52
v/c Ratio	0.47	0.39			0.66		0.56	0.79		0.64	0.53	0.10
Control Delay	47.2	43.3			55.3		74.5	34.1		73.9	24.2	18.2
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	47.2	43.3			55.3		74.5	34.1		73.9	24.2	18.2
LOS	D	D			E		E	C		E	C	B
Approach Delay		45.1			55.3			36.7			29.2	
Approach LOS		D			E			D			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 36.1		Intersection LOS: D	
Intersection Capacity Utilization 76.8%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 111: Roland Drive & US 74

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	134	1108	33	129	916	123	50	51	237	96	22	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996				0.850		0.877				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3424	0	1719	3438	1538	1770	1634	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3424	0	1719	3438	1538	1770	1634	0	1770	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		822			734			281			279	
Travel Time (s)		12.5			11.1			5.5			7.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	149	1231	37	143	1018	137	56	57	263	107	24	96
Shared Lane Traffic (%)												
Lane Group Flow (vph)	149	1268	0	143	1018	137	56	320	0	107	24	96
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot		pm+ov	Split			Split		pm+ov
Protected Phases	1	6		5	2	8	4	4		8	8	1
Permitted Phases						2						8
Detector Phase	1	6		5	2	8	4	4		8	8	1
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	7.0	7.0	7.0		7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0		14.0	19.0	14.0	14.0	14.0		14.0	14.0	14.0
Total Split (s)	25.0	65.0	0.0	20.0	60.0	16.0	39.0	39.0	0.0	16.0	16.0	25.0
Total Split (%)	17.9%	46.4%	0.0%	14.3%	42.9%	11.4%	27.9%	27.9%	0.0%	11.4%	11.4%	17.9%
Maximum Green (s)	18.0	58.0		13.0	53.0	9.0	32.0	32.0		9.0	9.0	18.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	C-Max		None	C-Max	Max	None	None		Max	Max	Max
Act Effct Green (s)	20.0	60.3		14.7	55.0	68.2	31.8	31.8		13.2	13.2	38.2
Actuated g/C Ratio	0.14	0.43		0.10	0.39	0.49	0.23	0.23		0.09	0.09	0.27
v/c Ratio	0.61	0.86		0.79	0.75	0.18	0.14	0.86		0.64	0.14	0.22
Control Delay	67.7	43.3		90.4	41.0	11.4	43.1	74.4		79.6	62.1	42.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	67.7	43.3		90.4	41.0	11.4	43.1	74.4		79.6	62.1	42.1
LOS	E	D		F	D	B	D	E		E	E	D
Approach Delay		45.9			43.3			69.7			61.9	
Approach LOS		D			D			E			E	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 48.7 Intersection LOS: D
Intersection Capacity Utilization 78.6% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 112: US 74 & Williams Road

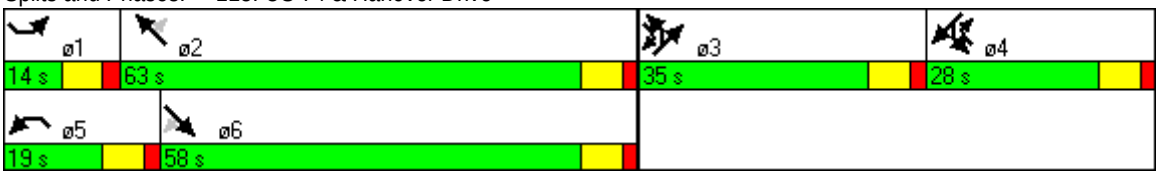
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	15	1303	101	193	1061	467	110	109	257	589	103	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850			0.850		0.895			0.980	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	1752	1651	0	3400	1808	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	1752	1651	0	3400	1808	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		338			529			376			313	
Travel Time (s)		5.1			8.0			7.3			8.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	17	1448	112	214	1179	519	122	121	286	654	114	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	1448	112	214	1179	519	122	407	0	654	132	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Split			Split		
Protected Phases	1	6	3	5	2	4	3	3		4	4	
Permitted Phases			6			2						
Detector Phase	1	6	3	5	2	4	3	3		4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0		14.0	14.0	
Total Split (s)	14.0	58.0	35.0	19.0	63.0	28.0	35.0	35.0	0.0	28.0	28.0	0.0
Total Split (%)	10.0%	41.4%	25.0%	13.6%	45.0%	20.0%	25.0%	25.0%	0.0%	20.0%	20.0%	0.0%
Maximum Green (s)	7.0	51.0	28.0	12.0	56.0	21.0	28.0	28.0		21.0	21.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Act Effct Green (s)	9.0	53.0	88.0	14.0	66.4	92.4	30.0	30.0		23.0	23.0	
Actuated g/C Ratio	0.06	0.38	0.63	0.10	0.47	0.66	0.21	0.21		0.16	0.16	
v/c Ratio	0.15	1.11	0.12	1.24	0.72	0.51	0.33	1.15		1.17	0.44	
Control Delay	65.3	102.2	10.8	199.0	33.8	12.5	49.3	143.3		144.5	58.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	65.3	102.2	10.8	199.0	33.8	12.5	49.3	143.3		144.5	58.2	
LOS	E	F	B	F	C	B	D	F		F	E	
Approach Delay		95.3			46.5			121.6			130.0	
Approach LOS		F			D			F			F	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 160
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.24
Intersection Signal Delay: 84.5 Intersection LOS: F
Intersection Capacity Utilization 101.7% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 113: US 74 & Hanover Drive

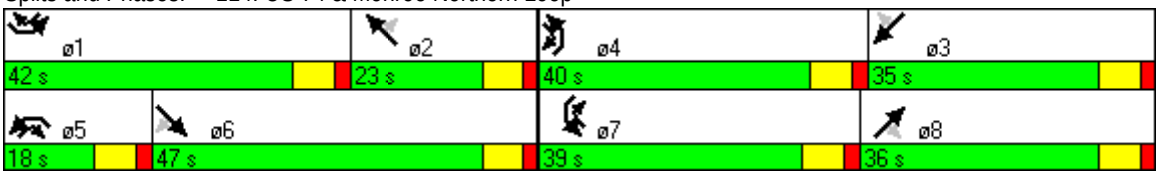


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	972	736	394	134	532	675	482	805	227	715	504	744
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3335	4940	1538	3335	4940	1538	3335	3438	1538	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	4940	1538	3335	4940	1538	3335	3438	1538	3433	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		858			915			405			209	
Travel Time (s)		13.0			13.9			7.9			3.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	2%	2%	2%
Adj. Flow (vph)	1080	818	438	149	591	750	536	894	252	794	560	827
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1080	818	438	149	591	750	536	894	252	794	560	827
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	1	6	4	5	2	7	4	8	5	7	3	1
Permitted Phases			6			2			8			3
Detector Phase	1	6	4	5	2	7	4	8	5	7	3	1
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	42.0	47.0	40.0	18.0	23.0	39.0	40.0	36.0	18.0	39.0	35.0	42.0
Total Split (%)	30.0%	33.6%	28.6%	12.9%	16.4%	27.9%	28.6%	25.7%	12.9%	27.9%	25.0%	30.0%
Maximum Green (s)	35.0	40.0	33.0	11.0	16.0	32.0	33.0	29.0	11.0	32.0	28.0	35.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	37.0	42.7	77.8	12.3	18.0	57.0	30.1	31.0	48.3	34.0	34.9	76.9
Actuated g/C Ratio	0.26	0.30	0.56	0.09	0.13	0.41	0.22	0.22	0.34	0.24	0.25	0.55
v/c Ratio	1.23	0.54	0.51	0.51	0.93	1.20	0.75	1.17	0.47	0.95	0.64	0.95
Control Delay	155.0	42.3	21.4	67.1	82.4	141.1	57.9	139.2	39.4	73.6	51.6	51.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	155.0	42.3	21.4	67.1	82.4	141.1	57.9	139.2	39.4	73.6	51.6	51.8
LOS	F	D	C	E	F	F	E	F	D	E	D	D
Approach Delay		90.5			110.4			98.3			59.7	
Approach LOS		F			F			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.23			
Intersection Signal Delay: 87.3		Intersection LOS: F	
Intersection Capacity Utilization 104.3%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 114: US 74 & Monroe Northern Loop



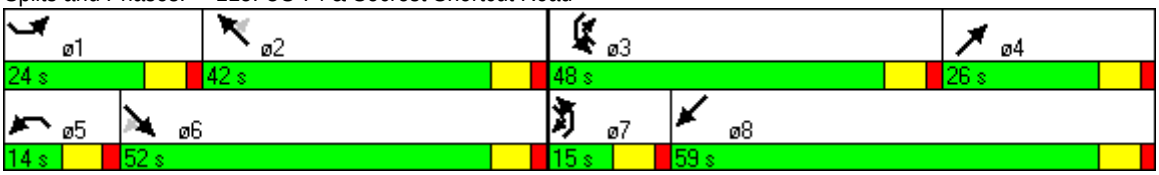
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	209	1429	55	119	1122	519	57	66	157	479	46	151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.894			0.885	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	3335	4940	1538	1770	1665	0	1770	1649	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	3335	4940	1538	1770	1665	0	1770	1649	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		413			1354			238			233	
Travel Time (s)		6.3			20.5			6.5			4.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	232	1588	61	132	1247	577	63	73	174	532	51	168
Shared Lane Traffic (%)												
Lane Group Flow (vph)	232	1588	61	132	1247	577	63	247	0	532	219	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot			Prot		
Protected Phases	1	6	7	5	2	3	7	4		3	8	
Permitted Phases			6			2						
Detector Phase	1	6	7	5	2	3	7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	

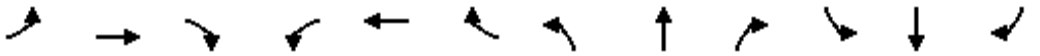
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0		14.0	14.0	
Total Split (s)	24.0	52.0	15.0	14.0	42.0	48.0	15.0	26.0	0.0	48.0	59.0	0.0
Total Split (%)	17.1%	37.1%	10.7%	10.0%	30.0%	34.3%	10.7%	18.6%	0.0%	34.3%	42.1%	0.0%
Maximum Green (s)	17.0	45.0	8.0	7.0	35.0	41.0	8.0	19.0		41.0	52.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Act Effct Green (s)	19.0	47.0	61.8	9.0	37.0	85.0	9.8	21.0		43.0	54.2	
Actuated g/C Ratio	0.14	0.34	0.44	0.06	0.26	0.61	0.07	0.15		0.31	0.39	
v/c Ratio	1.00	0.96	0.09	0.62	0.95	0.62	0.51	0.99		0.98	0.34	
Control Delay	117.6	59.6	23.2	76.8	66.8	20.9	77.6	112.7		81.4	32.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	117.6	59.6	23.2	76.8	66.8	20.9	77.6	112.7		81.4	32.3	
LOS	F	E	C	E	E	C	E	F		F	C	
Approach Delay		65.6			54.0			105.6			67.1	
Approach LOS		E			D			F			E	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.00
Intersection Signal Delay: 63.7 Intersection LOS: E
Intersection Capacity Utilization 89.8% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 115: US 74 & Secrest Shortcut Road



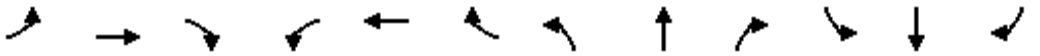


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	259	2033	253	302	1625	155	151	114	225	138	136	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00											
Frt		0.983			0.987			0.901			0.913	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4856	0	1719	4876	0	1770	1678	0	1770	1701	0
Flt Permitted	0.950			0.950			0.267			0.238		
Satd. Flow (perm)	1719	4856	0	1719	4876	0	497	1678	0	443	1701	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		443			590			549			636	
Travel Time (s)		6.7			8.9			15.0			12.4	
Confl. Peds. (#/hr)	1											
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	288	2259	281	336	1806	172	168	127	250	153	151	206
Shared Lane Traffic (%)												
Lane Group Flow (vph)	288	2540	0	336	1978	0	168	377	0	153	357	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Detector Phase	5	2		1	6		4	4		8	8	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	29.0	68.0	0.0	28.0	67.0	0.0	44.0	44.0	0.0	44.0	44.0	0.0
Total Split (%)	20.7%	48.6%	0.0%	20.0%	47.9%	0.0%	31.4%	31.4%	0.0%	31.4%	31.4%	0.0%
Maximum Green (s)	22.0	61.0		21.0	60.0		37.0	37.0		37.0	37.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	24.0	63.0		23.0	62.0		39.0	39.0		39.0	39.0	
Actuated g/C Ratio	0.17	0.45		0.16	0.44		0.28	0.28		0.28	0.28	
v/c Ratio	0.98	1.16		1.19	0.92		1.22	0.81		1.24	0.75	
Control Delay	104.0	114.3		164.8	44.4		189.3	61.6		202.7	57.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	104.0	114.3		164.8	44.4		189.3	61.6		202.7	57.5	
LOS	F	F		F	D		F	E		F	E	
Approach Delay		113.2			61.9			101.0			101.1	
Approach LOS		F			E			F			F	

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 130	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.24	
Intersection Signal Delay: 92.0	Intersection LOS: F
Intersection Capacity Utilization 105.8%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 120: US 74 & Stafford Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	195	2169	117	117	1772	107	159	10	195	53	10	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992			0.991			0.857			0.867	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4900	0	1719	4896	0	1770	1596	0	1770	1615	0
Flt Permitted	0.950			0.950			0.648			0.327		
Satd. Flow (perm)	1719	4900	0	1719	4896	0	1207	1596	0	609	1615	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			20	
Link Distance (ft)		493			536			238			211	
Travel Time (s)		7.5			8.1			6.5			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	217	2410	130	130	1969	119	177	11	217	59	11	87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	217	2540	0	130	2088	0	177	228	0	59	98	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	29.0	88.0	0.0	20.0	79.0	0.0	32.0	32.0	0.0	32.0	32.0	0.0
Total Split (%)	20.7%	62.9%	0.0%	14.3%	56.4%	0.0%	22.9%	22.9%	0.0%	22.9%	22.9%	0.0%
Maximum Green (s)	22.0	81.0		13.0	72.0		25.0	25.0		25.0	25.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	22.3	85.5		14.6	77.8		24.9	24.9		24.9	24.9	
Actuated g/C Ratio	0.16	0.61		0.10	0.56		0.18	0.18		0.18	0.18	
v/c Ratio	0.79	0.85		0.73	0.77		0.82	0.80		0.55	0.34	
Control Delay	77.1	26.2		83.3	27.3		84.1	76.1		71.4	53.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	77.1	26.2		83.3	27.3		84.1	76.1		71.4	53.2	
LOS	E	C		F	C		F	E		E	D	
Approach Delay		30.2			30.6			79.6			60.1	
Approach LOS		C			C			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 34.8		Intersection LOS: C	
Intersection Capacity Utilization 86.1%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 121: US 74 & Boyte Street

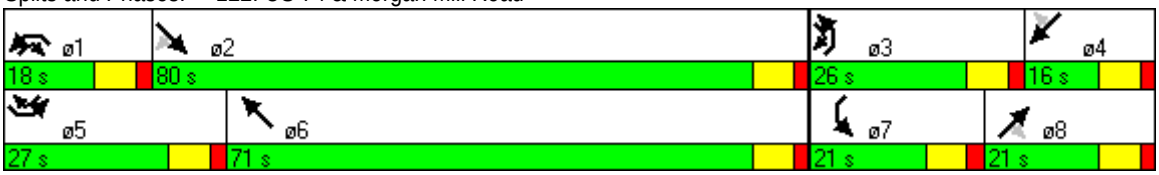
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	193	2080	174	109	1674	163	178	145	139	128	89	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.987				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	1719	4876	0	1687	1776	1509	1687	1776	1509
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	1719	4876	0	1687	1776	1509	1687	1776	1509
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		515			499			502			475	
Travel Time (s)		7.8			7.6			9.8			9.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	7%	7%	7%	7%	7%	7%
Adj. Flow (vph)	214	2311	193	121	1860	181	198	161	154	142	99	134
Shared Lane Traffic (%)												
Lane Group Flow (vph)	214	2311	193	121	2041	0	198	161	154	142	99	134
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot			Prot		pm+ov	Prot		pm+ov
Protected Phases	5	2	3	1	6		3	8	1	7	4	5
Permitted Phases			2						8			4
Detector Phase	5	2	3	1	6		3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0		7.0	7.0	7.0	7.0	7.0	7.0

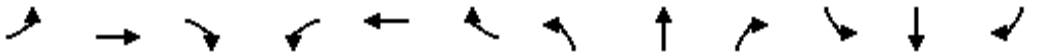
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0		14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	27.0	80.0	26.0	18.0	71.0	0.0	26.0	21.0	18.0	21.0	16.0	27.0
Total Split (%)	19.3%	57.1%	18.6%	12.9%	50.7%	0.0%	18.6%	15.0%	12.9%	15.0%	11.4%	19.3%
Maximum Green (s)	20.0	73.0	19.0	11.0	64.0		19.0	14.0	11.0	14.0	9.0	20.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max		None	None	None	None	None	None
Act Effct Green (s)	21.2	76.1	101.2	12.8	67.7		20.2	15.7	33.5	15.5	11.0	37.1
Actuated g/C Ratio	0.15	0.54	0.72	0.09	0.48		0.14	0.11	0.24	0.11	0.08	0.26
v/c Ratio	0.82	0.86	0.17	0.77	0.87		0.81	0.81	0.43	0.76	0.71	0.34
Control Delay	82.3	32.0	6.6	91.8	37.4		83.1	89.5	49.3	85.6	89.5	43.9
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	82.3	32.0	6.6	91.8	37.4		83.1	89.5	49.3	85.6	89.5	43.9
LOS	F	C	A	F	D		F	F	D	F	F	D
Approach Delay		34.1			40.5			74.9			71.8	
Approach LOS		C			D			E			E	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 42.6 Intersection LOS: D
Intersection Capacity Utilization 79.0% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 122: US 74 & Morgan Mill Road





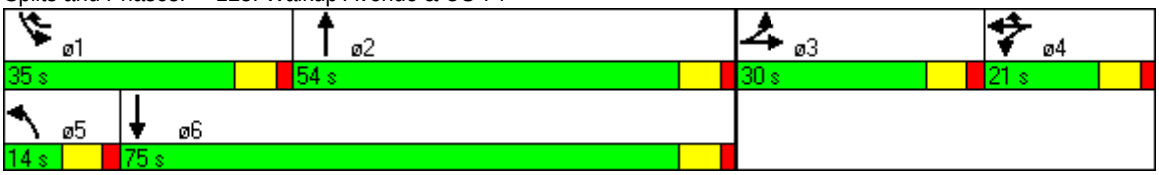
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	70	135	91	43	188	382	92	1504	31	348	1900	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.959				0.850		0.997			0.993	
Flt Protected		0.988		0.950			0.950			0.950		
Satd. Flow (prot)	0	1765	0	1770	1863	1583	1719	4925	0	1719	4905	0
Flt Permitted		0.988		0.950			0.950			0.950		
Satd. Flow (perm)	0	1765	0	1770	1863	1583	1719	4925	0	1719	4905	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		443			502			602			356	
Travel Time (s)		12.1			9.8			9.1			5.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	78	150	101	48	209	424	102	1671	34	387	2111	99
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	329	0	48	209	424	102	1705	0	387	2210	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pt+ov	Prot			Prot		
Protected Phases	3	3		4	4	4 1	5	2		1	6	
Permitted Phases												
Detector Phase	3	3		4	4	4 1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0		14.0	19.0	
Total Split (s)	30.0	30.0	0.0	21.0	21.0	56.0	14.0	54.0	0.0	35.0	75.0	0.0
Total Split (%)	21.4%	21.4%	0.0%	15.0%	15.0%	40.0%	10.0%	38.6%	0.0%	25.0%	53.6%	0.0%
Maximum Green (s)	23.0	23.0		14.0	14.0		7.0	47.0		28.0	68.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lead		Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)		25.0		16.0	16.0	51.0	9.0	49.0		30.0	70.0	
Actuated g/C Ratio		0.18		0.11	0.11	0.36	0.06	0.35		0.21	0.50	
v/c Ratio		1.04		0.24	0.98	0.73	0.92	0.99		1.05	0.90	
Control Delay		117.4		59.8	118.1	47.6	129.9	64.3		113.2	38.1	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		117.4		59.8	118.1	47.6	129.9	64.3		113.2	38.1	
LOS		F		E	F	D	F	E		F	D	
Approach Delay		117.4			70.1			68.0			49.3	
Approach LOS		F			E			E			D	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.05
Intersection Signal Delay: 62.3 Intersection LOS: E
Intersection Capacity Utilization 92.1% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 123: Walkup Avenue & US 74



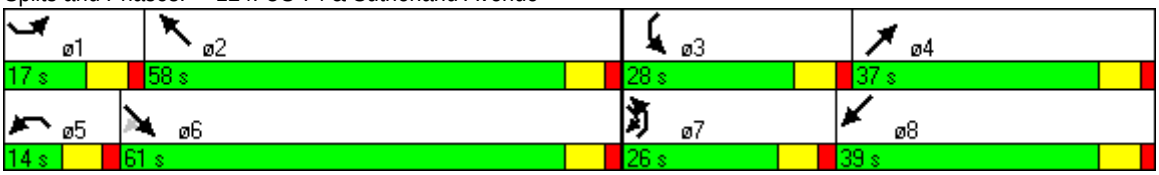
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	96	1699	169	43	1359	139	210	244	66	208	235	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.986			0.968			0.951	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	1719	4871	0	1752	1786	0	1752	1754	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	1719	4871	0	1752	1786	0	1752	1754	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		425			487			426			331	
Travel Time (s)		6.4			7.4			11.6			6.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	107	1888	188	48	1510	154	233	271	73	231	261	128
Shared Lane Traffic (%)												
Lane Group Flow (vph)	107	1888	188	48	1664	0	233	344	0	231	389	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot			Prot			Prot		
Protected Phases	1	6	7	5	2		7	4		3	8	
Permitted Phases			6									
Detector Phase	1	6	7	5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0		7.0	7.0		7.0	7.0	

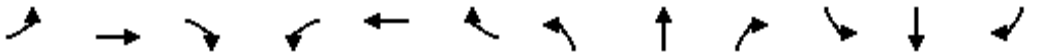
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	17.0	61.0	26.0	14.0	58.0	0.0	26.0	37.0	0.0	28.0	39.0	0.0
Total Split (%)	12.1%	43.6%	18.6%	10.0%	41.4%	0.0%	18.6%	26.4%	0.0%	20.0%	27.9%	0.0%
Maximum Green (s)	10.0	54.0	19.0	7.0	51.0		19.0	30.0		21.0	32.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes			Yes			Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max		None	None		None	None	
Act Effct Green (s)	11.8	59.6	85.4	9.0	54.0		20.8	32.1		22.1	33.4	
Actuated g/C Ratio	0.08	0.43	0.61	0.06	0.39		0.15	0.23		0.16	0.24	
v/c Ratio	0.74	0.90	0.20	0.43	0.89		0.89	0.84		0.83	0.93	
Control Delay	90.8	45.0	13.7	75.6	47.2		92.3	70.5		81.7	81.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	90.8	45.0	13.7	75.6	47.2		92.3	70.5		81.7	81.7	
LOS	F	D	B	E	D		F	E		F	F	
Approach Delay		44.5			48.0			79.3			81.7	
Approach LOS		D			D			E			F	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 54.2 Intersection LOS: D
Intersection Capacity Utilization 86.3% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 124: US 74 & Sutherland Avenue





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	48	61	37	34	151	26	1446	23	116	1785	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.916			0.878				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1706	0	1770	1635	0	1719	4940	1538	1719	4940	1538
Flt Permitted	0.379			0.589			0.950			0.950		
Satd. Flow (perm)	706	1706	0	1097	1635	0	1719	4940	1538	1719	4940	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		163			218			356			257	
Travel Time (s)		5.6			4.2			5.4			3.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	4	53	68	41	38	168	29	1607	26	129	1983	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	121	0	41	206	0	29	1607	26	129	1983	2
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm			Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	12.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	19.0
Total Split (s)	39.0	39.0	0.0	39.0	39.0	0.0	15.0	74.0	74.0	27.0	86.0	86.0
Total Split (%)	27.9%	27.9%	0.0%	27.9%	27.9%	0.0%	10.7%	52.9%	52.9%	19.3%	61.4%	61.4%
Maximum Green (s)	32.0	32.0		32.0	32.0		8.0	67.0	67.0	20.0	79.0	79.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	24.9	24.9		24.9	24.9		10.0	82.4	82.4	17.7	95.7	95.7
Actuated g/C Ratio	0.18	0.18		0.18	0.18		0.07	0.59	0.59	0.13	0.68	0.68
v/c Ratio	0.03	0.40		0.21	0.71		0.24	0.55	0.03	0.59	0.59	0.00
Control Delay	44.2	53.6		49.4	67.0		65.8	19.8	15.5	68.4	14.6	11.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.2	53.6		49.4	67.0		65.8	19.8	15.5	68.4	14.6	11.5
LOS	D	D		D	E		E	B	B	E	B	B
Approach Delay		53.3			64.1			20.6			17.9	
Approach LOS		D			E			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 22.8		Intersection LOS: C	
Intersection Capacity Utilization 63.9%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 125: Dove Street & US 74

Lane Group	NBU	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT
Lane Configurations												
Volume (vph)	16	1043	1075	129	171	1413	355	255	80	984	127	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.86	0.97	0.86	0.86	1.00	0.91	1.00	1.00	1.00	0.88	1.00	1.00
Frt			0.984				0.850			0.850		
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	3335	6125	0	1719	4940	1538	1752	1845	2760	1752	1845
Flt Permitted		0.950			0.950			0.950			0.950	
Satd. Flow (perm)	0	3335	6125	0	1719	4940	1538	1752	1845	2760	1752	1845
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			45			35			20
Link Distance (ft)			341			436			391			335
Travel Time (s)			5.2			6.6			7.6			11.4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%
Adj. Flow (vph)	18	1159	1194	143	190	1570	394	283	89	1093	141	93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1177	1337	0	190	1570	394	283	89	1093	141	93
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			24			24			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1	1	2		1	2	1	1	2	1	1	2
Detector Template	Left	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru
Leading Detector (ft)	20	20	100		20	100	20	20	100	20	20	100
Trailing Detector (ft)	0	0	0		0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0		0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	6		20	6	20	20	6	20	20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94			94			94			94
Detector 2 Size(ft)			6			6			6			6
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			0.0
Turn Type	Prot	Prot			Prot		pm+ov	Split		Prot	Split	
Protected Phases	5	5	2		1	6	4	4	4	4	3	3
Permitted Phases							6					
Detector Phase	5	5	2		1	6	4	4	4	4	3	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	12.0		7.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SWR
Lane Configurations	
Volume (vph)	128
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1568
Flt Permitted	
Satd. Flow (perm)	1568
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	3%
Adj. Flow (vph)	142
Shared Lane Traffic (%)	
Lane Group Flow (vph)	142
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	pt+ov
Protected Phases	3 1
Permitted Phases	
Detector Phase	3 1
Switch Phase	
Minimum Initial (s)	

Lane Group	NBU	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT
Minimum Split (s)	14.0	14.0	19.0		14.0	19.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	40.0	40.0	52.0	0.0	30.0	42.0	44.0	44.0	44.0	44.0	14.0	14.0
Total Split (%)	28.6%	28.6%	37.1%	0.0%	21.4%	30.0%	31.4%	31.4%	31.4%	31.4%	10.0%	10.0%
Maximum Green (s)	33.0	33.0	45.0		23.0	35.0	37.0	37.0	37.0	37.0	7.0	7.0
Yellow Time (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag		Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max		None	C-Max	None	None	None	None	None	None
Act Effct Green (s)		35.0	50.4		21.6	37.0	76.0	39.0	39.0	39.0	9.0	9.0
Actuated g/C Ratio		0.25	0.36		0.15	0.26	0.54	0.28	0.28	0.28	0.06	0.06
v/c Ratio		1.41	0.61		0.72	1.20	0.47	0.58	0.17	1.42	1.25	0.78
Control Delay		231.0	38.5		71.4	142.6	13.6	49.1	39.4	234.7	216.7	103.2
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		231.0	38.5		71.4	142.6	13.6	49.1	39.4	234.7	216.7	103.2
LOS		F	D		E	F	B	D	D	F	F	F
Approach Delay			128.6			112.7			187.0			117.1
Approach LOS			F			F			F			F

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 170			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.42			
Intersection Signal Delay: 135.8		Intersection LOS: F	
Intersection Capacity Utilization 115.6%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 126: US 74 & E. Franklin Street

Lane Group	SWR
Minimum Split (s)	
Total Split (s)	44.0
Total Split (%)	31.4%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Act Effct Green (s)	30.6
Actuated g/C Ratio	0.22
v/c Ratio	0.42
Control Delay	27.4
Queue Delay	0.0
Total Delay	27.4
LOS	C
Approach Delay	
Approach LOS	

Intersection Summary

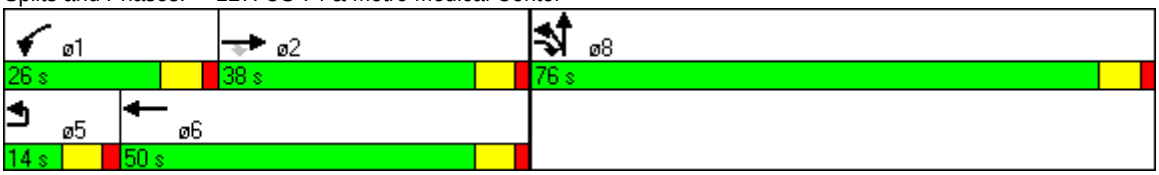
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	10	0	1296	1546	312	1086	39	919	0	231	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.91	0.91	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.995			0.938			
Flt Protected	0.950				0.950			0.950	0.971			
Satd. Flow (prot)	1719	0	4940	1538	1736	4963	0	1504	1442	0	0	0
Flt Permitted	0.950				0.950			0.950	0.971			
Satd. Flow (perm)	1719	0	4940	1538	1736	4963	0	1504	1442	0	0	0
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			55			45			25
Link Distance (ft)			239			375			459			145
Travel Time (s)			3.6			4.6			7.0			4.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	4%	4%	4%	14%	14%	14%	2%	2%
Adj. Flow (vph)	11	0	1440	1718	347	1207	43	1021	0	257	0	0
Shared Lane Traffic (%)								36%				
Lane Group Flow (vph)	11	0	1440	1718	347	1250	0	653	625	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			12			12			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1		2	1	1	2		1	2			
Detector Template	Left		Thru	Right	Left	Thru		Left	Thru			
Leading Detector (ft)	20		100	20	20	100		20	100			
Trailing Detector (ft)	0		0	0	0	0		0	0			
Detector 1 Position(ft)	0		0	0	0	0		0	0			
Detector 1 Size(ft)	20		6	20	20	6		20	6			
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 2 Position(ft)			94			94			94			
Detector 2 Size(ft)			6			6			6			
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			
Turn Type	Prot			pm+ov	Prot			Split				
Protected Phases	5		2	8	1	6		8	8			
Permitted Phases				2								
Detector Phase	5		2	8	1	6		8	8			
Switch Phase												
Minimum Initial (s)	7.0		12.0	12.0	7.0	14.0		12.0	12.0			

Lane Group	SBR
Lane Configurations	
Volume (vph)	25
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.865
Flt Protected	
Satd. Flow (prot)	1611
Flt Permitted	
Satd. Flow (perm)	1611
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	2%
Adj. Flow (vph)	28
Shared Lane Traffic (%)	
Lane Group Flow (vph)	28
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Detector Phase	
Switch Phase	
Minimum Initial (s)	

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Minimum Split (s)	14.0		19.0	19.0	14.0	21.0		19.0	19.0			
Total Split (s)	14.0	0.0	38.0	76.0	26.0	50.0	0.0	76.0	76.0	0.0	0.0	0.0
Total Split (%)	10.0%	0.0%	27.1%	54.3%	18.6%	35.7%	0.0%	54.3%	54.3%	0.0%	0.0%	0.0%
Maximum Green (s)	7.0		31.0	69.0	19.0	43.0		69.0	69.0			
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0		5.0	5.0			
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0		2.0	2.0			
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	2.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	2.0	2.0
Lead/Lag	Lead		Lag		Lead	Lag						
Lead-Lag Optimize?			Yes			Yes						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0		3.0	3.0			
Recall Mode	None		C-Max	None	None	C-Max		None	None			
Act Effct Green (s)	9.0		33.0	109.0	21.0	53.4		71.0	71.0			
Actuated g/C Ratio	0.06		0.24	0.78	0.15	0.38		0.51	0.51			
v/c Ratio	0.10		1.24	1.44	1.33	0.66		0.86	0.85			
Control Delay	63.9		158.5	220.9	218.9	38.9		42.9	43.3			
Queue Delay	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Total Delay	63.9		158.5	220.9	218.9	38.9		42.9	43.3			
LOS	E		F	F	F	D		D	D			
Approach Delay			192.0			78.0			43.1			
Approach LOS			F			E			D			

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.44			
Intersection Signal Delay: 129.8		Intersection LOS: F	
Intersection Capacity Utilization 121.3%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 127: US 74 & Metro Medical Center



Lane Group	SBR
Minimum Split (s)	
Total Split (s)	0.0
Total Split (%)	0.0%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	2.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Act Effct Green (s)	140.0
Actuated g/C Ratio	1.00
v/c Ratio	0.02
Control Delay	0.0
Queue Delay	0.0
Total Delay	0.0
LOS	A
Approach Delay	
Approach LOS	

Intersection Summary

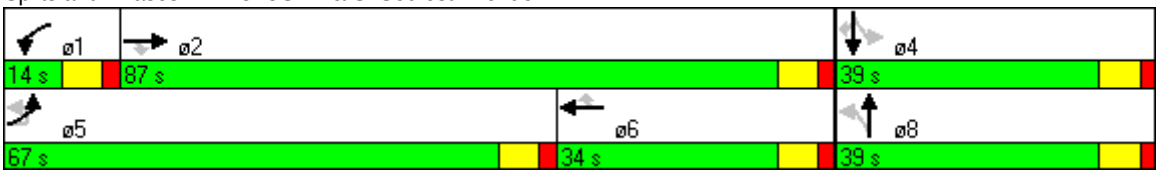
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	29	165	1313	47	9	1044	109	36	99	9	249	238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850			0.850		0.992			
Flt Protected		0.950			0.950				0.988			0.975
Satd. Flow (prot)	0	1736	3471	1553	1736	3471	1553	0	1826	0	0	1816
Flt Permitted		0.065			0.950				0.155			0.680
Satd. Flow (perm)	0	119	3471	1553	1736	3471	1553	0	286	0	0	1267
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			55			55			35			35
Link Distance (ft)			411			374			242			283
Travel Time (s)			5.1			4.6			4.7			5.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%
Adj. Flow (vph)	32	183	1459	52	10	1160	121	40	110	10	277	264
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	215	1459	52	10	1160	121	0	160	0	0	541
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			12			12			0			0
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1	1	2	1	1	2	1	1	2		1	2
Detector Template	Left	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru
Leading Detector (ft)	20	20	100	20	20	100	20	20	100		20	100
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0		0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0		0	0
Detector 1 Size(ft)	20	20	6	20	20	6	20	20	6		20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)			94			94			94			94
Detector 2 Size(ft)			6			6			6			6
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			0.0
Turn Type	custom	Prot		Perm	Prot		Perm	Perm			Perm	
Protected Phases		5	2		1	6			8			4
Permitted Phases	5			2			6	8			4	
Detector Phase	5	5	2	2	1	6	6	8	8		4	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	14.0	14.0	7.0	14.0	14.0	7.0	7.0		7.0	7.0

Lane Group	SBR
Lane Configurations	
Volume (vph)	300
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	2%
Adj. Flow (vph)	333
Shared Lane Traffic (%)	
Lane Group Flow (vph)	333
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Detector Phase	4
Switch Phase	
Minimum Initial (s)	7.0

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Minimum Split (s)	14.0	14.0	21.0	21.0	14.0	21.0	21.0	14.0	14.0		14.0	14.0
Total Split (s)	67.0	67.0	87.0	87.0	14.0	34.0	34.0	39.0	39.0	0.0	39.0	39.0
Total Split (%)	47.9%	47.9%	62.1%	62.1%	10.0%	24.3%	24.3%	27.9%	27.9%	0.0%	27.9%	27.9%
Maximum Green (s)	60.0	60.0	80.0	80.0	7.0	27.0	27.0	32.0	32.0		32.0	32.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Time Before Reduce (s)	0.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0	0.0		0.0	0.0
Time To Reduce (s)	0.0	0.0	50.0	50.0	0.0	50.0	50.0	0.0	0.0		0.0	0.0
Recall Mode	None	None	C-Min	C-Min	None	C-Min	C-Min	None	None		None	None
Act Effct Green (s)		62.0	93.2	93.2	9.0	29.0	29.0		34.0			34.0
Actuated g/C Ratio		0.44	0.67	0.67	0.06	0.21	0.21		0.24			0.24
v/c Ratio		4.06	0.63	0.05	0.09	1.61	0.38		2.32			1.76
Control Delay		1432.7	15.8	9.4	63.7	317.9	51.7		660.8			385.4
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0
Total Delay		1432.7	15.8	9.4	63.7	317.9	51.7		660.8			385.4
LOS		F	B	A	E	F	D		F			F
Approach Delay			192.1			291.0			660.8			266.6
Approach LOS			F			F			F			F

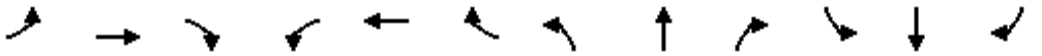
Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 4.06			
Intersection Signal Delay: 258.2		Intersection LOS: F	
Intersection Capacity Utilization 92.1%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 128: US 74 & S. Secrest Avenue



Lane Group	SBR
Minimum Split (s)	14.0
Total Split (s)	39.0
Total Split (%)	27.9%
Maximum Green (s)	32.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Minimum Gap (s)	3.0
Time Before Reduce (s)	0.0
Time To Reduce (s)	0.0
Recall Mode	None
Act Effct Green (s)	34.0
Actuated g/C Ratio	0.24
v/c Ratio	0.87
Control Delay	73.6
Queue Delay	0.0
Total Delay	73.6
LOS	E
Approach Delay	
Approach LOS	

Intersection Summary

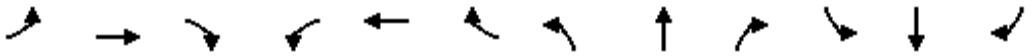


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	79	1367	20	3	1102	58	32	20	6	101	18	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.993			0.985				0.850
Flt Protected	0.950			0.950				0.973			0.959	
Satd. Flow (prot)	1736	3464	0	1736	3447	0	0	1785	0	0	1786	1583
Flt Permitted	0.950			0.950				0.669			0.722	
Satd. Flow (perm)	1736	3464	0	1736	3447	0	0	1227	0	0	1345	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			20			25	
Link Distance (ft)		242			246			170			270	
Travel Time (s)		4.7			4.8			5.8			7.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	88	1519	22	3	1224	64	36	22	7	112	20	122
Shared Lane Traffic (%)												
Lane Group Flow (vph)	88	1541	0	3	1288	0	0	65	0	0	132	122
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		pm+ov
Protected Phases	5	2		1	6			8			4	5
Permitted Phases							8			4		4
Detector Phase	5	2		1	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	17.0		14.0	17.0		14.0	14.0		14.0	14.0	14.0
Total Split (s)	20.0	94.0	0.0	14.0	88.0	0.0	32.0	32.0	0.0	32.0	32.0	20.0
Total Split (%)	14.3%	67.1%	0.0%	10.0%	62.9%	0.0%	22.9%	22.9%	0.0%	22.9%	22.9%	14.3%
Maximum Green (s)	13.0	87.0		7.0	81.0		25.0	25.0		25.0	25.0	13.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None
Act Effct Green (s)	14.1	106.3		9.0	90.0			20.9			20.9	40.0
Actuated g/C Ratio	0.10	0.76		0.06	0.64			0.15			0.15	0.29
v/c Ratio	0.51	0.59		0.03	0.58			0.36			0.66	0.27
Control Delay	69.2	10.0		62.0	16.8			57.1			70.7	38.3
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Delay	69.2	10.0		62.0	16.8			57.1			70.7	38.3
LOS	E	B		E	B			E			E	D
Approach Delay		13.2			16.9			57.1			55.1	
Approach LOS		B			B			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 18.9		Intersection LOS: B	
Intersection Capacity Utilization 66.6%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 129: US 74 & Bivens Street

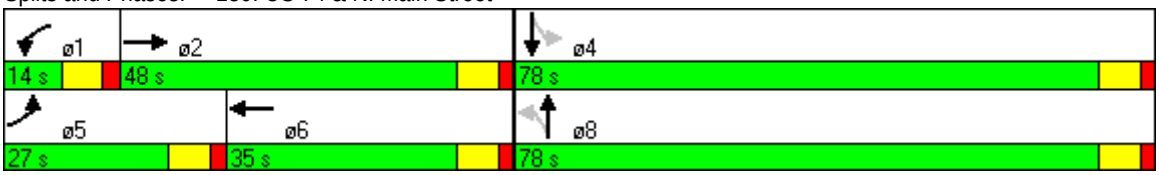


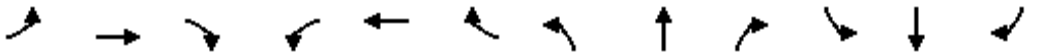
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	362	1007	54	51	789	77	43	336	51	101	439	374
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992			0.987			0.984			0.931	
Flt Protected	0.950			0.950				0.995		0.950		
Satd. Flow (prot)	1736	3443	0	1736	3426	0	0	1824	0	1770	1734	0
Flt Permitted	0.950			0.950				0.318		0.421		
Satd. Flow (perm)	1736	3443	0	1736	3426	0	0	583	0	784	1734	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		282			333			173			197	
Travel Time (s)		5.5			6.5			3.4			3.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	402	1119	60	57	877	86	48	373	57	112	488	416
Shared Lane Traffic (%)												
Lane Group Flow (vph)	402	1179	0	57	963	0	0	478	0	112	904	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	17.0		14.0	17.0		14.0	14.0		14.0	14.0	
Total Split (s)	27.0	48.0	0.0	14.0	35.0	0.0	78.0	78.0	0.0	78.0	78.0	0.0
Total Split (%)	19.3%	34.3%	0.0%	10.0%	25.0%	0.0%	55.7%	55.7%	0.0%	55.7%	55.7%	0.0%
Maximum Green (s)	20.0	41.0		7.0	28.0		71.0	71.0		71.0	71.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	None		None	None		None	None	
Act Effct Green (s)	22.0	45.8		9.0	30.0			73.0		73.0	73.0	
Actuated g/C Ratio	0.16	0.33		0.06	0.21			0.52		0.52	0.52	
v/c Ratio	1.47	1.05		0.51	1.31			1.57		0.27	1.00	
Control Delay	271.8	85.4		79.7	192.8			300.4		21.0	63.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	271.8	85.4		79.7	192.8			300.4		21.0	63.5	
LOS	F	F		E	F			F		C	E	
Approach Delay		132.8			186.5			300.4			58.8	
Approach LOS		F			F			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.57			
Intersection Signal Delay: 147.4		Intersection LOS: F	
Intersection Capacity Utilization 114.1%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 130: US 74 & N. Main Street



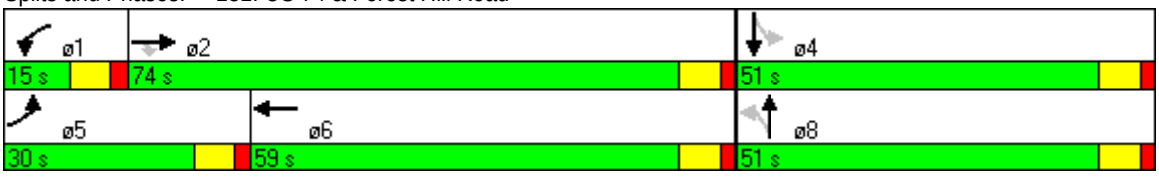


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	137	916	120	30	743	11	111	31	34	11	26	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.998			0.974			0.899	
Flt Protected	0.950			0.950				0.969			0.996	
Satd. Flow (prot)	1736	3471	1553	1736	3464	0	0	1676	0	0	1636	0
Flt Permitted	0.950			0.950				0.585			0.971	
Satd. Flow (perm)	1736	3471	1553	1736	3464	0	0	1012	0	0	1595	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			35	
Link Distance (ft)		576			646			376			353	
Travel Time (s)		7.1			8.0			4.7			6.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	7%	7%	7%	4%	4%	4%
Adj. Flow (vph)	152	1018	133	33	826	12	123	34	38	12	29	121
Shared Lane Traffic (%)												
Lane Group Flow (vph)	152	1018	133	33	838	0	0	195	0	0	162	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		Perm	Prot			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8			4		
Detector Phase	5	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	14.0	14.0	7.0	14.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	21.0	21.0	14.0	21.0		14.0	14.0		14.0	14.0	
Total Split (s)	30.0	74.0	74.0	15.0	59.0	0.0	51.0	51.0	0.0	51.0	51.0	0.0
Total Split (%)	21.4%	52.9%	52.9%	10.7%	42.1%	0.0%	36.4%	36.4%	0.0%	36.4%	36.4%	0.0%
Maximum Green (s)	23.0	67.0	67.0	8.0	52.0		44.0	44.0		44.0	44.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	
Act Effct Green (s)	19.5	88.6	88.6	10.5	73.9			31.6			31.6	
Actuated g/C Ratio	0.14	0.63	0.63	0.08	0.53			0.23			0.23	
v/c Ratio	0.63	0.46	0.14	0.25	0.46			0.86			0.45	
Control Delay	67.9	16.9	14.2	65.4	23.8			82.3			49.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Delay	67.9	16.9	14.2	65.4	23.8			82.3			49.1	
LOS	E	B	B	E	C			F			D	
Approach Delay		22.6			25.3			82.3			49.1	
Approach LOS		C			C			F			D	

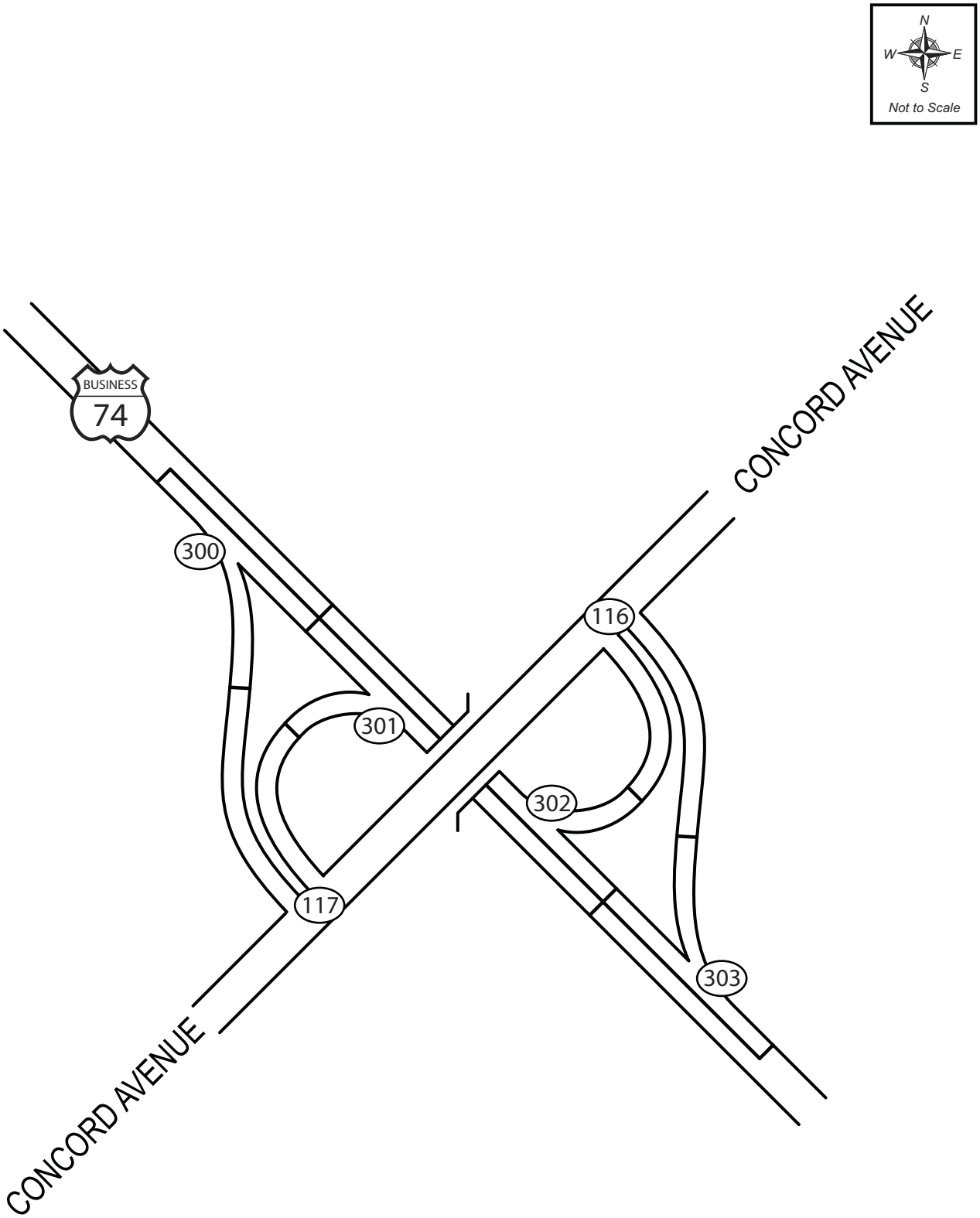
Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 29.8		Intersection LOS: C	
Intersection Capacity Utilization 66.4%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 131: US 74 & Forest Hill Road



E-10-3

Business US 74 / Concord Ave I/C



NORTH CAROLINA Turnpike Authority

MONROE CONNECTOR / BYPASS

TIP Project Numbers R-3329 & R-2559

Mecklenburg and Union Counties

Business US 74 Corridor
Concord Avenue
Key Sheet

Appendix E

KeySheetUS74CorridorConcordAve.ai

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*WB US 74 Ramp at Concord Ave*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 3B*
Analysis Time Period	*AM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *WB US 74 Ramp*	North/South Street: *Concord Ave.*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*371*	*114*	*106*	*431*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*412*	*126*	*117*	*478*	*0*
Percent Heavy Vehicles		--	--	*4*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*183*	*0*	*67*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*203*	*0*	*74*	*0*	*0*	*0*
Percent Heavy Vehicles	*5*		*5*			
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (vph)		*117*		*277*				
C (m) (vph)		*1020*		*222*				
v/c		*0.11*		*1.25*				
95% queue length		*0.39*		*14.19*				
Control Delay		*9.0*		*187.5*				
LOS		*A*		*F*				
Approach Delay	--	--	*187.5*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*WB US 74 Ramp at Concord Ave*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 3B*
Analysis Time Period	*PM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *WB US 74 Ramp*	North/South Street: *Concord Ave.*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*469*	*116*	*86*	*352*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*521*	*128*	*95*	*391*	*0*
Percent Heavy Vehicles		--	--	*4*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*145*	*0*	*68*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*161*	*0*	*75*	*0*	*0*	*0*
Percent Heavy Vehicles	*5*		*5*			
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (vph)		*95*		*236*				
C (m) (vph)		*927*		*236*				
v/c		*0.10*		*1.00*				
95% queue length		*0.34*		*9.41*				
Control Delay		*9.3*		*103.1*				
LOS		*A*		*F*				
Approach Delay	--	--	*103.1*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*EB US 74 Ramp at Concord Ave*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 3B*
Analysis Time Period	*AM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *EB US 74 Ramp*	North/South Street: *Concord Ave.*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*145*	*399*			*546*	*68*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*161*	*443*	*0*	*0*	*606*	*75*
Percent Heavy Vehicles	*4*	--	--		--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume		*0*		*86*	*0*	*116*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*95*	*0*	*128*
Percent Heavy Vehicles				*5*		*5*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*161*						*223*	
C (m) (vph)	*902*						*213*	
v/c	*0.18*						*1.05*	
95% queue length	*0.65*						*9.79*	
Control Delay	*9.9*						*122.3*	
LOS	*A*						*F*	
Approach Delay	--	--				*122.3*		
Approach LOS	--	--				*F*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*EB US 74 Ramp at Concord Ave*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 3B*
Analysis Time Period	*AM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *EB US 74 Ramp*	North/South Street: *Concord Ave.*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*183*	*479*			*430*	*67*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*203*	*532*	*0*	*0*	*477*	*74*
Percent Heavy Vehicles	*4*	--	--		--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume		*0*		*106*	*0*	*114*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*117*	*0*	*126*
Percent Heavy Vehicles				*5*		*5*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*203*						*243*	
C (m) (vph)	*1009*						*192*	
v/c	*0.20*						*1.27*	
95% queue length	*0.75*						*13.25*	
Control Delay	*9.5*						*202.9*	
LOS	*A*						*F*	
Approach Delay	--	--				*202.9*		
Approach LOS	--	--				*F*		

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Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB off to Concord Ave.
Junction:	300
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3B
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1728	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	202	vph
Length of first accel/decel lane	680	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	213	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	1728		202		213		vph
Peak-hour factor, PHF	0.90		0.90		0.90		
Peak 15-min volume, v15	480		56		59		v
Trucks and buses	5		5		4		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		

Heavy vehicle adjustment, fHV	0.930	0.930	0.943	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2064	241	251	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.697 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1512 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2064	6750	No
v_{12}	1512	4400	No
$v_{FO} = v_F - v_R$	1823	6750	No
v_R	241	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 11.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.385

Space mean speed in ramp influence area, S_R = 50.0 mph

Space mean speed in outer lanes, S_0 = 60.3 mph

Space mean speed for all vehicles, S = 52.4 mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB off to Concord Ave.
Junction:	300
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3B
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2103	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	220	vph
Length of first accel/decel lane	680	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	250	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2103	220	250	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	584	61	69	v
Trucks and buses	5	5	4	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.943	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2512	263	294	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.685 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1804 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2512	6750	No
v_{12}	1804	4400	No
$v_{FO} = v_F - v_R$	2249	6750	No
v_R	263	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 13.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.387	
Space mean speed in ramp influence area,	S_R = 50.0	mph
Space mean speed in outer lanes,	S_O = 60.3	mph
Space mean speed for all vehicles,	S = 52.5	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB on from Concord Ave.
Junction:	301
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3B
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1526	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	213	vph
Length of first accel/decel lane	100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	202	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1526	213	202	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	424	59	56	v
Trucks and buses	5	4	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1823	251	241	pcph

Estimation of V12 Merge Areas

L_{EQ} = -606.76 (Equation 25-2 or 25-3)

P_{FM} = 0.580 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1058 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2074	6750	No
v_{R12}	1309	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 14.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.330	
Space mean speed in ramp influence area,	S_R = 50.7	mph
Space mean speed in outer lanes,	S_O = 54.0	mph
Space mean speed for all vehicles,	S = 51.9	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB on from Concord Ave.
Junction:	301
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3B
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1883	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	250	vph
Length of first accel/decel lane	100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	220	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1883	250	220	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	523	69	61	v
Trucks and buses	5	4	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2249	294	263	pcph

Estimation of V12 Merge Areas

L_{EQ} = -506.40 (Equation 25-2 or 25-3)

P_{FM} = 0.580 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1305 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2543	6750	No
v_{R12}	1599	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 17.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.335	
Space mean speed in ramp influence area,	S_R = 50.6	mph
Space mean speed in outer lanes,	S_O = 53.4	mph
Space mean speed for all vehicles,	S = 51.6	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB on from Concord Ave.
Junction:	302
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3B
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1883	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	220	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	250	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1883	220	250	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	523	61	69	v
Trucks and buses	5	4	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2249	259	299	pcph

Estimation of V12 Merge Areas

L_{EQ} = -425.09 (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1318 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2508	6750	No
v_{R12}	1577	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 15.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.325	
Space mean speed in ramp influence area,	S_R = 50.8	mph
Space mean speed in outer lanes,	S_O = 53.4	mph
Space mean speed for all vehicles,	S = 51.7	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB on from Concord Ave.
Junction:	302
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3B
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1526	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	202	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	213	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1526	202	213	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	424	56	59	v
Trucks and buses	5	4	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1823	238	254	pcph

Estimation of V12 Merge Areas

L_{EQ} = -520.75 (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1068 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2061	6750	No
v_{R12}	1306	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 13.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.320	
Space mean speed in ramp influence area,	S_R = 50.8	mph
Space mean speed in outer lanes,	S_O = 54.1	mph
Space mean speed for all vehicles,	S = 52.0	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB off to Concord Ave.
Junction:	303
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3B
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2133	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	250	vph
Length of first accel/decel lane	680	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	220	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2133	250	220	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	593	69	61	v
Trucks and buses	5	5	4	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.943	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2548	299	259	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.683 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1834 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2548	6750	No
v_{12}	1834	4400	No
$v_{FO} = v_F - v_R$	2249	6750	No
v_R	299	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 13.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.390	
Space mean speed in ramp influence area,	S_R = 49.9	mph
Space mean speed in outer lanes,	S_O = 60.3	mph
Space mean speed for all vehicles,	S = 52.5	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB off to Concord Ave.
Junction:	303
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3B
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1739	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	213	vph
Length of first accel/decel lane	680	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	202	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	1739		213		202		vph
Peak-hour factor, PHF	0.90		0.90		0.90		
Peak 15-min volume, v15	483		59		56		v
Trucks and buses	5		5		4		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		

Heavy vehicle adjustment, fHV	0.930	0.930	0.943	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2077	254	238	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.696 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1524 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2077	6750	No
v_{12}	1524	4400	No
$v_{FO} = v_F - v_R$	1823	6750	No
v_R	254	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 11.2 pc/mi/ln

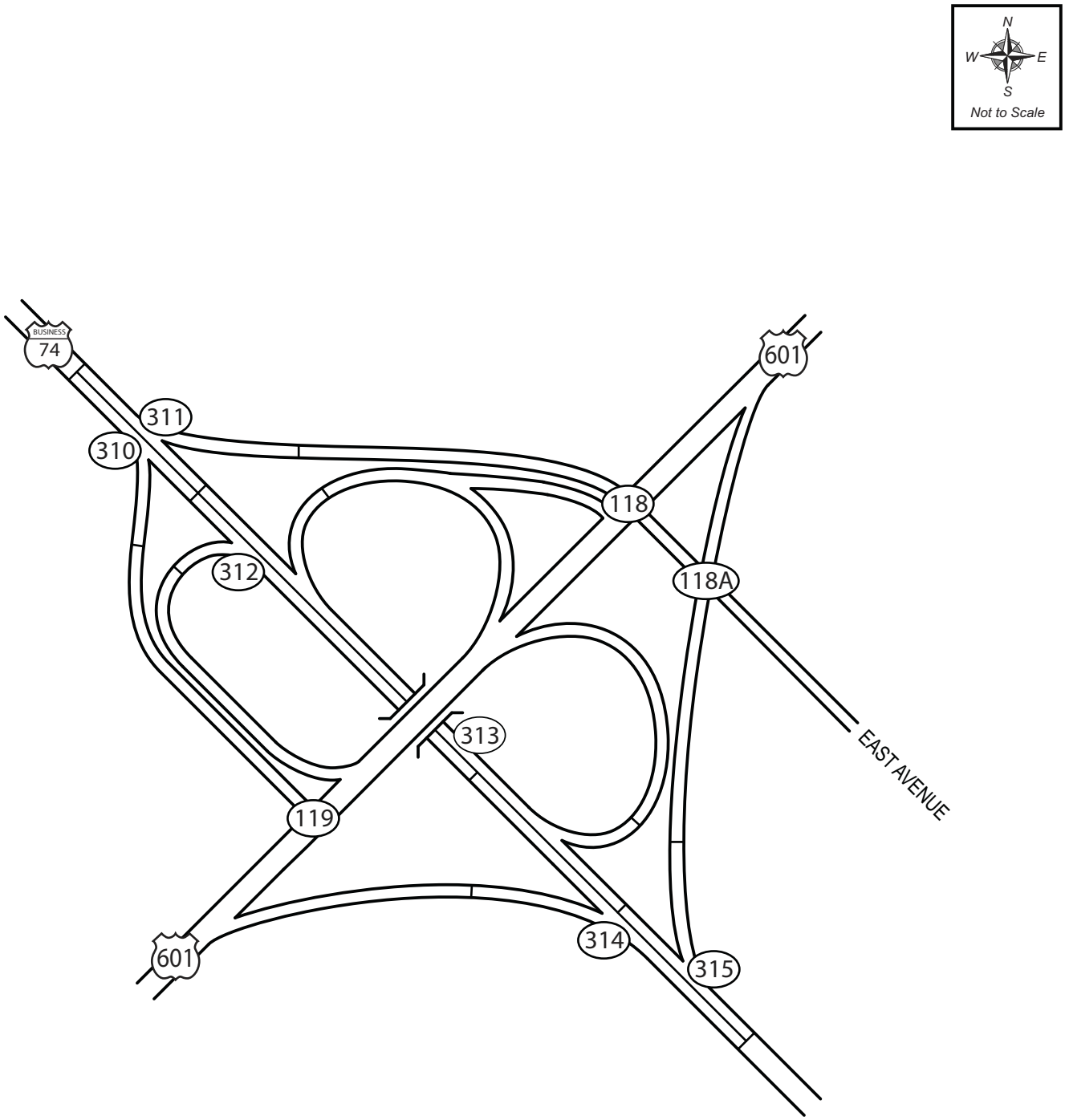
Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.386	
Space mean speed in ramp influence area,	S_R = 50.0	mph
Space mean speed in outer lanes,	S_0 = 60.3	mph
Space mean speed for all vehicles,	S = 52.4	mph

E-10-4

Business US 74 / US 601I/C



NORTH CAROLINA Turnpike Authority

MONROE CONNECTOR / BYPASS

TIP Project Numbers R-3329 & R-2559

Mecklenburg and Union Counties

Business US 74 Corridor
US 601
Key Sheet

Appendix E

KeySheetUS74CorridorUS601.ai

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*East Ave. at US 74 Off Ramp*
Agency/Co.	*PBS&J*	Jurisdiction	*118A*
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 3B*
Analysis Time Period	*AM Peak Hour*		
Project Description	*Monroe Connector/Bypass*		
East/West Street:	*East Ave.*	North/South Street:	*US 74 Off Ramp*
Intersection Orientation:	*North-South*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*10*	*384*	*10*			
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*11*	*426*	*11*	*0*	*0*	*0*
Percent Heavy Vehicles	*5*	--	--		--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration	*LTR*					
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume		*120*	*150*	*10*	*270*	
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*133*	*166*	*11*	*300*	*0*
Percent Heavy Vehicles		*5*	*5*	*8*	*8*	
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*				*TR*	*LT*		
v (vph)	*11*				*299*	*311*		
C (m) (vph)	*1604*				*554*	*467*		
v/c	*0.01*				*0.54*	*0.67*		
95% queue length	*0.02*				*3.20*	*4.80*		
Control Delay	*7.3*				*18.9*	*26.8*		
LOS	*A*				*C*	*D*		
Approach Delay	--	--	*18.9*			*26.8*		
Approach LOS	--	--	*C*			*D*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*East Ave. at US 74 Off Ramp*
Agency/Co.	*PBS&J*	Jurisdiction	*118A*
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 3B*
Analysis Time Period	*PM Peak Hour*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *East Ave.*	North/South Street: *US 74 Off Ramp*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*10*	*289*	*10*			
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*11*	*321*	*11*	*0*	*0*	*0*
Percent Heavy Vehicles	*5*	--	--		--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration	*LTR*					
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume		*150*	*150*	*10*	*290*	
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*166*	*166*	*11*	*322*	*0*
Percent Heavy Vehicles		*5*	*5*	*8*	*8*	
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*				*TR*	*LT*		
v (vph)	*11*				*332*	*333*		
C (m) (vph)	*1604*				*629*	*538*		
v/c	*0.01*				*0.53*	*0.62*		
95% queue length	*0.02*				*3.10*	*4.19*		
Control Delay	*7.3*				*16.9*	*21.9*		
LOS	*A*				*C*	*C*		
Approach Delay	--	--	*16.9*			*21.9*		
Approach LOS	--	--	*C*			*C*		

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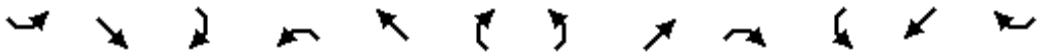
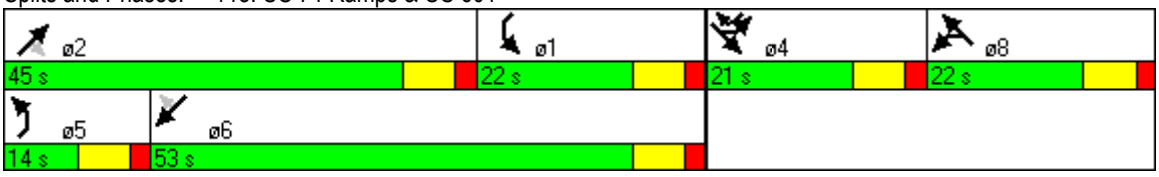


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	10	10	10	120	10	0	10	619	150	120	489	325
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.955							0.850			0.850
Flt Protected		0.984		0.950			0.950			0.950		
Satd. Flow (prot)	0	1700	0	1719	1810	0	1671	3343	1495	1671	3343	1495
Flt Permitted		0.984		0.950			0.950			0.950		
Satd. Flow (perm)	0	1700	0	1719	1810	0	1671	3343	1495	1671	3343	1495
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		412			451			446			441	
Travel Time (s)		8.0			8.8			6.8			6.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	8%	8%	8%	8%	8%	8%
Adj. Flow (vph)	11	11	11	133	11	0	11	688	167	133	543	361
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	33	0	133	11	0	11	688	167	133	543	361
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split			Prot		Perm	Prot		pm+ov
Protected Phases	4	4		8	8		5	2		1	6	4
Permitted Phases									2			6
Detector Phase	4	4		8	8		5	2	2	1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	14.0
Total Split (s)	21.0	21.0	0.0	22.0	22.0	0.0	14.0	45.0	45.0	22.0	53.0	21.0
Total Split (%)	19.1%	19.1%	0.0%	20.0%	20.0%	0.0%	12.7%	40.9%	40.9%	20.0%	48.2%	19.1%
Maximum Green (s)	14.0	14.0		15.0	15.0		7.0	38.0	38.0	15.0	46.0	14.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	None	None
Act Effct Green (s)		10.2		15.5	15.5		9.0	49.4	49.4	14.8	66.5	81.7
Actuated g/C Ratio		0.09		0.14	0.14		0.08	0.45	0.45	0.13	0.60	0.74
v/c Ratio		0.21		0.55	0.04		0.08	0.46	0.25	0.59	0.27	0.33
Control Delay		48.7		52.0	38.9		48.2	23.7	22.2	55.4	12.4	7.2
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		48.7		52.0	38.9		48.2	23.7	22.2	55.4	12.4	7.2
LOS		D		D	D		D	C	C	E	B	A
Approach Delay		48.7			51.0			23.7			16.1	
Approach LOS		D			D			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 2:NET, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 22.2		Intersection LOS: C	
Intersection Capacity Utilization 49.6%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 118: US 74 Ramps & US 601

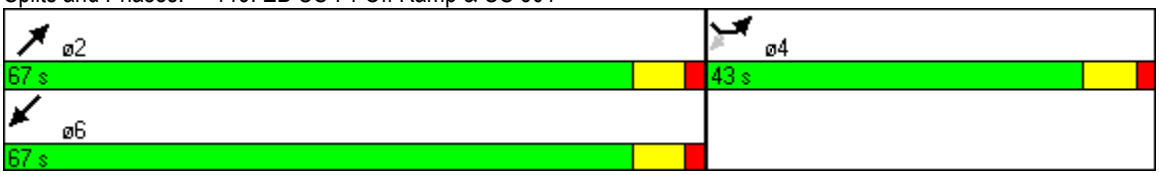


Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (vph)	335	142	0	630	653	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	3335	1538	0	3343	3343	0
Flt Permitted	0.950					
Satd. Flow (perm)	3335	1538	0	3343	3343	0
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	35			45	45	
Link Distance (ft)	529			486	575	
Travel Time (s)	10.3			7.4	8.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	8%	8%	8%	8%
Adj. Flow (vph)	372	158	0	700	726	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	372	158	0	700	726	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (ft)	20	20		100	100	
Trailing Detector (ft)	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	
Detector 1 Size(ft)	20	20		6	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type		Perm				
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						
Minimum Initial (s)	7.0	7.0		12.0	12.0	

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Minimum Split (s)	14.0	14.0		19.0	19.0	
Total Split (s)	43.0	43.0	0.0	67.0	67.0	0.0
Total Split (%)	39.1%	39.1%	0.0%	60.9%	60.9%	0.0%
Maximum Green (s)	36.0	36.0		60.0	60.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		C-Max	C-Max	
Act Effct Green (s)	38.0	38.0		62.0	62.0	
Actuated g/C Ratio	0.35	0.35		0.56	0.56	
v/c Ratio	0.32	0.30		0.37	0.39	
Control Delay	27.5	28.2		14.0	14.1	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	27.5	28.2		14.0	14.1	
LOS	C	C		B	B	
Approach Delay	27.7			14.0	14.1	
Approach LOS	C			B	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 2:NET and 6:SWT, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.39			
Intersection Signal Delay: 17.7		Intersection LOS: B	
Intersection Capacity Utilization 35.9%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 119: EB US 74 Off Ramp & US 601



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	10	10	10	150	10	0	10	525	120	170	668	335
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.955							0.850			0.850
Flt Protected		0.984		0.950			0.950			0.950		
Satd. Flow (prot)	0	1700	0	1719	1810	0	1671	3343	1495	1671	3343	1495
Flt Permitted		0.984		0.950			0.950			0.950		
Satd. Flow (perm)	0	1700	0	1719	1810	0	1671	3343	1495	1671	3343	1495
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		412			451			446			441	
Travel Time (s)		8.0			8.8			6.8			6.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	8%	8%	8%	8%	8%	8%
Adj. Flow (vph)	11	11	11	167	11	0	11	583	133	189	742	372
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	33	0	167	11	0	11	583	133	189	742	372
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split			Prot		Perm	Prot		pm+ov
Protected Phases	4	4		8	8		5	2		1	6	4
Permitted Phases									2			6
Detector Phase	4	4		8	8		5	2	2	1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	14.0
Total Split (s)	21.0	21.0	0.0	25.0	25.0	0.0	14.0	37.0	37.0	27.0	50.0	21.0
Total Split (%)	19.1%	19.1%	0.0%	22.7%	22.7%	0.0%	12.7%	33.6%	33.6%	24.5%	45.5%	19.1%
Maximum Green (s)	14.0	14.0		18.0	18.0		7.0	30.0	30.0	20.0	43.0	14.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		Max	Max		None	C-Max	C-Max	None	None	None
Act Effct Green (s)		10.2		25.8	25.8		9.0	35.3	35.3	18.7	56.2	71.4
Actuated g/C Ratio		0.09		0.23	0.23		0.08	0.32	0.32	0.17	0.51	0.65
v/c Ratio		0.21		0.41	0.03		0.08	0.54	0.28	0.66	0.43	0.38
Control Delay		48.7		40.0	34.0		48.2	33.8	31.0	53.9	18.8	11.0
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		48.7		40.0	34.0		48.2	33.8	31.0	53.9	18.8	11.0
LOS		D		D	C		D	C	C	D	B	B
Approach Delay		48.7			39.6			33.5			21.7	
Approach LOS		D			D			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 2:NET, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 27.3		Intersection LOS: C	
Intersection Capacity Utilization 51.8%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 118: US 74 Ramps & US 601

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (vph)	325	196	0	462	768	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	3335	1538	0	3343	3343	0
Flt Permitted	0.950					
Satd. Flow (perm)	3335	1538	0	3343	3343	0
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	35			45	45	
Link Distance (ft)	529			486	575	
Travel Time (s)	10.3			7.4	8.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	8%	8%	8%	8%
Adj. Flow (vph)	361	218	0	513	853	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	361	218	0	513	853	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (ft)	20	20		100	100	
Trailing Detector (ft)	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	
Detector 1 Size(ft)	20	20		6	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type		Perm				
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						
Minimum Initial (s)	7.0	7.0		12.0	12.0	

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Minimum Split (s)	14.0	14.0		19.0	19.0	
Total Split (s)	46.0	46.0	0.0	64.0	64.0	0.0
Total Split (%)	41.8%	41.8%	0.0%	58.2%	58.2%	0.0%
Maximum Green (s)	39.0	39.0		57.0	57.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		None	None	
Act Effct Green (s)	41.2	41.2		28.9	28.9	
Actuated g/C Ratio	0.51	0.51		0.36	0.36	
v/c Ratio	0.21	0.28		0.43	0.71	
Control Delay	11.9	13.5		20.2	25.3	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	11.9	13.5		20.2	25.3	
LOS	B	B		C	C	
Approach Delay	12.5			20.2	25.3	
Approach LOS	B			C	C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 80.1			
Natural Cycle: 40			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 20.2		Intersection LOS: C	
Intersection Capacity Utilization 41.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 119: EB US 74 Off Ramp & US 601

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB off to US 601
Junction:	310
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3B
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1734	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	477	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	289	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	700	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1734	477	289	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	482	133	80	v
Trucks and buses	5	5	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2071	570	360	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.682 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1594 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2071	6750	No
v_{12}	1594	4400	No
$v_{FO} = v_F - v_R$	1501	6750	No
v_R	570	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 16.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.414

Space mean speed in ramp influence area, S_R = 49.6 mph

Space mean speed in outer lanes, S_0 = 60.3 mph

Space mean speed for all vehicles, S = 51.7 mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB off to US 601
Junction:	310
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3B
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2140	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	521	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	384	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	700	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2140		521		384		vph
Peak-hour factor, PHF	0.90		0.90		0.90		
Peak 15-min volume, v15	594		145		107		v
Trucks and buses	5		5		8		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		

Heavy vehicle adjustment, fHV	0.930	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2556	622	478	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.667 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1913 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2556	6750	No
v_{12}	1913	4400	No
$v_{FO} = v_F - v_R$	1934	6750	No
v_R	622	2100	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 18.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.419	
Space mean speed in ramp influence area,	S_R = 49.6	mph
Space mean speed in outer lanes,	S_O = 60.3	mph
Space mean speed for all vehicles,	S = 51.9	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB on from US 601
Junction:	311
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3B
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1815	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	40.0	mph
Volume on ramp	335	vph
Length of first accel/decel lane	250	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	453	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1815	335	453	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	504	93	126	v
Trucks and buses	5	8	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2168	417	541	pcph

Estimation of V12 Merge Areas

L_{EQ} = 353.99 (Equation 25-2 or 25-3)

P_{FM} = 0.585 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1267 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2585	6750	No
v_{R12}	1684	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 16.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.322

Space mean speed in ramp influence area, S_R = 50.8 mph

Space mean speed in outer lanes, S_O = 53.6 mph

Space mean speed for all vehicles, S = 51.7 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB on from US 601
Junction:	311
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3B
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1399	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	40.0	mph
Volume on ramp	345	vph
Length of first accel/decel lane	250	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	484	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1399	345	484	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	389	96	134	v
Trucks and buses	5	8	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1671	429	578	pcph

Estimation of V12 Merge Areas

L_{EQ} = 250.20 (Equation 25-2 or 25-3)

P_{FM} = 0.585 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 977 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2100	6750	No
v_{R12}	1406	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 14.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.317	
Space mean speed in ramp influence area,	S_R = 50.9	mph
Space mean speed in outer lanes,	S_O = 54.3	mph
Space mean speed for all vehicles,	S = 52.0	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB on from US 601 SB
Junction:	312
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3B
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1257	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	289	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	477	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	700	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1257	289	477	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	349	80	133	v
Trucks and buses	5	8	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1501	360	570	pcph

Estimation of V12 Merge Areas

L_{EQ} = -563.55 (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 879 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	1861	6750	No
v_{R12}	1239	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 13.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.319

Space mean speed in ramp influence area, S_R = 50.8 mph

Space mean speed in outer lanes, S_O = 54.6 mph

Space mean speed for all vehicles, S = 52.0 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB on from US 601 SB
Junction:	312
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3B
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1619	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	384	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	521	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	700	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1619	384	521	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	450	107	145	v
Trucks and buses	5	8	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1934	478	622	pcph

Estimation of V12 Merge Areas

L_{EQ} = -445.63 (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1133 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2412	6750	No
v_{R12}	1611	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 15.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.326

Space mean speed in ramp influence area, S_R = 50.8 mph

Space mean speed in outer lanes, S_O = 53.9 mph

Space mean speed for all vehicles, S = 51.8 mph

FREEWAY WEAVING WORKSHEET

General Information

Analyst	OSR
Agency/Company	PBSJ
Date Performed	4/30/08
Analysis Time Period	AM Peak

Site Information

Freeway/Dir of Travel	US 74 WB
Weaving Seg Location	313
Jurisdiction	
Analysis Year	2035 Build Alternative 3B

Inputs

Freeway free-flow speed, SFF (mi/h)	55	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.29
Weaving seg length, L (ft)	550	Weaving ratio, R	0.31
Terrain	Rolling		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	1619	0.90	5	0	2.5	2.0	0.930	1.00	1933
Vo2	0	0.90	0	0	2.5	2.0	1.000	1.00	0
Vw1	453	0.90	5	0	2.5	2.0	0.930	1.00	541
Vw2	196	0.90	8	0	2.5	2.0	0.893	1.00	243
Vw				784	Vnw				1933
V									2717

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.15	0.00		
b (Exhibit 24-6)	2.20	4.00		
c (Exhibit 24-6)	0.97	1.30		
d (Exhibit 24-6)	0.80	0.75		
Weaving intensity factor, Wi	0.94	0.41		
Weaving and non-weaving speeds, Si (mi/h)	38.20	46.96		

Number of lanes required for unconstrained operation, Nw 1.29
Maximum number of lanes, Nw (max) 1.40

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	44.04
Weaving segment density, D (pc/mi/ln)	15.42
Level of service, LOS	B
Capacity of base condition, c_b (pc/h)	5835
Capacity as a 15-minute flow rate, c (veh/h)	5428
Capacity as a full-hour volume, c_h (veh/h)	4885

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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FREEWAY WEAVING WORKSHEET

General Information

Analyst	OSR
Agency/Company	PBSJ
Date Performed	4/30/08
Analysis Time Period	PM Peak

Site Information

Freeway/Dir of Travel	US 74 WB
Weaving Seg Location	313
Jurisdiction	
Analysis Year	2035 Build Alternative 3B

Inputs

Freeway free-flow speed, SFF (mi/h)	55	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.33
Weaving seg length, L (ft)	550	Weaving ratio, R	0.23
Terrain	Rolling		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	1257	0.90	5	0	2.5	2.0	0.930	1.00	1501
Vo2	0	0.90	0	0	2.5	2.0	1.000	1.00	0
Vw1	484	0.90	5	0	2.5	2.0	0.930	1.00	578
Vw2	142	0.90	8	0	2.5	2.0	0.893	1.00	176
Vw				754	Vnw				1501
V									2255

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.15	0.00		
b (Exhibit 24-6)	2.20	4.00		
c (Exhibit 24-6)	0.97	1.30		
d (Exhibit 24-6)	0.80	0.75		
Weaving intensity factor, Wi	0.85	0.37		
Weaving and non-weaving speeds, Si (mi/h)	39.36	47.89		

Number of lanes required for unconstrained operation, Nw 1.39
Maximum number of lanes, Nw (max) 1.40

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	44.65
Weaving segment density, D (pc/mi/ln)	12.63
Level of service, LOS	B
Capacity of base condition, c_b (pc/h)	5590
Capacity as a 15-minute flow rate, c (veh/h)	5200
Capacity as a full-hour volume, c_h (veh/h)	4680

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB on from US 601 NB
Junction:	314
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3B
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1546	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	40.0	mph
Volume on ramp	484	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	289	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1546	484	289	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	429	134	80	v
Trucks and buses	5	8	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1847	602	360	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1082 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2449	6750	No
v_{R12}	1684	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 16.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.318	
Space mean speed in ramp influence area,	S_R = 50.9	mph
Space mean speed in outer lanes,	S_O = 54.0	mph
Space mean speed for all vehicles,	S = 51.8	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB on from US 601 NB
Junction:	314
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3B
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2003	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	40.0	mph
Volume on ramp	453	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	384	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2003	453	384	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	556	126	107	v
Trucks and buses	5	8	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2392	564	478	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1401 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2956	6750	No
v_{R12}	1965	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 18.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.325

Space mean speed in ramp influence area, S_R = 50.8 mph

Space mean speed in outer lanes, S_O = 53.2 mph

Space mean speed for all vehicles, S = 51.6 mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB off to US 601
Junction:	315
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3B
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2456	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	384	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	196	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	400	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2456		384		196		vph
Peak-hour factor, PHF	0.90		0.90		0.90		
Peak 15-min volume, v15	682		107		54		v
Trucks and buses	5		5		8		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		

Heavy vehicle adjustment, fHV	0.930	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2934	459	244	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.666 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2106 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2934	6750	No
v_{12}	2106	4400	No
$v_{FO} = v_F - v_R$	2475	6750	No
v_R	459	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 19.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.404	
Space mean speed in ramp influence area,	S_R = 49.7	mph
Space mean speed in outer lanes,	S_O = 60.3	mph
Space mean speed for all vehicles,	S = 52.3	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB off to US 601
Junction:	315
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3B
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2030	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	289	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	142	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	400	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2030		289		142		vph
Peak-hour factor, PHF	0.90		0.90		0.90		
Peak 15-min volume, v15	564		80		39		v
Trucks and buses	5		5		8		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		

Heavy vehicle adjustment, fHV	0.930	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2425	345	177	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.684 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1767 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2425	6750	No
v_{12}	1767	4400	No
$v_{FO} = v_F - v_R$	2080	6750	No
v_R	345	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 16.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

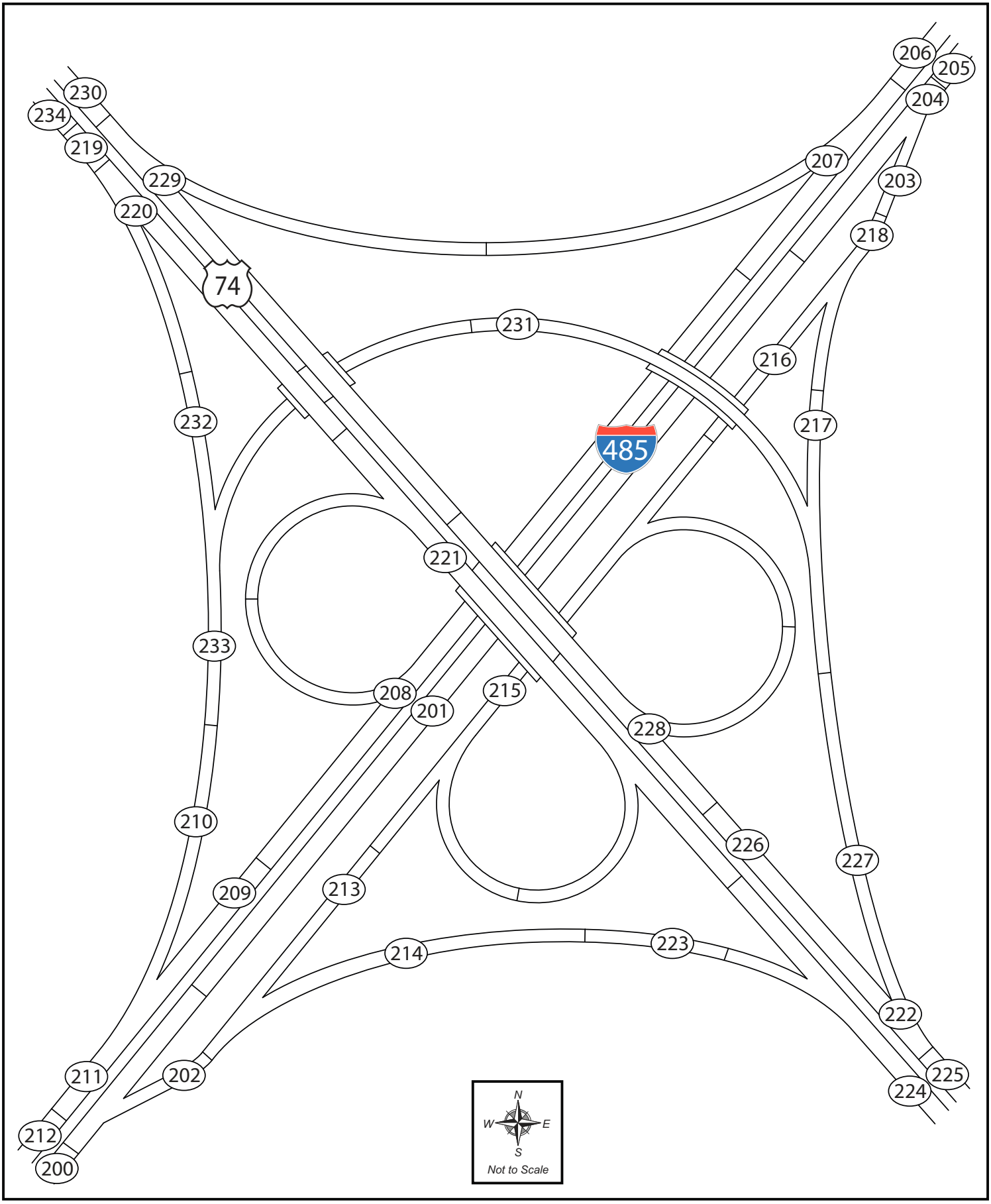
Intermediate speed variable,	D_S = 0.394	
Space mean speed in ramp influence area,	S_R = 49.9	mph
Space mean speed in outer lanes,	S_0 = 60.3	mph
Space mean speed for all vehicles,	S = 52.3	mph

E-11

Alternative 3C

E-11-1

US 74 / I-485 I/C



NORTH CAROLINA Turnpike Authority

MONROE CONNECTOR / BYPASS

TIP Project Numbers R-3329 & R-2559

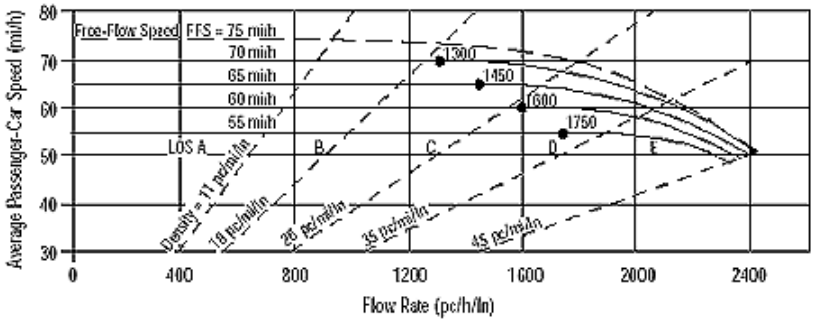
Mecklenburg and Union Counties

US 74 Corridor
I-485
Key Sheet

Appendix E

KeysheetUS74CorridorI485.ai

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	04/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 NB south of Interchange
From/To	
Jurisdiction	200
Analysis Year	2035 Build Toll Alternative 3C

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4135 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	67.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1715	pc/h/ln
S	66.2	mi/h
D = v_p / S	25.9	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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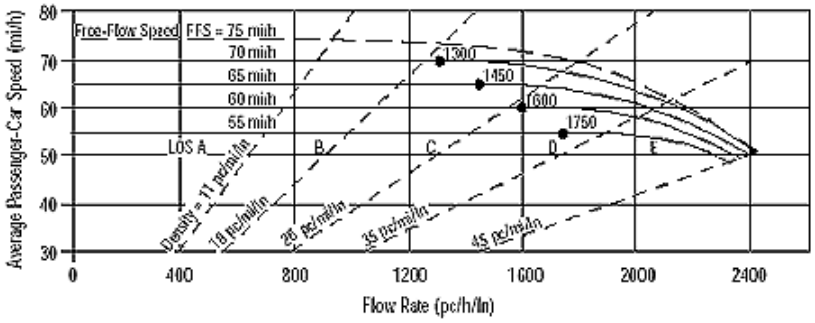
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	04/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 NB south of Interchange
From/To	
Jurisdiction	200
Analysis Year	2035 Build Toll Alternative 3C

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	5073 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	67.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	2104	pc/h/ln
S	60.7	mi/h
D = v_p / S	34.7	pc/mi/ln
LOS	D	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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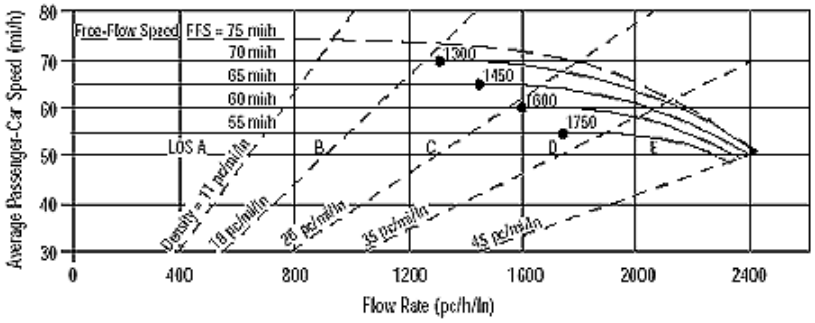
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	04/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 NB
From/To	
Jurisdiction	201
Analysis Year	2035 Build Toll Alternative 3C

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	2450 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	4.5	mi/h
FFS	65.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1524	pc/h/ln
S	65.5	mi/h
D = v_p / S	23.3	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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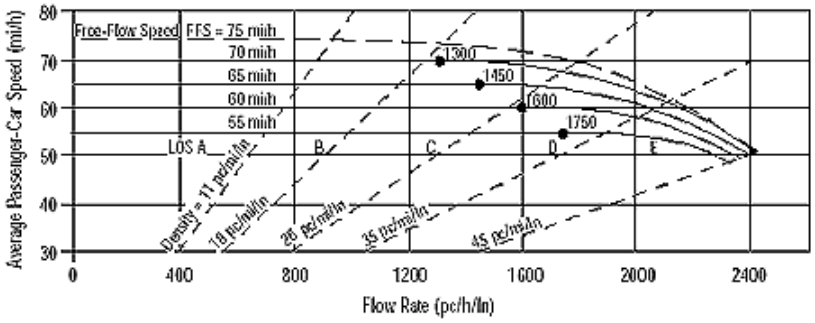
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	04/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 NB
From/To	
Jurisdiction	201
Analysis Year	2035 Build Toll Alternative 3C

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	3121 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	4.5	mi/h
FFS	65.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1942	pc/h/ln
S	62.7	mi/h
D = v_p / S	31.0	pc/mi/ln
LOS	D	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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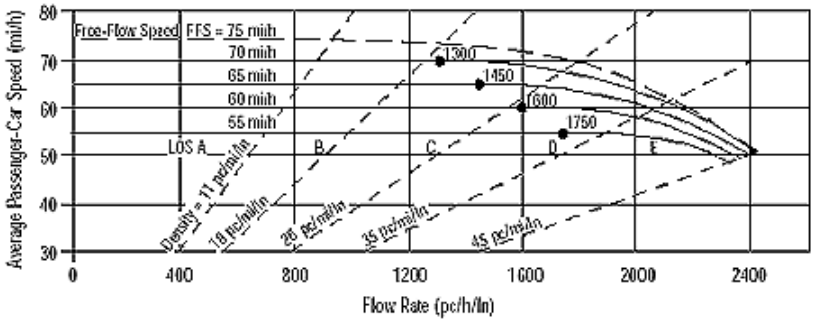
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 NB off ramp
From/To	
Jurisdiction	202
Analysis Year	2035 Build Toll Alternative 3C

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1685 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1048	pc/h/ln
S	55.0	mi/h
D = v_p / S	19.1	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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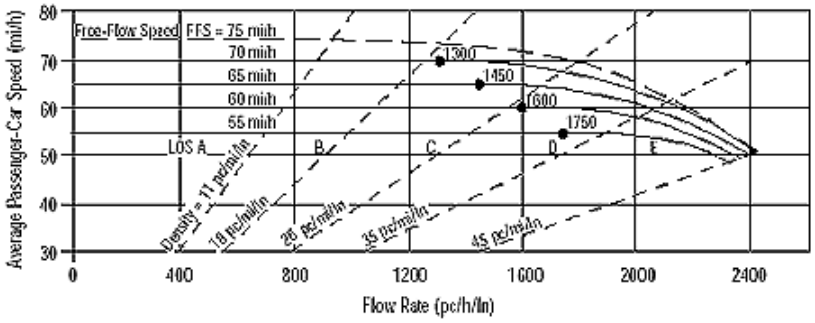
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 NB off ramp
From/To	
Jurisdiction	202
Analysis Year	2035 Build Toll Alternative 3C

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1952 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1215	pc/h/ln
S	55.0	mi/h
D = v_p / S	22.1	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	AM Peak

Site Information

Highway/Dir of Travel	I-485 NB On Ramp
From/To	
Jurisdiction	203
Analysis Year	2035 Build Toll Alternative 3C

Flow Inputs

Volume, V	1296 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	9%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.88106$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 1634.40$$

LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **29.9**

LOS: **D**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	PM Peak

Site Information

Highway/Dir of Travel	I-485 NB On Ramp
From/To	
Jurisdiction	203
Analysis Year	2035 Build Toll Alternative 3C

Flow Inputs

Volume, V	1441 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	9%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.88106$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 1817.26$$

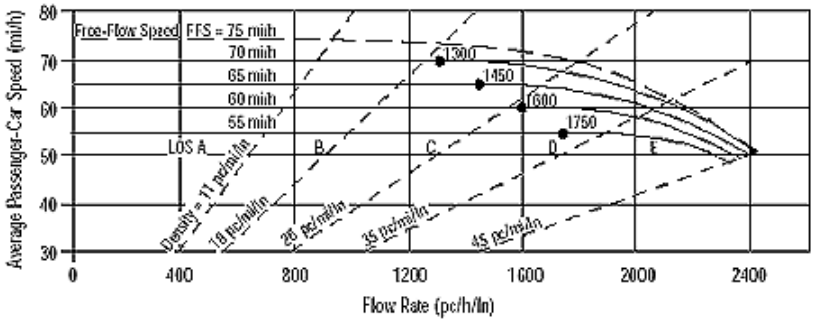
LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **33.2**

LOS: **D**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 NB
From/To	
Jurisdiction	204
Analysis Year	2035 Build Toll Alternative 3C

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	3746 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.930

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	67.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1491	pc/h/ln
S	67.0	mi/h
D = v_p / S	22.3	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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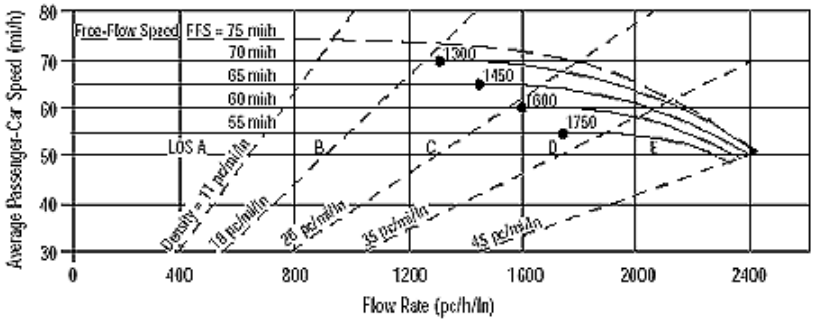
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 NB
From/To	
Jurisdiction	204
Analysis Year	2035 Build Toll Alternative 3C

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4562 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.930

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	67.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1816	pc/h/ln
S	65.4	mi/h
D = v_p / S	27.8	pc/mi/ln
LOS	D	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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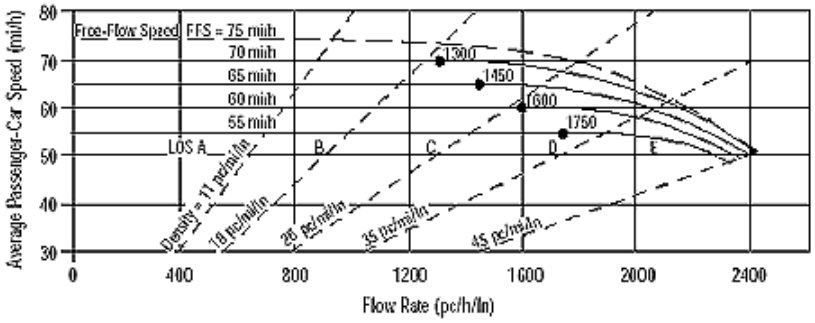
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 NB
From/To	
Jurisdiction	205
Analysis Year	2035 Build Toll Alternative 3C

Project Description Monroe Bypass / Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	3746 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.930

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	4.5	mi/h
FFS	65.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	2237	pc/h/ln
S	56.3	mi/h
D = v_p / S	39.7	pc/mi/ln
LOS	E	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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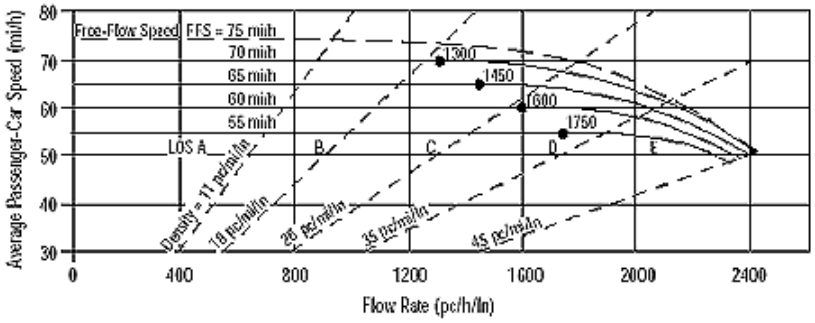
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 NB
From/To	
Jurisdiction	205
Analysis Year	2035 Build Toll Alternative 3C

Project Description Monroe Bypass / Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4562 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.930

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	4.5	mi/h
FFS	65.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	2725	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	F	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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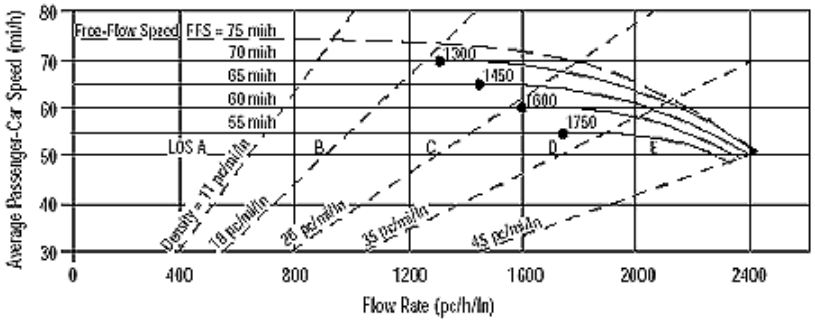
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 SB
From/To	
Jurisdiction	206
Analysis Year	2035 Build Toll Alternative 3C

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4562 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.930

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	4.5	mi/h
FFS	65.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	2725	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	F	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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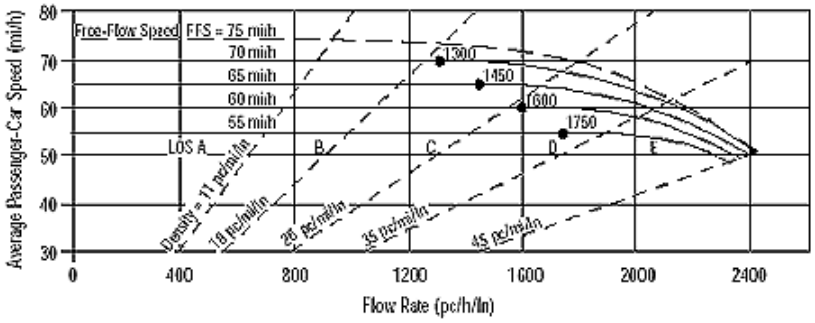
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 SB
From/To	
Jurisdiction	206
Analysis Year	2035 Build Toll Alternative 3C

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	3746 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.930

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	4.5	mi/h
FFS	65.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	2237	pc/h/ln
S	56.3	mi/h
D = v_p / S	39.7	pc/mi/ln
LOS	E	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/24/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-485 SB Off Ramp
Junction:	I-485 SB and US 74 WB
Jurisdiction:	207
Analysis Year:	2035 Build Toll Alternative 3C
Description:	Monroe Bypass/Connector

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4562	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	628	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent ramp		vph
Position of adjacent ramp		
Type of adjacent ramp		
Distance to adjacent ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	4562		628			vph
Peak-hour factor, PHF	0.90		0.90			
Peak 15-min volume, v15	1267		174			v
Trucks and buses	5		5			%
Recreational vehicles	0		0			%
Terrain type:	Rolling		Rolling			
Grade	0.00	%	0.00	%		%
Length	0.00	mi	0.00	mi		mi
Trucks and buses PCE, ET	2.5		2.5			
Recreational vehicle PCE, ER	2.0		2.0			

Heavy vehicle adjustment, fHV	0.930	0.930	
Driver population factor, fP	1.00	1.00	
Flow rate, vp	5449	750	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 5449 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5449	4800	Yes
v_{12}	5449	4400	Yes
$v_{FO} = v_F - v_R$	4699	4800	No
v_R	750	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 48.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable,	D_S = 0.366	
Space mean speed in ramp influence area,	S_R = 59.8	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 59.8	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/24/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-485 SB Off Ramp
Junction:	I-485 SB and US 74 WB
Jurisdiction:	207
Analysis Year:	2035 Build Toll Alternative 3C
Description:	Monroe Bypass/Connector

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3746	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	489	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent ramp		vph
Position of adjacent ramp		
Type of adjacent ramp		
Distance to adjacent ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3746	489		vph
Peak-hour factor, PHF	0.90	0.90		
Peak 15-min volume, v15	1041	136		v
Trucks and buses	5	5		%
Recreational vehicles	0	0		%
Terrain type:	Rolling	Rolling		
Grade	0.00 %	0.00 %		%
Length	0.00 mi	0.00 mi		mi
Trucks and buses PCE, ET	2.5	2.5		
Recreational vehicle PCE, ER	2.0	2.0		

Heavy vehicle adjustment, fHV	0.930	0.930	
Driver population factor, fP	1.00	1.00	
Flow rate, vp	4474	584	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 4474 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4474	4800	No
v_{12}	4474	4400	Yes
$v_{FO} = v_F - v_R$	3890	4800	No
v_R	584	2100	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 40.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable,	D_S = 0.351	
Space mean speed in ramp influence area,	S_R = 60.2	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 60.2	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/24/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-485 SB Off Ramp
Junction:	I-485 SB and US 74 EB
Jurisdiction:	208
Analysis Year:	2035 Build Toll Alternative 3C
Description:	Monroe Bypass/Connector

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3934	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	25.0	mph
Volume on ramp	813	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent ramp		vph
Position of adjacent ramp		
Type of adjacent ramp		
Distance to adjacent ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3934	813		vph
Peak-hour factor, PHF	0.90	0.90		
Peak 15-min volume, v15	1093	226		v
Trucks and buses	5	5		%
Recreational vehicles	0	0		%
Terrain type:	Rolling	Rolling		
Grade	0.00 %	0.00 %		%
Length	0.00 mi	0.00 mi		mi
Trucks and buses PCE, ET	2.5	2.5		
Recreational vehicle PCE, ER	2.0	2.0		

Heavy vehicle adjustment, fHV	0.930	0.930	
Driver population factor, fP	1.00	1.00	
Flow rate, vp	4699	971	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 4699 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4699	4800	No
v_{12}	4699	4400	Yes
$v_{FO} = v_F - v_R$	3728	4800	No
v_R	971	1900	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 40.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable,	D_S = 0.645	
Space mean speed in ramp influence area,	S_R = 51.9	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 51.9	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/24/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-485 SB Off Ramp
Junction:	I-485 SB and US 74 EB
Jurisdiction:	208
Analysis Year:	2035 Build Toll Alternative 3C
Description:	Monroe Bypass/Connector

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3257	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	25.0	mph
Volume on ramp	807	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent ramp		vph
Position of adjacent ramp		
Type of adjacent ramp		
Distance to adjacent ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3257	807		vph
Peak-hour factor, PHF	0.90	0.90		
Peak 15-min volume, v15	905	224		v
Trucks and buses	5	5		%
Recreational vehicles	0	0		%
Terrain type:	Rolling	Rolling		
Grade	0.00 %	0.00 %		%
Length	0.00 mi	0.00 mi		mi
Trucks and buses PCE, ET	2.5	2.5		
Recreational vehicle PCE, ER	2.0	2.0		

Heavy vehicle adjustment, fHV	0.930	0.930	
Driver population factor, fP	1.00	1.00	
Flow rate, vp	3890	964	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3890 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3890	4800	No
v_{12}	3890	4400	No
$v_{FO} = v_F - v_R$	2926	4800	No
v_R	964	1900	No

Level of Service Determination (if not F)

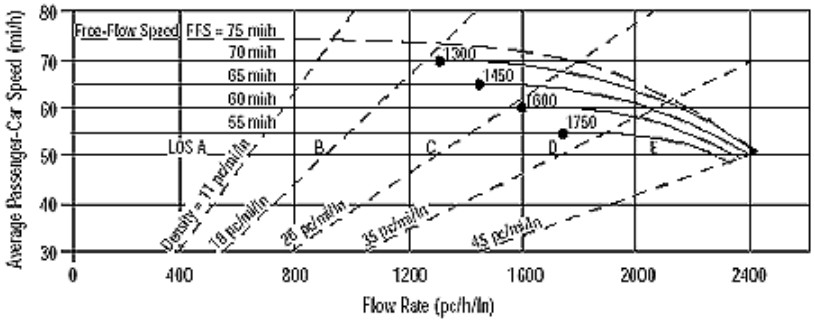
Density, $D = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 33.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable,	D_S = 0.645	
Space mean speed in ramp influence area,	S_R = 51.9	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 51.9	mph

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 SB
From/To	
Jurisdiction	209
Analysis Year	2035 Build Toll Alternative 3C

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	3121 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	4.5	mi/h
FFS	65.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1942	pc/h/ln
S	62.7	mi/h
D = v_p / S	31.0	pc/mi/ln
LOS	D	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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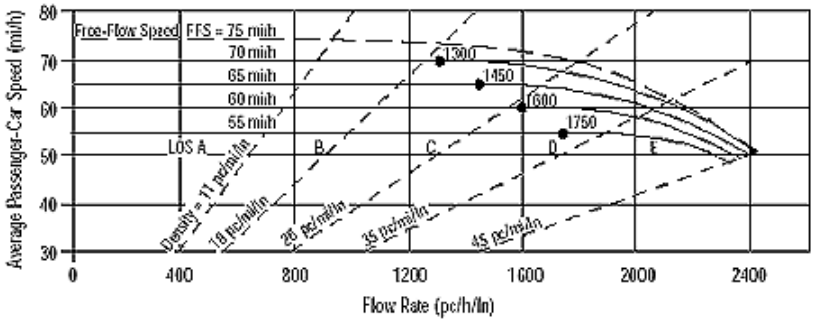
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 SB
From/To	
Jurisdiction	209
Analysis Year	2035 Build Toll Alternative 3C

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	2450 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	4.5	mi/h
FFS	65.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1524	pc/h/ln
S	65.5	mi/h
D = v_p / S	23.3	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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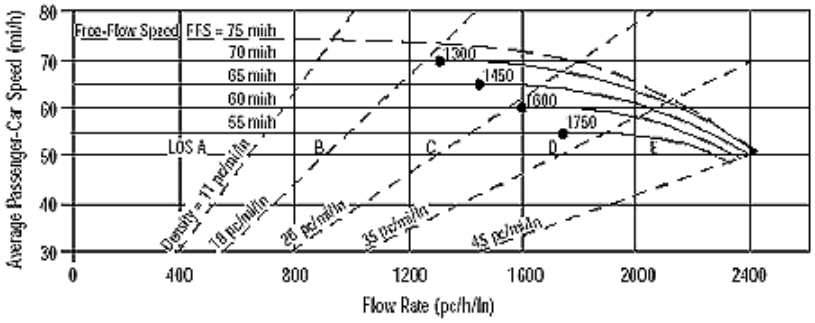
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 SB On Ramp
From/To	
Jurisdiction	210
Analysis Year	2035 Build Toll Alternative 3C

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1952 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1231	pc/h/ln
S	55.0	mi/h
D = v_p / S	22.4	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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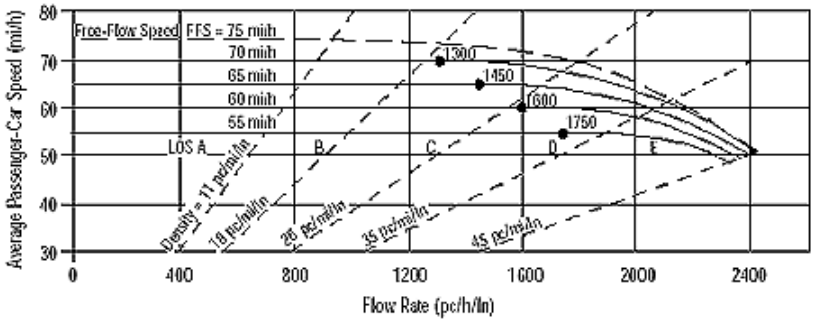
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 SB On Ramp
From/To	
Jurisdiction	210
Analysis Year	2035 Build Toll Alternative 3C

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1685 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1062	pc/h/ln
S	55.0	mi/h
D = v_p / S	19.3	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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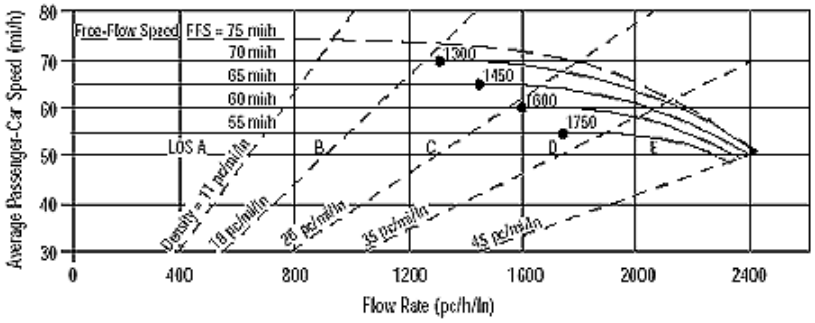

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 SB
From/To	
Jurisdiction	211
Analysis Year	2035 Build Toll Alternative 3C

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	5073 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	1.5	mi/h
FFS	68.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1578	pc/h/ln
S	68.2	mi/h
D = v_p / S	23.1	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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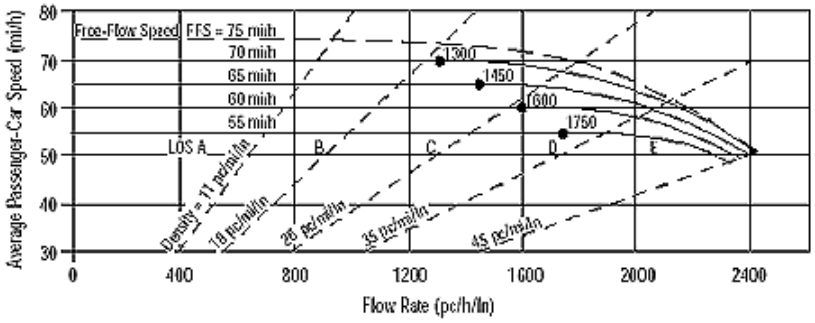

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 SB
From/To	
Jurisdiction	211
Analysis Year	2035 Build Toll Alternative 3C

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4135 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	1.5	mi/h
FFS	68.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1286	pc/h/ln
S	68.5	mi/h
D = v_p / S	18.8	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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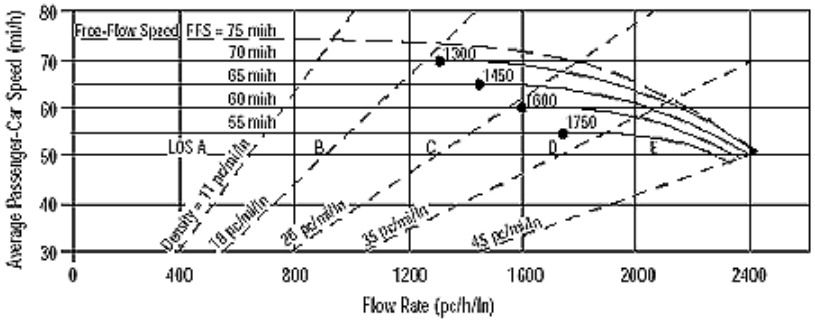

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 SB
From/To	
Jurisdiction	212
Analysis Year	2035 Build Toll Alternative 3C

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	5073 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	67.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	2104	pc/h/ln
S	60.7	mi/h
D = v_p / S	34.7	pc/mi/ln
LOS	D	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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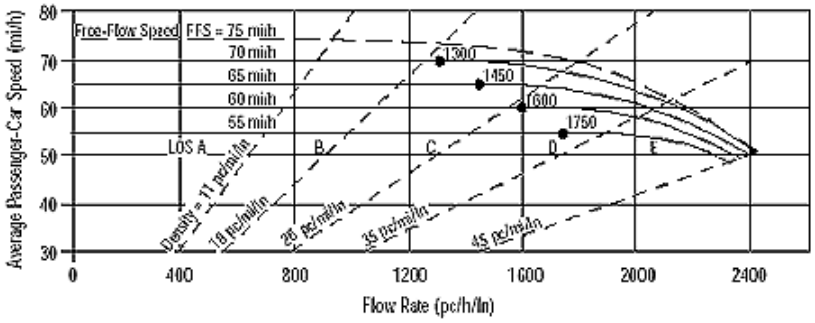

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 SB
From/To	
Jurisdiction	212
Analysis Year	2035 Build Toll Alternative 3C

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4135 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	67.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1715	pc/h/ln
S	66.2	mi/h
D = v_p / S	25.9	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	AM Peak

Site Information

Highway/Dir of Travel	I-485 NB Off Ramp
From/To	
Jurisdiction	213
Analysis Year	2035 Build Toll Alternative 3C

Flow Inputs

Volume, V	655 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	8%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.89286$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 815.11$$

LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **14.8**

LOS: **B**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	PM Peak

Site Information

Highway/Dir of Travel	I-485 NB Off Ramp
From/To	
Jurisdiction	213
Analysis Year	2035 Build Toll Alternative 3C

Flow Inputs

Volume, V	649 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	8%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.89286$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 807.64$$

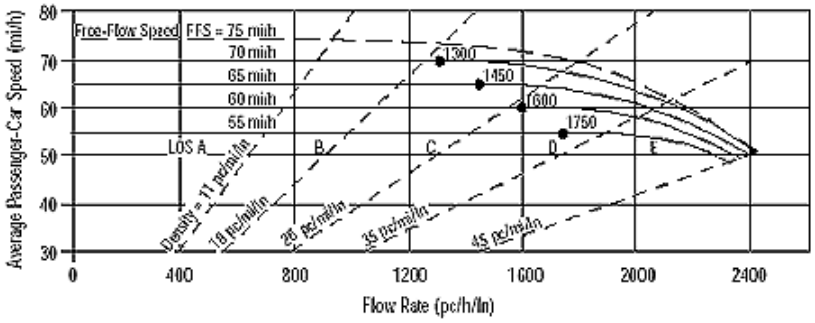
LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **14.7**

LOS: **B**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 NB Off Ramp
From/To	
Jurisdiction	214
Analysis Year	2035 Build Toll Alternative 3C

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1030 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	641	pc/h/ln
S	55.0	mi/h
D = v_p / S	11.7	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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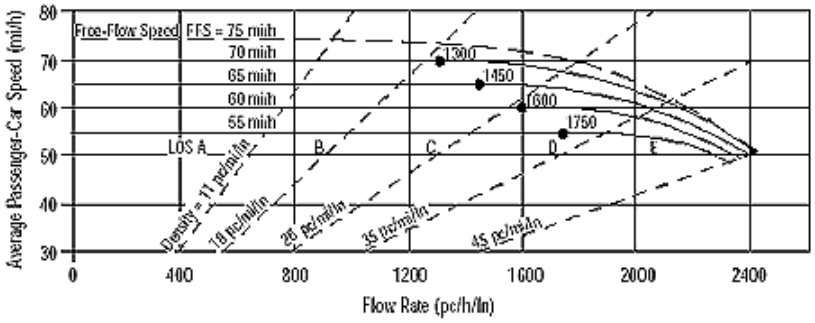
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 NB Off Ramp
From/To	
Jurisdiction	214
Analysis Year	2035 Build Toll Alternative 3C

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1303 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	811	pc/h/ln
S	55.0	mi/h
D = v_p / S	14.7	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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FREEWAY WEAVING WORKSHEET

General Information

Analyst	OSR
Agency/Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Freeway/Dir of Travel	I-485 NB
Weaving Seg Location	215
Jurisdiction	
Analysis Year	2035 Build Toll Alternative 3C

Inputs

Freeway free-flow speed, SFF (mi/h)	45	Weaving type	A
Weaving number of lanes, N	2	Volume ratio, VR	1.00
Weaving seg length, L (ft)	700	Weaving ratio, R	0.43
Terrain	Rolling		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	0	0.90	0	0	2.5	2.0	1.000	1.00	0
Vo2	0	0.90	0	0	2.5	2.0	1.000	1.00	0
Vw1	655	0.90	8	0	2.5	2.0	0.893	1.00	815
Vw2	489	0.90	9	0	2.5	2.0	0.881	1.00	616
Vw				1431	Vnw				0
V									1431

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.00
b (Exhibit 24-6)			4.00	4.00
c (Exhibit 24-6)			0.97	1.30
d (Exhibit 24-6)			0.80	0.75
Weaving intensity factor, Wi			5.00	1.21
Weaving and non-weaving speeds, Si (mi/h)			20.83	30.85

Number of lanes required for unconstrained operation, Nw 1.64
Maximum number of lanes, Nw (max) 1.40

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	20.83
Weaving segment density, D (pc/mi/ln)	34.35
Level of service, LOS	D
Capacity of base condition, c_b (pc/h)	
Capacity as a 15-minute flow rate, c (veh/h)	
Capacity as a full-hour volume, c_h (veh/h)	

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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FREEWAY WEAVING WORKSHEET

General Information

Analyst	OSR
Agency/Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Freeway/Dir of Travel	I-485 NB
Weaving Seg Location	215
Jurisdiction	
Analysis Year	2035 Build Toll Alternative 3C

Inputs

Freeway free-flow speed, S_{FF} (mi/h)	45	Weaving type	A
Weaving number of lanes, N	2	Volume ratio, VR	1.00
Weaving seg length, L (ft)	700	Weaving ratio, R	0.49
Terrain	Rolling		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	0	0.90	0	0	2.5	2.0	1.000	1.00	0
Vo2	0	0.90	0	0	2.5	2.0	1.000	1.00	0
Vw1	649	0.90	8	0	2.5	2.0	0.893	1.00	807
Vw2	628	0.90	9	0	2.5	2.0	0.881	1.00	791
Vw				1598	Vnw				0
V									1598

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.00
b (Exhibit 24-6)			4.00	4.00
c (Exhibit 24-6)			0.97	1.30
d (Exhibit 24-6)			0.80	0.75
Weaving intensity factor, Wi			5.57	1.40
Weaving and non-weaving speeds, Si (mi/h)			20.33	29.61

Number of lanes required for unconstrained operation, Nw 1.66
Maximum number of lanes, Nw (max) 1.40

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	20.33
Weaving segment density, D (pc/mi/ln)	39.30
Level of service, LOS	E
Capacity of base condition, c_b (pc/h)	
Capacity as a 15-minute flow rate, c (veh/h)	
Capacity as a full-hour volume, c_h (veh/h)	

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	AM Peak

Site Information

Highway/Dir of Travel	I-485 NB On Ramp
From/To	
Jurisdiction	216
Analysis Year	2035 Build Toll Alternative 3C

Flow Inputs

Volume, V	489 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	8%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.89286$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 608.53$$

LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **11.1**

LOS: **B**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	PM Peak

Site Information

Highway/Dir of Travel	I-485 NB On Ramp
From/To	
Jurisdiction	216
Analysis Year	2035 Build Toll Alternative 3C

Flow Inputs

Volume, V	628 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	8%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.89286$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 781.51$$

LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **14.2**

LOS: **B**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	AM Peak

Site Information

Highway/Dir of Travel	I-485 NB On Ramp
From/To	
Jurisdiction	217
Analysis Year	2035 Build Toll Alternative 3C

Flow Inputs

Volume, V	807 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	9%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.88106$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 1017.72$$

LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **18.5**

LOS: **C**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	PM Peak

Site Information

Highway/Dir of Travel	I-485 NB On Ramp
From/To	
Jurisdiction	217
Analysis Year	2035 Build Toll Alternative 3C

Flow Inputs

Volume, V	813 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	9%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.88106$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 1025.28$$

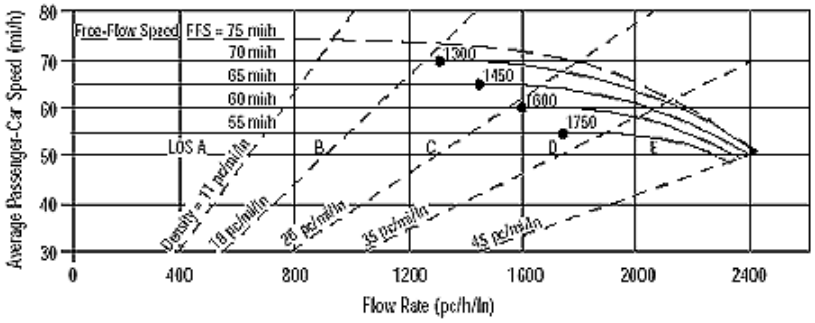
LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **18.6**

LOS: **C**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 NB On Ramp
From/To	
Jurisdiction	218
Analysis Year	2035 Build Toll Alternative 3C

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1296 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	817	pc/h/ln
S	55.0	mi/h
D = v_p / S	14.9	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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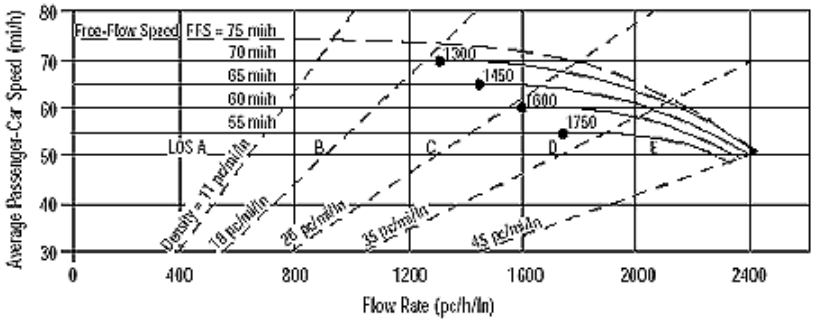
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 NB On Ramp
From/To	
Jurisdiction	218
Analysis Year	2035 Build Toll Alternative 3C

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1441 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	909	pc/h/ln
S	55.0	mi/h
D = v_p / S	16.5	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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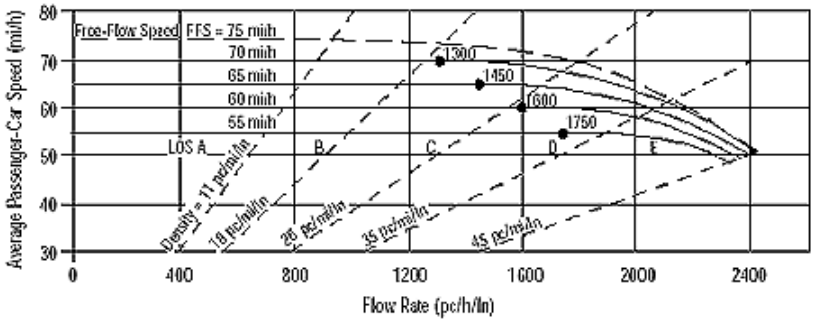
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	US 74 EB
From/To	
Jurisdiction	219
Analysis Year	2035 Build Toll Alternative 3C

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	3421 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	1.5	mi/h
FFS	58.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1079	pc/h/ln
S	58.5	mi/h
D = v_p / S	18.4	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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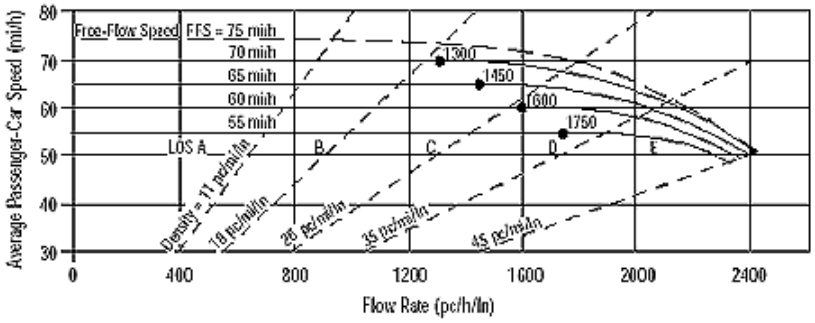
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	US 74 EB
From/To	
Jurisdiction	219
Analysis Year	2035 Build Toll Alternative 3C

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4196 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	1.5	mi/h
FFS	58.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1323	pc/h/ln
S	58.5	mi/h
D = v_p / S	22.6	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/24/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB Off Ramp
Junction:	US 74 EB and I-485 SB
Jurisdiction:	220
Analysis Year:	2035 Build Toll Alternative 3C
Description:	Monroe Bypass/Connector

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3421	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	649	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent ramp		vph
Position of adjacent ramp		
Type of adjacent ramp		
Distance to adjacent ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	3421		649			vph
Peak-hour factor, PHF	0.90		0.90			
Peak 15-min volume, v15	950		180			v
Trucks and buses	9		9			%
Recreational vehicles	0		0			%
Terrain type:	Rolling		Rolling			
Grade	0.00	%	0.00	%		%
Length	0.00	mi	0.00	mi		mi
Trucks and buses PCE, ET	2.5		2.5			
Recreational vehicle PCE, ER	2.0		2.0			

Heavy vehicle adjustment, fHV	0.881	0.881	
Driver population factor, fP	1.00	1.00	
Flow rate, vp	4314	818	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2342 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4314	9200	No
v_{12}	2342	4400	No
$v_{FO} = v_F - v_R$	3496	9200	No
v_R	818	2100	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 22.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.372	
Space mean speed in ramp influence area,	S_R = 53.3	mph
Space mean speed in outer lanes,	S_0 = 65.8	mph
Space mean speed for all vehicles,	S = 58.4	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/24/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB Off Ramp
Junction:	US 74 EB and I-485 SB
Jurisdiction:	220
Analysis Year:	2035 Build Toll Alternative 3C
Description:	Monroe Bypass/Connector

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	4196	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	655	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent ramp		vph
Position of adjacent ramp		
Type of adjacent ramp		
Distance to adjacent ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4196	655		vph
Peak-hour factor, PHF	0.90	0.90		
Peak 15-min volume, v15	1166	182		v
Trucks and buses	9	9		%
Recreational vehicles	0	0		%
Terrain type:	Rolling	Rolling		
Grade	0.00 %	0.00 %		%
Length	0.00 mi	0.00 mi		mi
Trucks and buses PCE, ET	2.5	2.5		
Recreational vehicle PCE, ER	2.0	2.0		

Heavy vehicle adjustment, fHV	0.881	0.881	
Driver population factor, fP	1.00	1.00	
Flow rate, vp	5292	826	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2773 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5292	9200	No
v_{12}	2773	4400	No
$v_{FO} = v_F - v_R$	4466	9200	No
v_R	826	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 26.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.372	
Space mean speed in ramp influence area,	S_R = 53.3	mph
Space mean speed in outer lanes,	S_0 = 64.8	mph
Space mean speed for all vehicles,	S = 58.2	mph

FREEWAY WEAVING WORKSHEET

General Information

Analyst	OSR
Agency/Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Freeway/Dir of Travel	I-485 NB
Weaving Seg Location	221
Jurisdiction	
Analysis Year	2035 Build Toll Alternative 3C

Inputs

Freeway free-flow speed, S_{FF} (mi/h)	60	Weaving type	A
Weaving number of lanes, N	5	Volume ratio, VR	0.36
Weaving seg length, L (ft)	700	Weaving ratio, R	0.39
Terrain	Rolling		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	2283	0.90	9	0	2.5	2.0	0.881	1.00	2879
Vo2	0	0.90	0	0	2.5	2.0	1.000	1.00	0
Vw1	489	0.90	9	0	2.5	2.0	0.881	1.00	616
Vw2	813	0.90	5	0	2.5	2.0	0.930	1.00	971
Vw				1587	Vnw				2879
V									4466

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.00
b (Exhibit 24-6)			4.00	4.00
c (Exhibit 24-6)			0.97	1.30
d (Exhibit 24-6)			0.80	0.75
Weaving intensity factor, Wi			2.64	0.34
Weaving and non-weaving speeds, Si (mi/h)			28.75	52.31

Number of lanes required for unconstrained operation, Nw 1.92
Maximum number of lanes, Nw (max) 1.40

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	40.51
Weaving segment density, D (pc/mi/ln)	22.05
Level of service, LOS	C
Capacity of base condition, c_b (pc/h)	8580
Capacity as a 15-minute flow rate, c (veh/h)	7559
Capacity as a full-hour volume, c_h (veh/h)	6803

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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FREEWAY WEAVING WORKSHEET

General Information

Analyst	OSR
Agency/Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Freeway/Dir of Travel	I-485 NB
Weaving Seg Location	221
Jurisdiction	
Analysis Year	2035 Build Toll Alternative 3C

Inputs

Freeway free-flow speed, S_{FF} (mi/h)	60	Weaving type	A
Weaving number of lanes, N	5	Volume ratio, VR	0.32
Weaving seg length, L (ft)	700	Weaving ratio, R	0.45
Terrain	Rolling		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	2913	0.90	9	0	2.5	2.0	0.881	1.00	3673
Vo2	0	0.90	0	0	2.5	2.0	1.000	1.00	0
Vw1	628	0.90	9	0	2.5	2.0	0.881	1.00	791
Vw2	807	0.90	5	0	2.5	2.0	0.930	1.00	963
Vw				1754	Vnw				3673
V									5427

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.00
b (Exhibit 24-6)			4.00	4.00
c (Exhibit 24-6)			0.97	1.30
d (Exhibit 24-6)			0.80	0.75
Weaving intensity factor, Wi			3.02	0.40
Weaving and non-weaving speeds, Si (mi/h)			27.44	50.76

Number of lanes required for unconstrained operation, Nw 1.85
Maximum number of lanes, Nw (max) 1.40

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	39.82
Weaving segment density, D (pc/mi/ln)	27.26
Level of service, LOS	C
Capacity of base condition, c_b (pc/h)	8580
Capacity as a 15-minute flow rate, c (veh/h)	7559
Capacity as a full-hour volume, c_h (veh/h)	6803

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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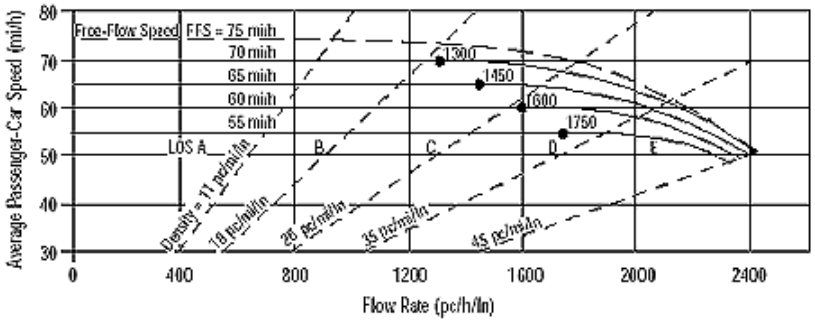
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	US 74 EB
From/To	
Jurisdiction	222
Analysis Year	2035 Build Toll Alternative 3C

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	5023 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	1.5	mi/h
FFS	58.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1584	pc/h/ln
S	58.5	mi/h
D = v_p / S	27.1	pc/mi/ln
LOS	D	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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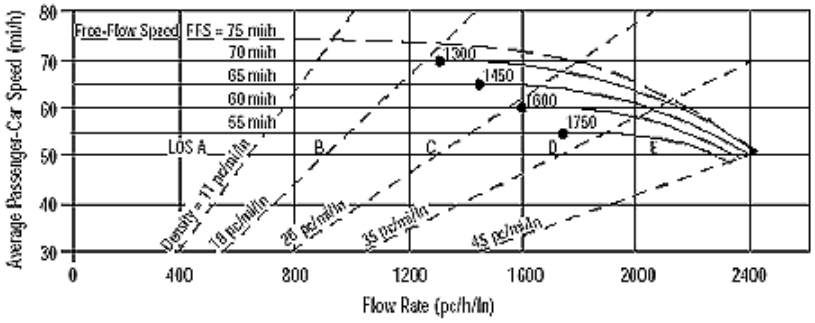
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	US 74 EB
From/To	
Jurisdiction	222
Analysis Year	2035 Build Toll Alternative 3C

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4126 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	1.5	mi/h
FFS	58.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1301	pc/h/ln
S	58.5	mi/h
D = v_p / S	22.2	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	AM Peak

Site Information

Highway/Dir of Travel	US 74 SB On Ramp
From/To	
Jurisdiction	223
Analysis Year	2035 Build Toll Alternative 3C

Flow Inputs

Volume, V	1030 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	8%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.89286$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 1281.78$$

LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **23.3**

LOS: **C**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	PM Peak

Site Information

Highway/Dir of Travel	US 74 SB On Ramp
From/To	
Jurisdiction	223
Analysis Year	2035 Build Toll Alternative 3C

Flow Inputs

Volume, V	1303 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	8%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.89286$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 1621.51$$

LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **29.6**

LOS: **D**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

FREEWAY WEAVING WORKSHEET

General Information

Analyst	OSR
Agency/Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Freeway/Dir of Travel	I-485 NB
Weaving Seg Location	224
Jurisdiction	
Analysis Year	2035 Build Toll Alternative 3C

Inputs

Freeway free-flow speed, S_{FF} (mi/h)	60	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.34
Weaving seg length, L (ft)	2100	Weaving ratio, R	0.39
Terrain	Rolling		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	2554	0.90	9	0	2.5	2.0	0.881	1.00	3220
Vo2	180	0.90	8	0	2.5	2.0	0.893	1.00	224
Vw1	542	0.90	9	0	2.5	2.0	0.881	1.00	683
Vw2	850	0.90	8	0	2.5	2.0	0.893	1.00	1057
Vw				1740	Vnw				3444
V									5184

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.00
b (Exhibit 24-6)			4.00	4.00
c (Exhibit 24-6)			0.97	1.30
d (Exhibit 24-6)			0.80	0.75
Weaving intensity factor, Wi			1.52	0.23
Weaving and non-weaving speeds, Si (mi/h)			34.84	55.71

Number of lanes required for unconstrained operation, Nw 1.79
Maximum number of lanes, Nw (max) 1.40

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	46.38
Weaving segment density, D (pc/mi/ln)	27.94
Level of service, LOS	C
Capacity of base condition, c_b (pc/h)	7286
Capacity as a 15-minute flow rate, c (veh/h)	6419
Capacity as a full-hour volume, c_h (veh/h)	5777

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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FREEWAY WEAVING WORKSHEET

General Information

Analyst	OSR
Agency/Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Freeway/Dir of Travel	I-485 NB
Weaving Seg Location	224
Jurisdiction	
Analysis Year	2035 Build Toll Alternative 3C

Inputs

Freeway free-flow speed, S_{FF} (mi/h)	60	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.34
Weaving seg length, L (ft)	2100	Weaving ratio, R	0.37
Terrain	Rolling		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	3084	0.90	9	0	2.5	2.0	0.881	1.00	3889
Vo2	224	0.90	8	0	2.5	2.0	0.893	1.00	278
Vw1	636	0.90	9	0	2.5	2.0	0.881	1.00	802
Vw2	1079	0.90	8	0	2.5	2.0	0.893	1.00	1342
Vw				2144	Vnw				4167
V									6311

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.00
b (Exhibit 24-6)			4.00	4.00
c (Exhibit 24-6)			0.97	1.30
d (Exhibit 24-6)			0.80	0.75
Weaving intensity factor, Wi			1.85	0.30
Weaving and non-weaving speeds, Si (mi/h)			32.53	53.51

Number of lanes required for unconstrained operation, Nw 1.85
Maximum number of lanes, Nw (max) 1.40

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	43.89
Weaving segment density, D (pc/mi/ln)	35.95
Level of service, LOS	E
Capacity of base condition, c_b (pc/h)	7259
Capacity as a 15-minute flow rate, c (veh/h)	6396
Capacity as a full-hour volume, c_h (veh/h)	5756

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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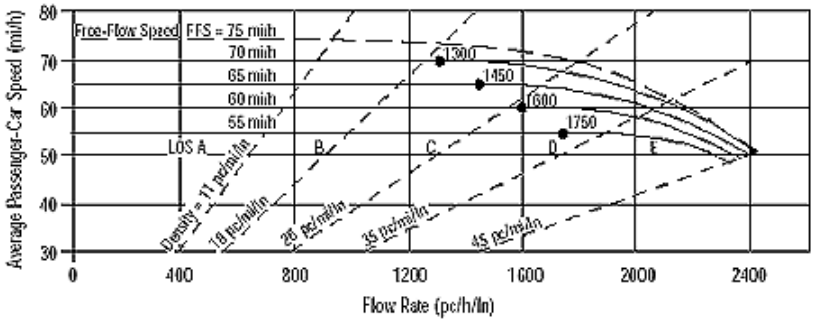
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	US 74 WB
From/To	
Jurisdiction	225
Analysis Year	2035 Build Toll Alternative 3C

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	5023 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	1.5	mi/h
FFS	58.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1584	pc/h/ln
S	58.5	mi/h
D = v_p / S	27.1	pc/mi/ln
LOS	D	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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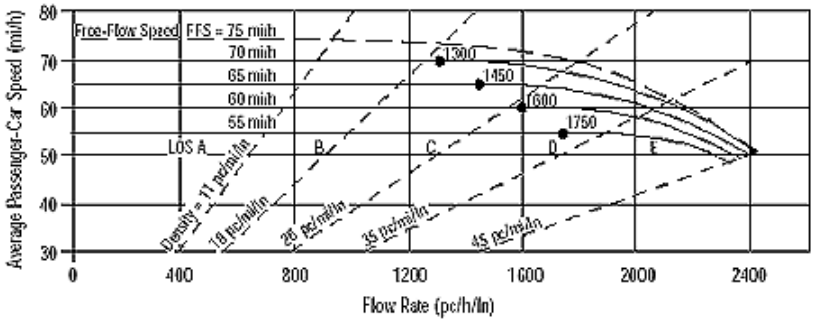
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	US 74 WB
From/To	
Jurisdiction	225
Analysis Year	2035 Build Toll Alternative 3C

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4126 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	1.5	mi/h
FFS	58.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1301	pc/h/ln
S	58.5	mi/h
D = v_p / S	22.2	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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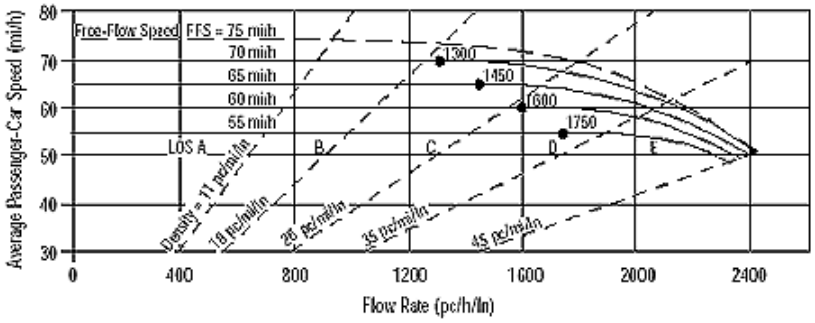
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	US 74 WB
From/To	
Jurisdiction	226
Analysis Year	2035 Build Toll Alternative 3C

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	2913 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	57.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1225	pc/h/ln
S	57.0	mi/h
D = v_p / S	21.5	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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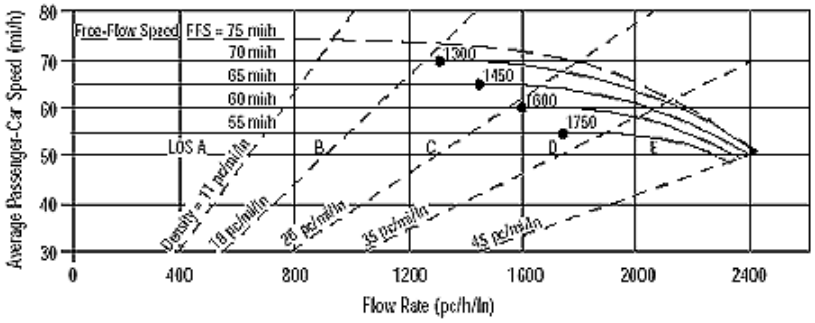
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	US 74 WB
From/To	
Jurisdiction	226
Analysis Year	2035 Build Toll Alternative 3C

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	2283 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	57.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	960	pc/h/ln
S	57.0	mi/h
D = v_p / S	16.8	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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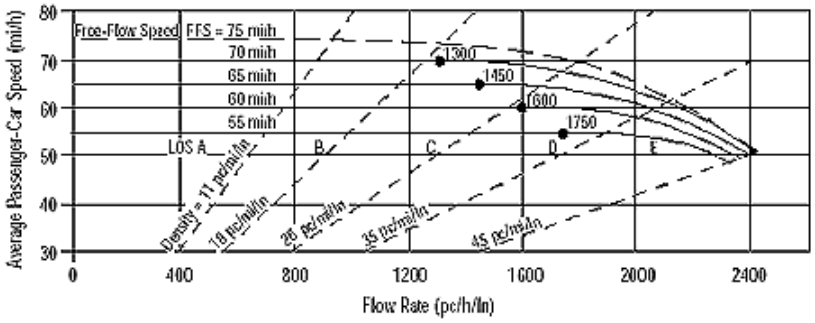
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	US 74 WB Off Ramp
From/To	
Jurisdiction	227
Analysis Year	2035 Build Toll Alternative 3C

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	2110 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1330	pc/h/ln
S	55.0	mi/h
D = v_p / S	24.2	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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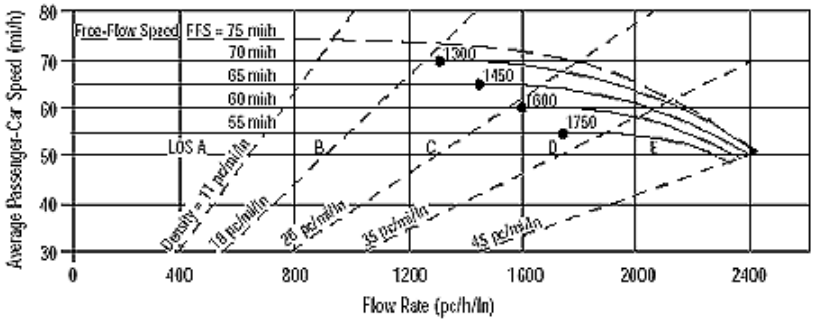
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	US 74 WB Off Ramp
From/To	
Jurisdiction	227
Analysis Year	2035 Build Toll Alternative 3C

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1843 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1162	pc/h/ln
S	55.0	mi/h
D = v_p / S	21.1	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/24/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB
Junction:	US 74 WB and I-485 NB
Jurisdiction:	228
Analysis Year:	2035 Build Toll Alternative 3C
Description:	Monroe Bypass/Connector

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2913	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	655	vph
Length of first accel/decel lane	700	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	628	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	2150	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2913	655	628	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	809	182	174	v
Trucks and buses	9	8	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.881	0.893	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3674	815	750	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.597 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 2194 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4489	6900	No
v_{R12}	3009	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 24.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.365	
Space mean speed in ramp influence area,	S_R = 53.4	mph
Space mean speed in outer lanes,	S_O = 56.5	mph
Space mean speed for all vehicles,	S = 54.4	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/24/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB
Junction:	US 74 WB and I-485 NB
Jurisdiction:	228
Analysis Year:	2035 Build Toll Alternative 3C
Description:	Monroe Bypass/Connector

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2283	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	649	vph
Length of first accel/decel lane	700	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	489	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	2150	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2283	649	489	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	634	180	136	v
Trucks and buses	9	8	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.881	0.893	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2879	808	584	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.597 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1719 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3687	6900	No
v_{R12}	2527	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 20.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.335	
Space mean speed in ramp influence area,	S_R = 54.0	mph
Space mean speed in outer lanes,	S_O = 57.6	mph
Space mean speed for all vehicles,	S = 55.1	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/24/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB
Junction:	US 74 WB and I-485 SB
Jurisdiction:	229
Analysis Year:	2035 Build Toll Alternative 3C
Description:	Monroe Bypass/Connector

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3568	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	628	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	655	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	2150	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3568	628	655	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	991	174	182	v
Trucks and buses	9	5	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.881	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4500	750	815	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.591 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 2662 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	5250	6900	No
v_{R12}	3412	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 28.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, M_S = 0.394

Space mean speed in ramp influence area, S_R = 52.9 mph

Space mean speed in outer lanes, S_O = 55.2 mph

Space mean speed for all vehicles, S = 53.7 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/24/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB
Junction:	US 74 WB and I-485 SB
Jurisdiction:	229
Analysis Year:	2035 Build Toll Alternative 3C
Description:	Monroe Bypass/Connector

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2932	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	489	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	649	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	2150	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2932	489	649	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	814	136	180	v
Trucks and buses	9	5	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.881	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3698	584	808	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.591 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 2187 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4282	6900	No
v_{R12}	2771	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A$ = 23.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.338	
Space mean speed in ramp influence area,	S_R = 53.9	mph
Space mean speed in outer lanes,	S_O = 56.4	mph
Space mean speed for all vehicles,	S = 54.8	mph

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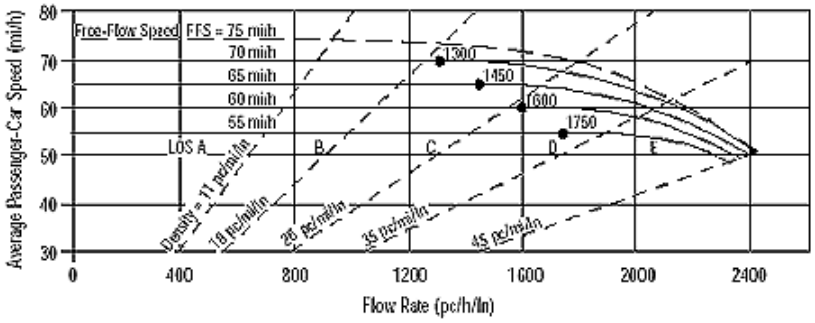

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	US 74 WB Off Ramp
From/To	
Jurisdiction	230
Analysis Year	2035 Build Toll Alternative 3C

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4196 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	57.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1764	pc/h/ln
S	57.0	mi/h
D = v_p / S	31.0	pc/mi/ln
LOS	D	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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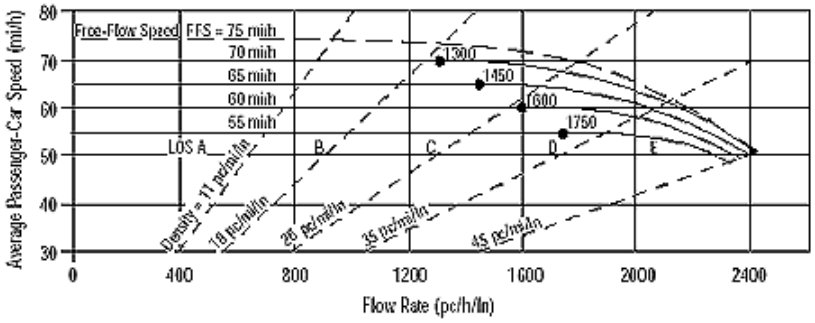
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	US 74 WB Off Ramp
From/To	
Jurisdiction	230
Analysis Year	2035 Build Toll Alternative 3C

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	3421 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	57.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1438	pc/h/ln
S	57.0	mi/h
D = v_p / S	25.2	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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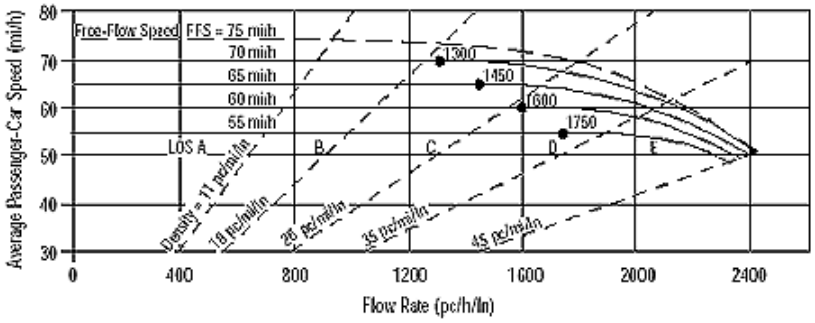
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	US 74 Flyover
From/To	
Jurisdiction	231
Analysis Year	2035 Build Toll Alternative 3C

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1303 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	822	pc/h/ln
S	55.0	mi/h
D = v_p / S	14.9	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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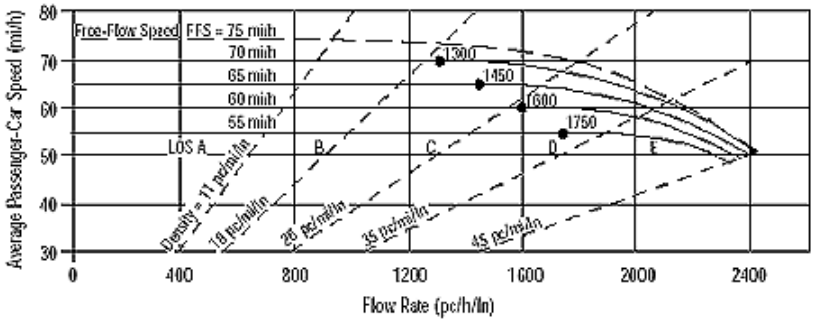
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	US 74 Flyover
From/To	
Jurisdiction	231
Analysis Year	2035 Build Toll Alternative 3C

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1030 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	649	pc/h/ln
S	55.0	mi/h
D = v_p / S	11.8	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	AM Peak

Site Information

Highway/Dir of Travel	US 74 SB Off Ramp
From/To	
Jurisdiction	232
Analysis Year	2035 Build Toll Alternative 3C

Flow Inputs

Volume, V	649 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	9%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.88106$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 818.46$$

LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **14.9**

LOS: **B**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	AM Peak

Site Information

Highway/Dir of Travel	US 74 SB Off Ramp
From/To	
Jurisdiction	232
Analysis Year	2035 Build Toll Alternative 3C

Flow Inputs

Volume, V	655 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	9%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.88106$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 826.03$$

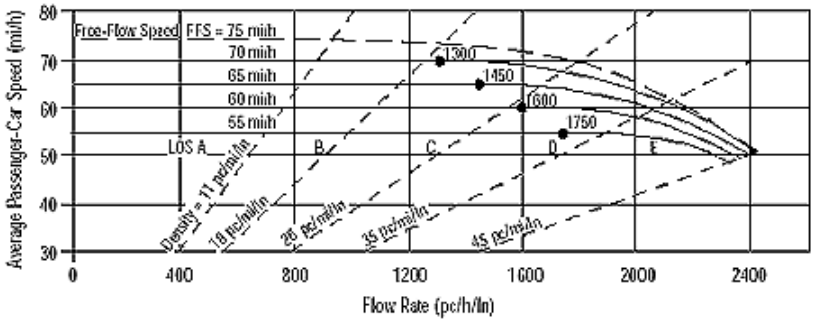
LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **15.0**

LOS: **B**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 NB On Ramp
From/To	
Jurisdiction	233
Analysis Year	2035 Build Toll Alternative 3C

Project Description Monroe Bypass / Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1952 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	821	pc/h/ln
S	55.0	mi/h
D = v_p / S	14.9	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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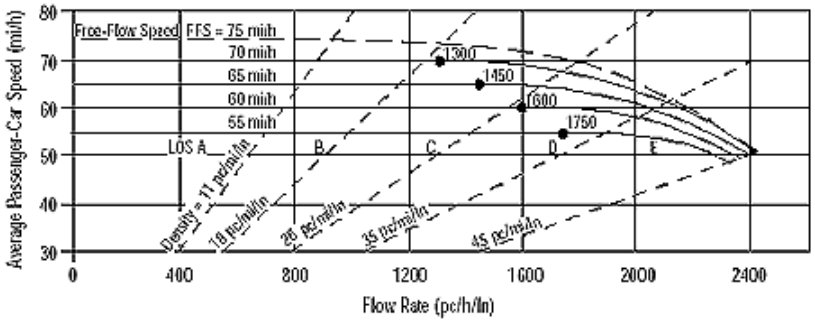
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 NB On Ramp
From/To	
Jurisdiction	233
Analysis Year	2035 Build Toll Alternative 3C

Project Description Monroe Bypass / Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1685 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	708	pc/h/ln
S	55.0	mi/h
D = v_p / S	12.9	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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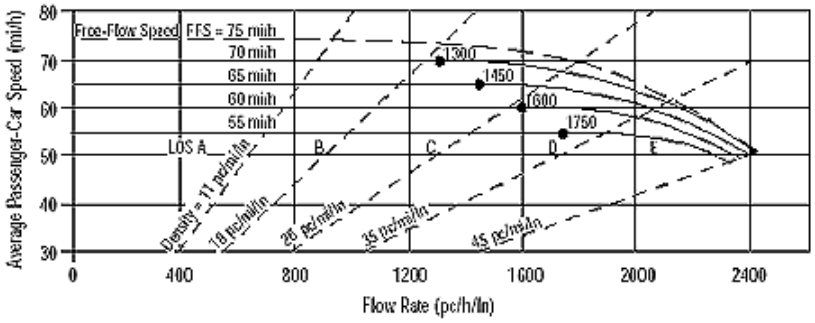

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	US 74 EB
From/To	
Jurisdiction	234
Analysis Year	2035 Build Toll Alternative 3C

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	3421 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	57.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1438	pc/h/ln
S	57.0	mi/h
D = v_p / S	25.2	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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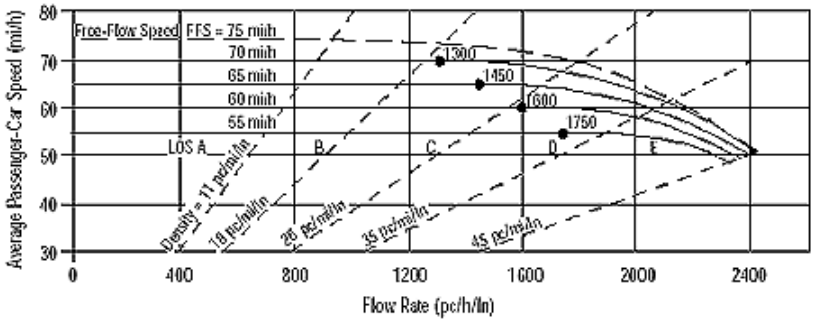
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	US 74 EB
From/To	
Jurisdiction	234
Analysis Year	2035 Build Toll Alternative 3C

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4196 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	57.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1764	pc/h/ln
S	57.0	mi/h
D = v_p / S	31.0	pc/mi/ln
LOS	D	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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E-11-2

Business US 74 Intersections

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*US 74 and Bivens Road*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Toll Alternative 3C*
Analysis Time Period	*AM Peak*		

Project Description *Monroe Connector/Bypass*

East/West Street: *US 74* | North/South Street: *Bivens Road*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*120*	*1139*	*10*	*10*	*1404*	*135*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*133*	*1265*	*11*	*11*	*1560*	*150*
Proportion of heavy vehicles, P_{HV}	*5*	--	--	*5*	--	--
Median type	*Undivided*					
RT Channelized?			*0*			*1*
Lanes	*1*	*2*	*1*	*1*	*2*	*1*
Configuration	*L*	*T*	*R*	*L*	*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*10*	*10*	*10*	*101*	*10*	*111*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*11*	*11*	*11*	*112*	*11*	*123*
Proportion of heavy vehicles, P_{HV}	*2*	*2*	*2*	*2*	*2*	*2*
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
Volume, v (vph)	*133*	*11*		*33*			*246*	
Capacity, c_m (vph)	*406*	*524*		*0*			*0*	
v/c ratio	*0.33*	*0.02*						
Queue length (95%)	*1.40*	*0.06*						
Control Delay (s/veh)	*18.1*	*12.0*						
LOS	*C*	*B*		*F*			*F*	
Approach delay (s/veh)	--	--						
Approach LOS	--	--						

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*OSR*
Agency/Co.	*PBS&J*
Date Performed	*4/30/08*
Analysis Time Period	*PM Peak*

Site Information

Intersection	*US 74 and Bivens Road*
Jurisdiction	
Analysis Year	*2035 Build Toll Alternative 3C*

Project Description *Monroe Connector/Bypass*

East/West Street: *US 74* | North/South Street: *Bivens Road*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*111*	*1404*	*10*	*10*	*1139*	*101*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*123*	*1560*	*11*	*11*	*1265*	*112*
Proportion of heavy vehicles, P_{HV}	*5*	--	--	*5*	--	--
Median type	*Undivided*					
RT Channelized?			*0*			*1*
Lanes	*1*	*2*	*1*	*1*	*2*	*1*
Configuration	*L*	*T*	*R*	*L*	*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*10*	*10*	*10*	*135*	*10*	*120*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*11*	*11*	*11*	*150*	*11*	*133*
Proportion of heavy vehicles, P_{HV}	*2*	*2*	*2*	*2*	*2*	*2*
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
Volume, v (vph)	*123*	*11*		*33*			*294*	
Capacity, c_m (vph)	*529*	*402*		*0*			*0*	
v/c ratio	*0.23*	*0.03*						
Queue length (95%)	*0.89*	*0.08*						
Control Delay (s/veh)	*13.9*	*14.2*						
LOS	*B*	*B*		*F*			*F*	
Approach delay (s/veh)	--	--						
Approach LOS	--	--						

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*OSR*
Agency/Co.	*PBS&J*
Date Performed	*4/30/08*
Analysis Time Period	*AM Peak*

Site Information

Intersection	*US 74 and Seacrest Shortcut*
Jurisdiction	
Analysis Year	*2035 Build Toll Alternative 3C*

Project Description *Monroe Connector/Bypass*

East/West Street: *US 74* | North/South Street: *Seacrest Shortcut RIRO*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*0*	*907*	*306*	*0*	*1405*	*0*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*0*	*1007*	*340*	*0*	*1561*	*0*
Proportion of heavy vehicles, P_{HV}		--	--		--	--
Median type	*Undivided*					
RT Channelized?			*0*			*1*
Lanes	*0*	*2*	*1*	*0*	*2*	*0*
Configuration		*T*	*R*		*T*	
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*428*	*0*	*0*	*0*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*0*	*0*	*475*	*0*	*0*	*0*
Proportion of heavy vehicles, P_{HV}			*4*			
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					*R*			
Volume, v (vph)					*475*			
Capacity, c_m (vph)					*508*			
v/c ratio					*0.94*			
Queue length (95%)					*11.44*			
Control Delay (s/veh)					*54.0*			
LOS					*F*			
Approach delay (s/veh)	--	--	*54.0*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*OSR*
Agency/Co.	*PBS&J*
Date Performed	*4/30/08*
Analysis Time Period	*PM Peak*

Site Information

Intersection	*US 74 and Seacrest Shortcut*
Jurisdiction	
Analysis Year	*2035 Build Toll Alternative 3C*

Project Description *Monroe Connector/Bypass*

East/West Street: *US 74* | North/South Street: *Seacrest Shortcut RIRO*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*0*	*1161*	*430*	*0*	*1149*	*0*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*0*	*1290*	*477*	*0*	*1276*	*0*
Proportion of heavy vehicles, P_{HV}		--	--		--	--
Median type	*Undivided*					
RT Channelized?			*0*			*1*
Lanes	*0*	*2*	*1*	*0*	*2*	*0*
Configuration		*T*	*R*		*T*	
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*304*	*0*	*0*	*0*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*0*	*0*	*337*	*0*	*0*	*0*
Proportion of heavy vehicles, P_{HV}			*4*			
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					*R*			
Volume, v (vph)					*337*			
Capacity, c_m (vph)					*410*			
v/c ratio					*0.82*			
Queue length (95%)					*7.57*			
Control Delay (s/veh)					*43.4*			
LOS					*E*			
Approach delay (s/veh)	--	--	*43.4*					
Approach LOS	--	--	*E*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*Stallings Rd & Union West Blvd*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*7/7/2008*	Analysis Year	*2035 Build Toll Alternative 3C*
Analysis Time Period	*AM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *Union West Blvd*	North/South Street: *Stallings Rd*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*361*	*75*	*50*	*533*	*0*
Peak-Hour Factor, PHF	*1.00*	*0.90*	*0.90*	*0.90*	*0.90*	*1.00*
Hourly Flow Rate, HFR	*0*	*401*	*83*	*55*	*592*	*0*
Percent Heavy Vehicles		--	--	*2*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*1*	*1*	*0*
Configuration		*T*	*R*	*L*	*T*	
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*126*	*0*	*55*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*140*	*0*	*61*	*0*	*0*	*0*
Percent Heavy Vehicles	*2*		*2*			
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*		*LR*				
v (vph)		*55*		*201*				
C (m) (vph)		*1079*		*277*				
v/c		*0.05*		*0.73*				
95% queue length		*0.16*		*5.15*				
Control Delay		*8.5*		*46.0*				
LOS		*A*		*E*				
Approach Delay	--	--	*46.0*					
Approach LOS	--	--	*E*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*Stallings Rd & Union West Blvd*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*7/7/2008*	Analysis Year	*2035 Build Toll Alternative 3C*
Analysis Time Period	*PM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *Union West Blvd*	North/South Street: *Stallings Rd*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*533*	*126*	*55*	*361*	*0*
Peak-Hour Factor, PHF	*1.00*	*0.90*	*0.90*	*0.90*	*0.90*	*1.00*
Hourly Flow Rate, HFR	*0*	*592*	*140*	*61*	*401*	*0*
Percent Heavy Vehicles		--	--	*2*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*1*	*1*	*0*
Configuration		*T*	*R*	*L*	*T*	
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*75*	*0*	*50*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*83*	*0*	*55*	*0*	*0*	*0*
Percent Heavy Vehicles	*2*		*2*			
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*		*LR*				
v (vph)		*61*		*138*				
C (m) (vph)		*873*		*278*				
v/c		*0.07*		*0.50*				
95% queue length		*0.22*		*2.58*				
Control Delay		*9.4*		*30.1*				
LOS		*A*		*D*				
Approach Delay	--	--	*30.1*					
Approach LOS	--	--	*D*					

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	469	48	212	321	89	137	80	3525	512	290	4430	237
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1719	3438	1538	1719	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	1719	3438	1538	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			45			55			55	
Link Distance (ft)		1096			1168			1536			3465	
Travel Time (s)		21.4			17.7			19.0			43.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	521	53	236	357	99	152	89	3917	569	322	4922	263
Shared Lane Traffic (%)												
Lane Group Flow (vph)	521	53	236	357	99	152	89	3917	569	322	4922	263
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	1	6	7	5	2	3
Permitted Phases			4			8			6			2
Detector Phase	7	4	5	3	8	1	1	6	7	5	2	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	14.0	7.0	7.0	14.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0	14.0	14.0	21.0	14.0	14.0	21.0	14.0
Total Split (s)	19.0	14.0	21.0	19.0	14.0	14.0	14.0	86.0	19.0	21.0	93.0	19.0
Total Split (%)	13.6%	10.0%	15.0%	13.6%	10.0%	10.0%	10.0%	61.4%	13.6%	15.0%	66.4%	13.6%
Maximum Green (s)	12.0	7.0	14.0	12.0	7.0	7.0	7.0	79.0	12.0	14.0	86.0	12.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	14.0	9.0	27.2	16.8	9.0	23.0	9.0	81.0	100.0	16.0	88.0	109.8
Actuated g/C Ratio	0.10	0.06	0.19	0.12	0.06	0.16	0.06	0.58	0.71	0.11	0.63	0.78
v/c Ratio	1.52	0.23	0.77	0.87	0.43	0.58	0.80	1.97	0.52	1.64	2.28	0.22
Control Delay	288.8	64.9	69.8	81.6	69.3	64.2	108.3	460.6	11.1	348.4	596.2	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	288.8	64.9	69.8	81.6	69.3	64.2	108.3	460.6	11.1	348.4	596.2	4.8
LOS	F	E	E	F	E	E	F	F	B	F	F	A
Approach Delay		210.3			75.2			397.9			553.5	
Approach LOS		F			E			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 2.28			
Intersection Signal Delay: 442.1		Intersection LOS: F	
Intersection Capacity Utilization 160.8%		ICU Level of Service H	
Analysis Period (min) 15			

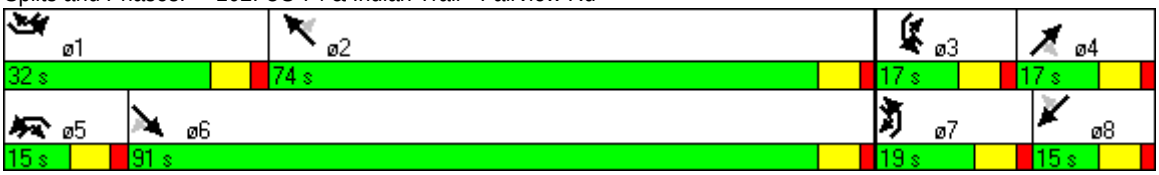
Splits and Phases: 101: Stallings Road & US 74

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	331	1693	415	103	2067	137	402	144	82	202	272	606
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3335	3438	1538	1719	3438	1538	3335	3438	1538	3335	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3438	1538	1719	3438	1538	3335	3438	1538	3335	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			35			35	
Link Distance (ft)		2103			2380			902			1112	
Travel Time (s)		26.1			29.5			17.6			21.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	368	1881	461	114	2297	152	447	160	91	224	302	673
Shared Lane Traffic (%)												
Lane Group Flow (vph)	368	1881	461	114	2297	152	447	160	91	224	302	673
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	7.0	14.0	7.0	7.0	14.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.5	21.0	14.0	14.0	21.0	14.0	14.0	14.0	14.0	14.0	14.0	14.5
Total Split (s)	32.0	91.0	19.0	15.0	74.0	17.0	19.0	17.0	15.0	17.0	15.0	32.0
Total Split (%)	22.9%	65.0%	13.6%	10.7%	52.9%	12.1%	13.6%	12.1%	10.7%	12.1%	10.7%	22.9%
Maximum Green (s)	25.0	84.0	12.0	8.0	67.0	10.0	12.0	10.0	8.0	10.0	8.0	25.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	27.0	86.0	105.0	10.0	69.0	86.0	14.0	12.0	27.0	12.0	10.0	42.0
Actuated g/C Ratio	0.19	0.61	0.75	0.07	0.49	0.61	0.10	0.09	0.19	0.09	0.07	0.30
v/c Ratio	0.57	0.89	0.40	0.93	1.36	0.16	1.34	0.54	0.31	0.78	1.23	1.46
Control Delay	55.3	29.7	7.4	127.1	195.0	12.1	217.6	68.7	51.8	81.8	184.8	254.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.3	29.7	7.4	127.1	195.0	12.1	217.6	68.7	51.8	81.8	184.8	254.6
LOS	E	C	A	F	F	B	F	E	D	F	F	F
Approach Delay		29.4			181.2			161.9			204.7	
Approach LOS		C			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.46			
Intersection Signal Delay: 125.9		Intersection LOS: F	
Intersection Capacity Utilization 118.6%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 102: US 74 & Indian Trail - Fairview Rd

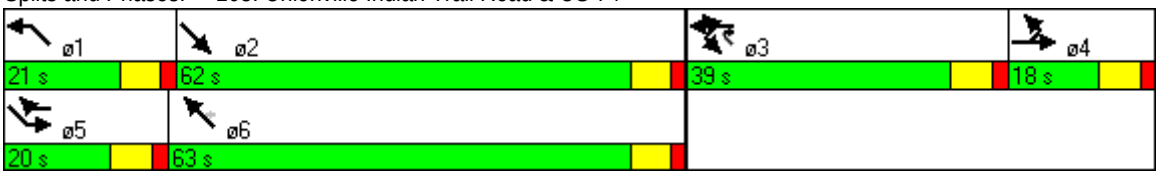


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	40	151	139	454	364	682	396	1350	56	238	1648	322
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Frt		0.937				0.850		0.994				0.850
Flt Protected		0.994		0.950	0.994		0.950			0.950		
Satd. Flow (prot)	0	3264	0	1665	1742	1568	3335	3417	0	1719	3438	1538
Flt Permitted		0.994		0.950	0.994		0.950			0.950		
Satd. Flow (perm)	0	3264	0	1665	1742	1568	3335	3417	0	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			45			55			55	
Link Distance (ft)		795			1304			1032			1062	
Travel Time (s)		15.5			19.8			12.8			13.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	44	168	154	504	404	758	440	1500	62	264	1831	358
Shared Lane Traffic (%)				12%								
Lane Group Flow (vph)	0	366	0	444	464	758	440	1562	0	264	1831	358
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pt+ov	Prot			Prot		pm+ov
Protected Phases	4	4		3	3	3 5	5	2		1	6	3
Permitted Phases												6
Detector Phase	4	4		3	3	3 5	5	2		1	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	14.0		7.0	14.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	21.0		14.0	21.0	14.0
Total Split (s)	18.0	18.0	0.0	39.0	39.0	59.0	20.0	62.0	0.0	21.0	63.0	39.0
Total Split (%)	12.9%	12.9%	0.0%	27.9%	27.9%	42.1%	14.3%	44.3%	0.0%	15.0%	45.0%	27.9%
Maximum Green (s)	11.0	11.0		32.0	32.0		13.0	55.0		14.0	56.0	32.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	None
Act Effct Green (s)		13.0		34.0	34.0	49.0	15.0	57.0		16.0	58.0	97.0
Actuated g/C Ratio		0.09		0.24	0.24	0.35	0.11	0.41		0.11	0.41	0.69
v/c Ratio		1.21		1.10	1.10	1.38	1.23	1.12		1.35	1.29	0.34
Control Delay		172.2		122.8	121.2	210.0	176.8	104.0		231.5	169.2	9.6
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay		172.2		122.8	121.2	210.0	176.8	104.0		231.5	169.2	9.6
LOS		F		F	F	F	F	F		F	F	A
Approach Delay		172.2			162.0			120.0			152.6	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.38			
Intersection Signal Delay: 146.1		Intersection LOS: F	
Intersection Capacity Utilization 110.1%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 103: Unionville Indian Trail Road & US 74



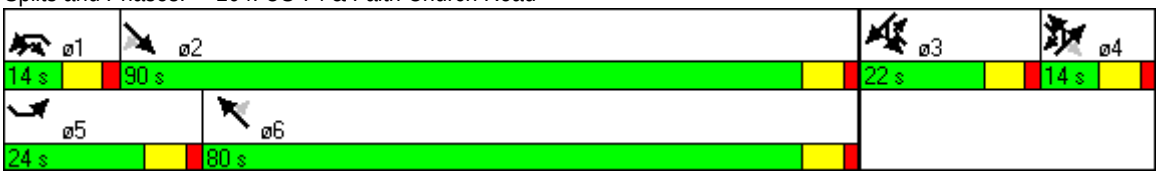
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	256	1623	24	39	2012	320	40	14	53	201	7	199
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.855	
Flt Protected	0.950			0.950				0.965		0.950		
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	0	1682	1482	1770	1593	0
Flt Permitted	0.950			0.950				0.965		0.950		
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	0	1682	1482	1770	1593	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			15			35	
Link Distance (ft)		1177			2588			625			368	
Travel Time (s)		14.6			32.1			28.4			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	9%	9%	9%	2%	2%	2%
Adj. Flow (vph)	284	1803	27	43	2236	356	44	16	59	223	8	221
Shared Lane Traffic (%)												
Lane Group Flow (vph)	284	1803	27	43	2236	356	0	60	59	223	229	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	5	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	5	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Split		pm+ov	Split		
Protected Phases	5	2	4	1	6	3	4	4	1	3	3	
Permitted Phases			2			6			4			
Detector Phase	5	2	4	1	6	3	4	4	1	3	3	
Switch Phase												
Minimum Initial (s)	7.0	14.0	7.0	7.0	14.0	7.0	7.0	7.0	7.0	7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	21.0	14.0	14.0	21.0	14.0	14.0	14.0	14.0	14.0	14.0	
Total Split (s)	24.0	90.0	14.0	14.0	80.0	22.0	14.0	14.0	14.0	22.0	22.0	0.0
Total Split (%)	17.1%	64.3%	10.0%	10.0%	57.1%	15.7%	10.0%	10.0%	10.0%	15.7%	15.7%	0.0%
Maximum Green (s)	17.0	83.0	7.0	7.0	73.0	15.0	7.0	7.0	7.0	15.0	15.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	
Act Effct Green (s)	21.8	90.6	97.8	9.0	75.0	97.0		9.0	20.2	17.0	17.0	
Actuated g/C Ratio	0.16	0.65	0.70	0.06	0.54	0.69		0.06	0.14	0.12	0.12	
v/c Ratio	1.06	0.81	0.03	0.39	1.21	0.33		0.56	0.28	1.04	1.19	
Control Delay	127.5	24.1	4.0	73.5	132.3	9.6		83.3	55.2	130.0	175.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	127.5	24.1	4.0	73.5	132.3	9.6		83.3	55.2	130.0	175.3	
LOS	F	C	A	E	F	A		F	E	F	F	
Approach Delay		37.8			114.7			69.4			152.9	
Approach LOS		D			F			E			F	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green
Natural Cycle: 180
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.21
Intersection Signal Delay: 86.4 Intersection LOS: F
Intersection Capacity Utilization 105.0% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 104: US 74 & Faith Church Road



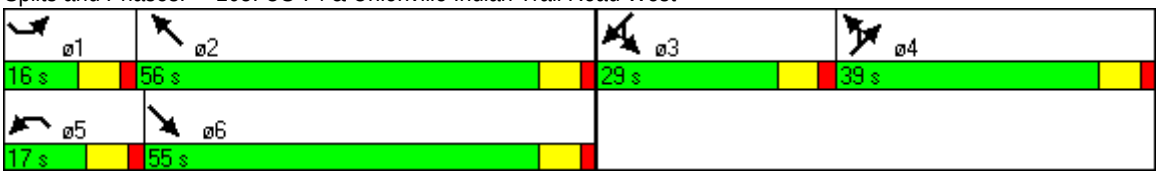
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	177	952	790	193	1286	247	731	95	132	312	174	302
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.932			0.976			0.913			0.905	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3204	0	1719	3356	0	1770	1701	0	1770	1686	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3204	0	1719	3356	0	1770	1701	0	1770	1686	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		606			973			698			813	
Travel Time (s)		7.5			12.1			10.6			12.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	197	1058	878	214	1429	274	812	106	147	347	193	336
Shared Lane Traffic (%)												
Lane Group Flow (vph)	197	1936	0	214	1703	0	812	253	0	347	529	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	5	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	5	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Split			Split		
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases												
Detector Phase	1	6		5	2		4	4		3	3	
Switch Phase												
Minimum Initial (s)	7.0	14.0		7.0	14.0		7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	21.0		14.0	21.0		14.0	14.0		14.0	14.0	
Total Split (s)	16.0	55.0	0.0	17.0	56.0	0.0	39.0	39.0	0.0	29.0	29.0	0.0
Total Split (%)	11.4%	39.3%	0.0%	12.1%	40.0%	0.0%	27.9%	27.9%	0.0%	20.7%	20.7%	0.0%
Maximum Green (s)	9.0	48.0		10.0	49.0		32.0	32.0		22.0	22.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	11.0	50.0		12.0	51.0		34.0	34.0		24.0	24.0	
Actuated g/C Ratio	0.08	0.36		0.09	0.36		0.24	0.24		0.17	0.17	
v/c Ratio	1.46	1.69		1.46	1.39		1.89	0.61		1.15	1.83	
Control Delay	285.8	345.5		281.6	216.8		438.3	54.5		147.5	419.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	285.8	345.5		281.6	216.8		438.3	54.5		147.5	419.1	
LOS	F	F		F	F		F	D		F	F	
Approach Delay		340.0			224.0			347.1			311.5	
Approach LOS		F			F			F			F	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 160
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.89
Intersection Signal Delay: 300.0 Intersection LOS: F
Intersection Capacity Utilization 147.2% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 105: US 74 & Unionville Indian Trail Road West

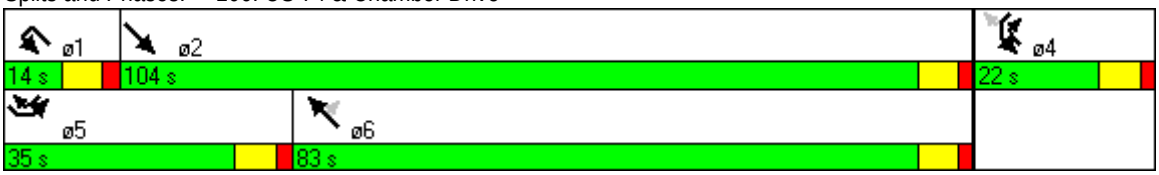


Lane Group	SEL	SET	NWU	NWT	NWR	SWL	SWR
Lane Configurations							
Volume (vph)	133	1207	10	1426	52	125	377
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Frt					0.850		0.850
Flt Protected	0.950		0.950			0.950	
Satd. Flow (prot)	1719	3438	1719	3438	1538	1770	1583
Flt Permitted	0.950		0.950			0.950	
Satd. Flow (perm)	1719	3438	1719	3438	1538	1770	1583
Right Turn on Red					No		No
Satd. Flow (RTOR)							
Link Speed (mph)		55		55		35	
Link Distance (ft)		2407		1378		1258	
Travel Time (s)		29.8		17.1		24.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	2%	2%
Adj. Flow (vph)	148	1341	11	1584	58	139	419
Shared Lane Traffic (%)							
Lane Group Flow (vph)	148	1341	11	1584	58	139	419
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Left	R NA	Left	Right	Left	Right
Median Width(ft)		12		12		12	
Link Offset(ft)		0		0		0	
Crosswalk Width(ft)		0		0		0	
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9		9	15	9
Number of Detectors	1	2	1	2	1	1	1
Detector Template	Left	Thru	Left	Thru	Right	Left	Right
Leading Detector (ft)	20	100	20	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94		94			
Detector 2 Size(ft)		6		6			
Detector 2 Type		Cl+Ex		Cl+Ex			
Detector 2 Channel							
Detector 2 Extend (s)		0.0		0.0			
Turn Type	Prot		Prot		pm+ov		pm+ov
Protected Phases	5	2	1	6	4	4	5
Permitted Phases					6		4
Detector Phase	5	2	1	6	4	4	5
Switch Phase							
Minimum Initial (s)	7.0	14.0	7.0	14.0	7.0	7.0	7.0

Lane Group	SEL	SET	NWU	NWT	NWR	SWL	SWR
Minimum Split (s)	14.0	21.0	14.0	21.0	14.0	14.0	14.0
Total Split (s)	35.0	104.0	14.0	83.0	22.0	22.0	35.0
Total Split (%)	25.0%	74.3%	10.0%	59.3%	15.7%	15.7%	25.0%
Maximum Green (s)	28.0	97.0	7.0	76.0	15.0	15.0	28.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag			Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	C-Max	None	None	None
Act Effct Green (s)	26.6	108.6	9.0	82.6	103.4	15.8	47.4
Actuated g/C Ratio	0.19	0.78	0.06	0.59	0.74	0.11	0.34
v/c Ratio	0.45	0.50	0.10	0.78	0.05	0.70	0.78
Control Delay	54.3	7.5	63.9	26.2	5.7	78.0	52.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.3	7.5	63.9	26.2	5.7	78.0	52.2
LOS	D	A	E	C	A	E	D
Approach Delay		12.1		25.8		58.7	
Approach LOS		B		C		E	

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 25.2	Intersection LOS: C
Intersection Capacity Utilization 71.1%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 106: US 74 & Chamber Drive

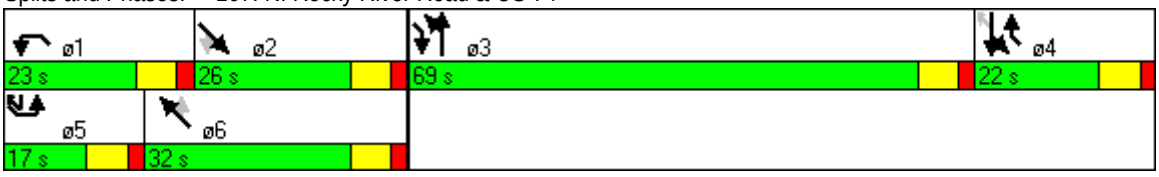


Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	770	95	400	203	83	261	174	535	447	295	681	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.957				0.850			0.850			0.850
Flt Protected		0.970			0.966		0.950			0.950		
Satd. Flow (prot)	0	1729	0	0	1799	1583	1719	3438	1538	1719	3438	1538
Flt Permitted		0.970			0.966		0.950			0.950		
Satd. Flow (perm)	0	1729	0	0	1799	1583	1719	3438	1538	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		1176			418			3021			3350	
Travel Time (s)		17.8			6.3			37.5			41.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	856	106	444	226	92	290	193	594	497	328	757	191
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1406	0	0	318	290	193	594	497	328	757	191
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	3	3		4	4	5	5	2	3	1	6	4
Permitted Phases						4			2			6
Detector Phase	3	3		4	4	5	5	2	3	1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	14.0	7.0	7.0	14.0	7.0

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0	14.0	14.0	21.0	14.0	14.0	21.0	14.0
Total Split (s)	69.0	69.0	0.0	22.0	22.0	17.0	17.0	26.0	69.0	23.0	32.0	22.0
Total Split (%)	49.3%	49.3%	0.0%	15.7%	15.7%	12.1%	12.1%	18.6%	49.3%	16.4%	22.9%	15.7%
Maximum Green (s)	62.0	62.0		15.0	15.0	10.0	10.0	19.0	62.0	16.0	25.0	15.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead		Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)		64.0			17.0	34.0	12.0	21.0	90.0	18.0	27.0	44.0
Actuated g/C Ratio		0.46			0.12	0.24	0.09	0.15	0.64	0.13	0.19	0.31
v/c Ratio		1.78			1.46	0.76	1.31	1.15	0.50	1.48	1.14	0.40
Control Delay		382.8			271.7	62.9	228.5	140.0	15.4	281.3	130.7	27.1
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		382.8			271.7	62.9	228.5	140.0	15.4	281.3	130.7	27.1
LOS		F			F	E	F	F	B	F	F	C
Approach Delay		382.8			172.1			105.1			153.9	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.78			
Intersection Signal Delay: 213.0		Intersection LOS: F	
Intersection Capacity Utilization 122.4%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 107: N. Rocky River Road & US 74

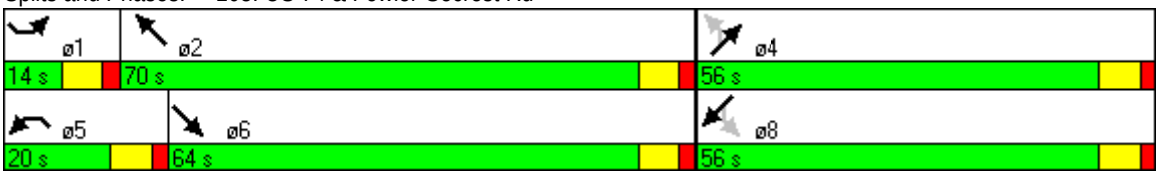


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	54	929	33	83	1161	138	29	66	58	173	120	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.984			0.949			0.970	
Flt Protected	0.950			0.950				0.991			0.978	
Satd. Flow (prot)	1719	3421	0	1719	3383	0	0	1752	0	0	1767	0
Flt Permitted	0.950			0.950				0.871			0.728	
Satd. Flow (perm)	1719	3421	0	1719	3383	0	0	1540	0	0	1315	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		2601			2354			277			1205	
Travel Time (s)		39.4			35.7			5.4			18.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	60	1032	37	92	1290	153	32	73	64	192	133	94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	60	1069	0	92	1443	0	0	169	0	0	419	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		
Detector Phase	1	6		5	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		21.0	21.0	
Total Split (s)	14.0	64.0	0.0	20.0	70.0	0.0	56.0	56.0	0.0	56.0	56.0	0.0
Total Split (%)	10.0%	45.7%	0.0%	14.3%	50.0%	0.0%	40.0%	40.0%	0.0%	40.0%	40.0%	0.0%
Maximum Green (s)	7.0	57.0		13.0	63.0		49.0	49.0		49.0	49.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	9.3	63.4		13.5	70.3			48.2			48.2	
Actuated g/C Ratio	0.07	0.45		0.10	0.50			0.34			0.34	
v/c Ratio	0.52	0.69		0.56	0.85			0.32			0.93	
Control Delay	80.0	34.4		73.2	37.8			35.0			71.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	80.0	34.4		73.2	37.8			35.0			71.4	
LOS	F	C		E	D			C			E	
Approach Delay		36.8			39.9			35.0			71.4	
Approach LOS		D			D			C			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay: 42.7		Intersection LOS: D	
Intersection Capacity Utilization 88.7%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 108: US 74 & Fowler-Secrest Rd

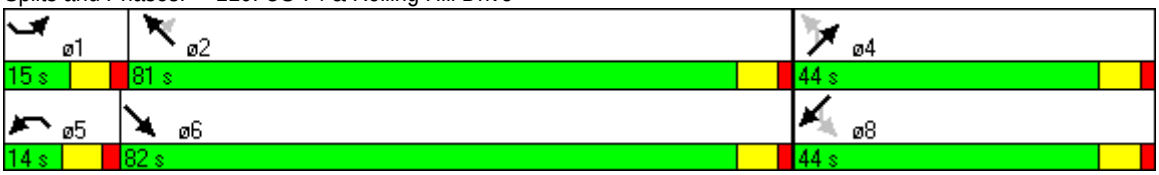


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	47	1028	124	16	1251	7	157	11	16	9	13	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.984				0.850		0.988			0.896	
Flt Protected	0.950			0.950				0.959			0.995	
Satd. Flow (prot)	1719	3383	0	1719	3438	1538	0	1765	0	0	1661	0
Flt Permitted	0.950			0.950				0.626			0.966	
Satd. Flow (perm)	1719	3383	0	1719	3438	1538	0	1152	0	0	1612	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		309			978			474			425	
Travel Time (s)		4.7			14.8			12.9			11.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	52	1142	138	18	1390	8	174	12	18	10	14	82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	52	1280	0	18	1390	8	0	204	0	0	106	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot		Perm	Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases						2	4			8		
Detector Phase	1	6		5	2	2	4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	12.0	7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0		14.0	19.0	19.0	14.0	14.0		14.0	14.0	
Total Split (s)	15.0	82.0	0.0	14.0	81.0	81.0	44.0	44.0	0.0	44.0	44.0	0.0
Total Split (%)	10.7%	58.6%	0.0%	10.0%	57.9%	57.9%	31.4%	31.4%	0.0%	31.4%	31.4%	0.0%
Maximum Green (s)	8.0	75.0		7.0	74.0	74.0	37.0	37.0		37.0	37.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		None	None	
Act Effct Green (s)	10.8	93.8		9.2	86.6	86.6		30.5			30.5	
Actuated g/C Ratio	0.08	0.67		0.07	0.62	0.62		0.22			0.22	
v/c Ratio	0.39	0.56		0.16	0.65	0.01		0.81			0.30	
Control Delay	70.4	15.8		65.2	21.2	14.3		75.5			46.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	
Total Delay	70.4	15.8		65.2	21.2	14.3		75.5			46.3	
LOS	E	B		E	C	B		E			D	
Approach Delay		18.0			21.7			75.5			46.3	
Approach LOS		B			C			E			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 24.5		Intersection LOS: C	
Intersection Capacity Utilization 64.3%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 110: US 74 & Rolling Hill Drive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	125	10	113	72	10	79	84	847	133	150	1056	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.862			0.934			0.980				0.850
Flt Protected	0.950				0.978		0.950			0.950		
Satd. Flow (prot)	1770	1606	0	0	1702	0	1719	3369	0	1719	3438	1538
Flt Permitted	0.588				0.729		0.950			0.950		
Satd. Flow (perm)	1095	1606	0	0	1268	0	1719	3369	0	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		510			371			748			991	
Travel Time (s)		13.9			10.1			11.3			15.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	139	11	126	80	11	88	93	941	148	167	1173	106
Shared Lane Traffic (%)												
Lane Group Flow (vph)	139	137	0	0	179	0	93	1089	0	167	1173	106
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm			Perm			Prot			Prot		Perm
Protected Phases		3			8		1	6		5	2	
Permitted Phases	3			8								2
Detector Phase	3	3		8	8		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	12.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0		14.0	19.0	19.0
Total Split (s)	40.0	40.0	0.0	40.0	40.0	0.0	21.0	71.0	0.0	29.0	79.0	79.0
Total Split (%)	28.6%	28.6%	0.0%	28.6%	28.6%	0.0%	15.0%	50.7%	0.0%	20.7%	56.4%	56.4%
Maximum Green (s)	33.0	33.0		33.0	33.0		14.0	64.0		22.0	72.0	72.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?								Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	Max		None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	35.0	35.0			35.0		13.9	69.9		20.1	76.1	76.1
Actuated g/C Ratio	0.25	0.25			0.25		0.10	0.50		0.14	0.54	0.54
v/c Ratio	0.51	0.34			0.56		0.55	0.65		0.68	0.63	0.13
Control Delay	52.7	46.0			53.9		71.8	28.8		70.4	24.4	16.7
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	52.7	46.0			53.9		71.8	28.8		70.4	24.4	16.7
LOS	D	D			D		E	C		E	C	B
Approach Delay		49.4			53.9			32.2			29.1	
Approach LOS		D			D			C			C	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 33.5 Intersection LOS: C
Intersection Capacity Utilization 69.5% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 111: Roland Drive & US 74

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	86	916	50	237	1108	96	33	22	129	123	51	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992				0.850		0.872				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3411	0	1719	3438	1538	1770	1624	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3411	0	1719	3438	1538	1770	1624	0	1770	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		822			734			281			279	
Travel Time (s)		12.5			11.1			5.5			7.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	96	1018	56	263	1231	107	37	24	143	137	57	149
Shared Lane Traffic (%)												
Lane Group Flow (vph)	96	1074	0	263	1231	107	37	167	0	137	57	149
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot		pm+ov	Split			Split		pm+ov
Protected Phases	1	6		5	2	8	4	4		8	8	1
Permitted Phases						2						8
Detector Phase	1	6		5	2	8	4	4		8	8	1
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	7.0	7.0	7.0		7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0		14.0	19.0	14.0	14.0	14.0		14.0	14.0	14.0
Total Split (s)	20.0	60.0	0.0	34.0	74.0	21.0	25.0	25.0	0.0	21.0	21.0	20.0
Total Split (%)	14.3%	42.9%	0.0%	24.3%	52.9%	15.0%	17.9%	17.9%	0.0%	15.0%	15.0%	14.3%
Maximum Green (s)	13.0	53.0		27.0	67.0	14.0	18.0	18.0		14.0	14.0	13.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	C-Max		None	C-Max	Max	None	None		Max	Max	Max
Act Effct Green (s)	15.0	57.5		26.5	69.0	86.2	18.8	18.8		17.2	17.2	37.2
Actuated g/C Ratio	0.11	0.41		0.19	0.49	0.62	0.13	0.13		0.12	0.12	0.27
v/c Ratio	0.52	0.77		0.81	0.73	0.11	0.16	0.77		0.63	0.25	0.35
Control Delay	70.0	40.5		73.4	31.2	6.1	54.6	80.8		72.7	59.6	45.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	70.0	40.5		73.4	31.2	6.1	54.6	80.8		72.7	59.6	45.1
LOS	E	D		E	C	A	D	F		E	E	D
Approach Delay		42.9			36.5			76.0			58.5	
Approach LOS		D			D			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 43.4		Intersection LOS: D	
Intersection Capacity Utilization 72.6%		ICU Level of Service C	
Analysis Period (min) 15			

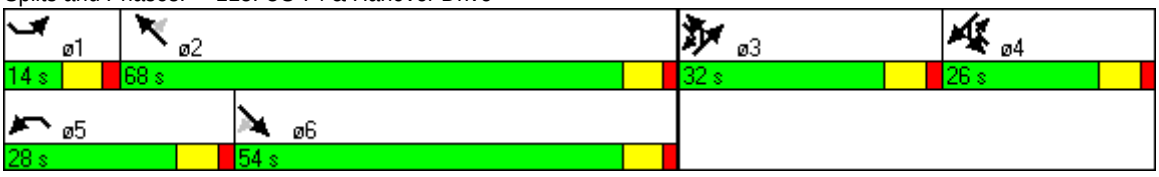
Splits and Phases: 112: US 74 & Williams Road

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	16	1061	110	257	1303	589	101	103	193	467	109	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850			0.850		0.902			0.982	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	1752	1664	0	3400	1811	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	1752	1664	0	3400	1811	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		338			529			376			313	
Travel Time (s)		5.1			8.0			7.3			8.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	18	1179	122	286	1448	654	112	114	214	519	121	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	18	1179	122	286	1448	654	112	328	0	519	138	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Split			Split		
Protected Phases	1	6	3	5	2	4	3	3		4	4	
Permitted Phases			6			2						
Detector Phase	1	6	3	5	2	4	3	3		4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0		14.0	14.0	
Total Split (s)	14.0	54.0	32.0	28.0	68.0	26.0	32.0	32.0	0.0	26.0	26.0	0.0
Total Split (%)	10.0%	38.6%	22.9%	20.0%	48.6%	18.6%	22.9%	22.9%	0.0%	18.6%	18.6%	0.0%
Maximum Green (s)	7.0	47.0	25.0	21.0	61.0	19.0	25.0	25.0		19.0	19.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Act Effct Green (s)	9.0	49.0	81.0	23.0	71.4	95.4	27.0	27.0		21.0	21.0	
Actuated g/C Ratio	0.06	0.35	0.58	0.16	0.51	0.68	0.19	0.19		0.15	0.15	
v/c Ratio	0.16	0.98	0.14	1.01	0.83	0.62	0.33	1.02		1.02	0.51	
Control Delay	65.6	66.5	14.0	114.3	35.1	15.0	52.0	110.8		102.3	62.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	65.6	66.5	14.0	114.3	35.1	15.0	52.0	110.8		102.3	62.0	
LOS	E	E	B	F	D	B	D	F		F	E	
Approach Delay		61.6			39.1			95.8			93.9	
Approach LOS		E			D			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.02			
Intersection Signal Delay: 58.0		Intersection LOS: E	
Intersection Capacity Utilization 90.8%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 113: US 74 & Hanover Drive

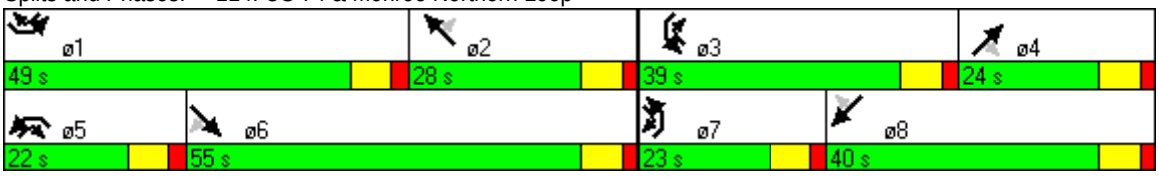


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	744	532	482	227	736	715	394	504	134	675	805	972
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3335	4940	1538	3335	4940	1538	3335	3438	1538	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	4940	1538	3335	4940	1538	3335	3438	1538	3433	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		858			915			405			209	
Travel Time (s)		13.0			13.9			7.9			3.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	2%	2%	2%
Adj. Flow (vph)	827	591	536	252	818	794	438	560	149	750	894	1080
Shared Lane Traffic (%)												
Lane Group Flow (vph)	827	591	536	252	818	794	438	560	149	750	894	1080
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	49.0	55.0	23.0	22.0	28.0	39.0	23.0	24.0	22.0	39.0	40.0	49.0
Total Split (%)	35.0%	39.3%	16.4%	15.7%	20.0%	27.9%	16.4%	17.1%	15.7%	27.9%	28.6%	35.0%
Maximum Green (s)	42.0	48.0	16.0	15.0	21.0	32.0	16.0	17.0	15.0	32.0	33.0	42.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	44.0	50.9	73.9	16.1	23.0	62.0	18.0	19.0	40.1	34.0	35.0	84.0
Actuated g/C Ratio	0.31	0.36	0.53	0.12	0.16	0.44	0.13	0.14	0.29	0.24	0.25	0.60
v/c Ratio	0.79	0.33	0.66	0.65	1.01	1.17	1.02	1.20	0.34	0.90	1.01	1.14
Control Delay	50.2	33.0	29.1	67.8	91.0	126.0	108.0	159.0	41.8	66.1	84.5	102.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.2	33.0	29.1	67.8	91.0	126.0	108.0	159.0	41.8	66.1	84.5	102.6
LOS	D	C	C	E	F	F	F	F	D	E	F	F
Approach Delay		39.3			102.8			124.3			86.6	
Approach LOS		D			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 140			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.20			
Intersection Signal Delay: 84.1		Intersection LOS: F	
Intersection Capacity Utilization 98.1%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 114: US 74 & Monroe Northern Loop

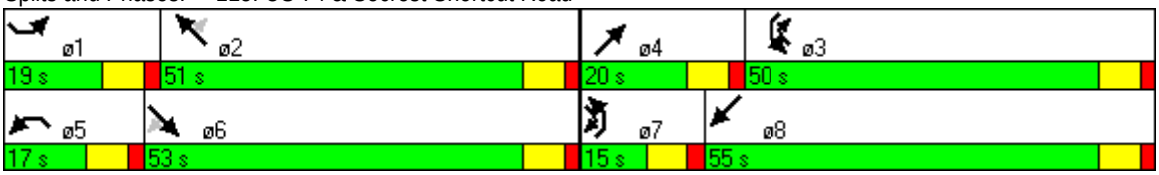


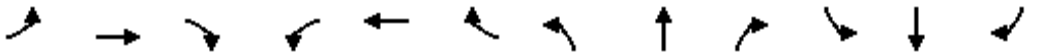
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	151	1122	57	157	1429	479	55	46	119	519	66	209
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.892			0.886	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	3335	4940	1538	1770	1662	0	1770	1650	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	3335	4940	1538	1770	1662	0	1770	1650	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		413			1354			238			233	
Travel Time (s)		6.3			20.5			6.5			4.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	168	1247	63	174	1588	532	61	51	132	577	73	232
Shared Lane Traffic (%)												
Lane Group Flow (vph)	168	1247	63	174	1588	532	61	183	0	577	305	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot			Prot		
Protected Phases	1	6	7	5	2	3	7	4		3	8	
Permitted Phases			6			2						
Detector Phase	1	6	7	5	2	3	7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0		14.0	14.0	
Total Split (s)	19.0	53.0	15.0	17.0	51.0	50.0	15.0	20.0	0.0	50.0	55.0	0.0
Total Split (%)	13.6%	37.9%	10.7%	12.1%	36.4%	35.7%	10.7%	14.3%	0.0%	35.7%	39.3%	0.0%
Maximum Green (s)	12.0	46.0	8.0	10.0	44.0	43.0	8.0	13.0		43.0	48.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Act Effct Green (s)	14.0	48.2	63.0	11.8	46.0	91.0	9.8	15.0		45.0	50.2	
Actuated g/C Ratio	0.10	0.34	0.45	0.08	0.33	0.65	0.07	0.11		0.32	0.36	
v/c Ratio	0.98	0.73	0.09	0.62	0.98	0.53	0.49	1.03		1.01	0.52	
Control Delay	124.8	43.4	22.6	72.0	64.1	8.8	76.7	134.9		88.0	39.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	124.8	43.4	22.6	72.0	64.1	8.8	76.7	134.9		88.0	39.2	
LOS	F	D	C	E	E	A	E	F		F	D	
Approach Delay		51.8			51.9			120.3			71.2	
Approach LOS		D			D			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.03			
Intersection Signal Delay: 58.7		Intersection LOS: E	
Intersection Capacity Utilization 91.1%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 115: US 74 & Secrest Shortcut Road





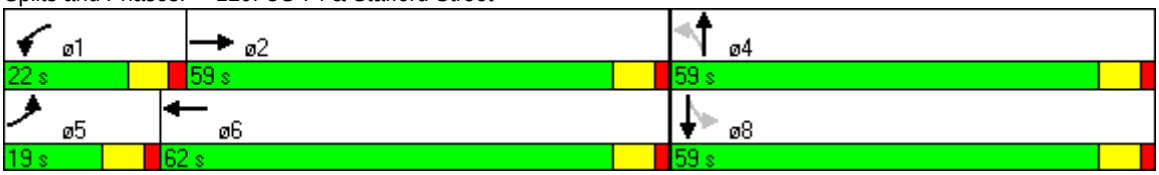
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	183	1670	150	213	2085	137	253	151	288	156	127	260
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.988			0.991			0.902			0.899	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4881	0	1719	4896	0	1770	1680	0	1770	1675	0
Flt Permitted	0.950			0.950			0.304			0.243		
Satd. Flow (perm)	1719	4881	0	1719	4896	0	566	1680	0	453	1675	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		443			590			549			636	
Travel Time (s)		6.7			8.9			15.0			12.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	203	1856	167	237	2317	152	281	168	320	173	141	289
Shared Lane Traffic (%)												
Lane Group Flow (vph)	203	2023	0	237	2469	0	281	488	0	173	430	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

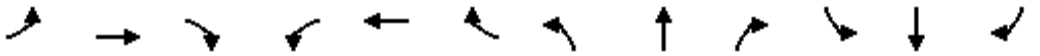
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	19.0	59.0	0.0	22.0	62.0	0.0	59.0	59.0	0.0	59.0	59.0	0.0
Total Split (%)	13.6%	42.1%	0.0%	15.7%	44.3%	0.0%	42.1%	42.1%	0.0%	42.1%	42.1%	0.0%
Maximum Green (s)	12.0	52.0		15.0	55.0		52.0	52.0		52.0	52.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	14.0	54.0		17.0	57.0		54.0	54.0		54.0	54.0	
Actuated g/C Ratio	0.10	0.39		0.12	0.41		0.39	0.39		0.39	0.39	
v/c Ratio	1.18	1.07		1.13	1.24		1.29	0.75		0.99	0.67	
Control Delay	178.0	85.0		156.6	148.3		196.2	46.0		108.5	41.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	178.0	85.0		156.6	148.3		196.2	46.0		108.5	41.6	
LOS	F	F		F	F		F	D		F	D	
Approach Delay		93.5			149.1			100.9			60.8	
Approach LOS		F			F			F			E	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.29
Intersection Signal Delay: 115.1 Intersection LOS: F
Intersection Capacity Utilization 106.8% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 120: US 74 & Stafford Street





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	78	1805	159	195	2208	53	117	10	117	107	10	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.988			0.996			0.862			0.857	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4881	0	1719	4920	0	1770	1606	0	1770	1596	0
Flt Permitted	0.950			0.950			0.372			0.561		
Satd. Flow (perm)	1719	4881	0	1719	4920	0	693	1606	0	1045	1596	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			20	
Link Distance (ft)		493			536			238			211	
Travel Time (s)		7.5			8.1			6.5			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	87	2006	177	217	2453	59	130	11	130	119	11	217
Shared Lane Traffic (%)												
Lane Group Flow (vph)	87	2183	0	217	2512	0	130	141	0	119	228	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	15.0	76.0	0.0	27.0	88.0	0.0	37.0	37.0	0.0	37.0	37.0	0.0
Total Split (%)	10.7%	54.3%	0.0%	19.3%	62.9%	0.0%	26.4%	26.4%	0.0%	26.4%	26.4%	0.0%
Maximum Green (s)	8.0	69.0		20.0	81.0		30.0	30.0		30.0	30.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	10.6	75.4		21.3	86.1		28.3	28.3		28.3	28.3	
Actuated g/C Ratio	0.08	0.54		0.15	0.62		0.20	0.20		0.20	0.20	
v/c Ratio	0.67	0.83		0.83	0.83		0.93	0.43		0.56	0.71	
Control Delay	87.4	31.6		82.9	25.1		112.7	52.2		60.1	63.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	87.4	31.6		82.9	25.1		112.7	52.2		60.1	63.7	
LOS	F	C		F	C		F	D		E	E	
Approach Delay		33.7			29.7			81.2			62.5	
Approach LOS		C			C			F			E	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 35.8 Intersection LOS: D
Intersection Capacity Utilization 85.4% ICU Level of Service E
Analysis Period (min) 15

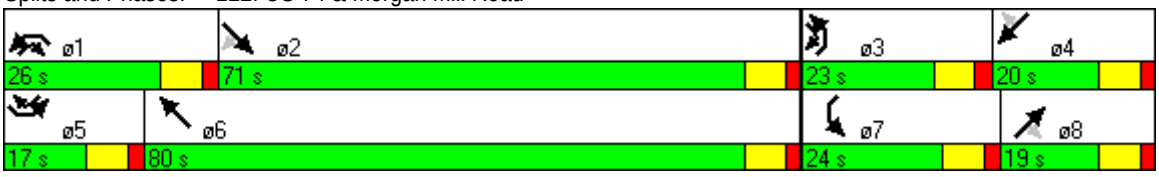
Splits and Phases: 121: US 74 & Boyte Street

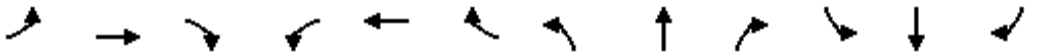
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	121	1707	177	138	2119	128	174	96	109	163	154	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.991				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	1719	4896	0	1687	1776	1509	1687	1776	1509
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	1719	4896	0	1687	1776	1509	1687	1776	1509
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		515			499			502			475	
Travel Time (s)		7.8			7.6			9.8			9.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	7%	7%	7%	7%	7%	7%
Adj. Flow (vph)	134	1897	197	153	2354	142	193	107	121	181	171	214
Shared Lane Traffic (%)												
Lane Group Flow (vph)	134	1897	197	153	2496	0	193	107	121	181	171	214
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot			Prot		pm+ov	Prot		pm+ov
Protected Phases	5	2	3	1	6		3	8	1	7	4	5
Permitted Phases			2						8			4
Detector Phase	5	2	3	1	6		3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0		7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0		14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	17.0	71.0	23.0	26.0	80.0	0.0	23.0	19.0	26.0	24.0	20.0	17.0
Total Split (%)	12.1%	50.7%	16.4%	18.6%	57.1%	0.0%	16.4%	13.6%	18.6%	17.1%	14.3%	12.1%
Maximum Green (s)	10.0	64.0	16.0	19.0	73.0		16.0	12.0	19.0	17.0	13.0	10.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max		None	None	None	None	None	None
Act Effct Green (s)	12.0	68.6	91.6	18.4	75.0		18.0	14.6	38.0	18.4	15.0	32.0
Actuated g/C Ratio	0.09	0.49	0.65	0.13	0.54		0.13	0.10	0.27	0.13	0.11	0.23
v/c Ratio	0.91	0.78	0.20	0.68	0.95		0.89	0.58	0.30	0.82	0.90	0.62
Control Delay	116.5	32.9	10.6	72.9	40.4		97.7	73.2	42.2	86.4	104.8	57.5
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	116.5	32.9	10.6	72.9	40.4		97.7	73.2	42.2	86.4	104.8	57.5
LOS	F	C	B	E	D		F	E	D	F	F	E
Approach Delay		36.0			42.3			75.5			81.0	
Approach LOS		D			D			E			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.95			
Intersection Signal Delay: 46.0		Intersection LOS: D	
Intersection Capacity Utilization 84.9%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 122: US 74 & Morgan Mill Road



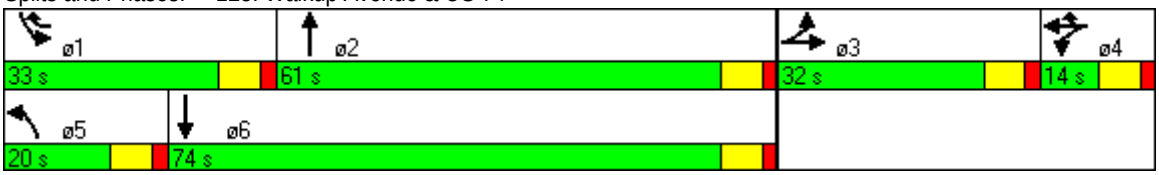


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	89	188	92	31	135	348	91	1939	43	382	1536	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.966				0.850		0.997			0.994	
Flt Protected		0.988		0.950			0.950			0.950		
Satd. Flow (prot)	0	1778	0	1770	1863	1583	1719	4925	0	1719	4910	0
Flt Permitted		0.988		0.950			0.950			0.950		
Satd. Flow (perm)	0	1778	0	1770	1863	1583	1719	4925	0	1719	4910	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		443			502			602			356	
Travel Time (s)		12.1			9.8			9.1			5.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	99	209	102	34	150	387	101	2154	48	424	1707	77
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	410	0	34	150	387	101	2202	0	424	1784	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pt+ov	Prot			Prot		
Protected Phases	3	3		4	4	4 1	5	2		1	6	
Permitted Phases												
Detector Phase	3	3		4	4	4 1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0		14.0	19.0	
Total Split (s)	32.0	32.0	0.0	14.0	14.0	47.0	20.0	61.0	0.0	33.0	74.0	0.0
Total Split (%)	22.9%	22.9%	0.0%	10.0%	10.0%	33.6%	14.3%	43.6%	0.0%	23.6%	52.9%	0.0%
Maximum Green (s)	25.0	25.0		7.0	7.0		13.0	54.0		26.0	67.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lead		Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)		27.0		9.0	9.0	42.0	13.7	56.0		28.0	70.3	
Actuated g/C Ratio		0.19		0.06	0.06	0.30	0.10	0.40		0.20	0.50	
v/c Ratio		1.20		0.30	1.25	0.81	0.60	1.12		1.23	0.72	
Control Delay		160.5		69.7	215.0	60.4	75.3	99.8		173.3	29.6	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		160.5		69.7	215.0	60.4	75.3	99.8		173.3	29.6	
LOS		F		E	F	E	E	F		F	C	
Approach Delay		160.5			101.6			98.7			57.2	
Approach LOS		F			F			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 170			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.25			
Intersection Signal Delay: 86.9		Intersection LOS: F	
Intersection Capacity Utilization 103.8%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 123: Walkup Avenue & US 74

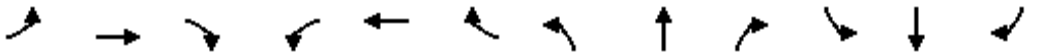


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	115	1391	211	66	1739	208	169	235	43	139	244	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.984			0.977			0.958	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	1719	4861	0	1752	1802	0	1752	1767	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	1719	4861	0	1752	1802	0	1752	1767	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		425			487			426			331	
Travel Time (s)		6.4			7.4			11.6			6.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	128	1546	234	73	1932	231	188	261	48	154	271	107
Shared Lane Traffic (%)												
Lane Group Flow (vph)	128	1546	234	73	2163	0	188	309	0	154	378	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot			Prot			Prot		
Protected Phases	1	6	7	5	2		7	4		3	8	
Permitted Phases			6									
Detector Phase	1	6	7	5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	16.0	67.0	21.0	17.0	68.0	0.0	21.0	35.0	0.0	21.0	35.0	0.0
Total Split (%)	11.4%	47.9%	15.0%	12.1%	48.6%	0.0%	15.0%	25.0%	0.0%	15.0%	25.0%	0.0%
Maximum Green (s)	9.0	60.0	14.0	10.0	61.0		14.0	28.0		14.0	28.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes			Yes			Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max		None	None		None	None	
Act Effct Green (s)	11.0	65.5	86.5	11.3	63.0		16.0	30.4		15.6	30.0	
Actuated g/C Ratio	0.08	0.47	0.62	0.08	0.45		0.11	0.22		0.11	0.21	
v/c Ratio	0.95	0.67	0.25	0.53	0.99		0.94	0.79		0.79	1.00	
Control Delay	127.9	31.4	13.7	75.7	54.9		110.6	67.4		87.7	100.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	127.9	31.4	13.7	75.7	54.9		110.6	67.4		87.7	100.1	
LOS	F	C	B	E	D		F	E		F	F	
Approach Delay		35.7			55.6			83.7			96.5	
Approach LOS		D			E			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.00			
Intersection Signal Delay: 55.2		Intersection LOS: E	
Intersection Capacity Utilization 89.3%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 124: US 74 & Sutherland Avenue



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	2	34	27	23	48	115	61	1823	38	150	1480	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.934			0.894				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1740	0	1770	1665	0	1719	4940	1538	1719	4940	1538
Flt Permitted	0.402			0.713			0.950			0.950		
Satd. Flow (perm)	749	1740	0	1328	1665	0	1719	4940	1538	1719	4940	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		163			218			356			257	
Travel Time (s)		5.6			4.2			5.4			3.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	2	38	30	26	53	128	68	2026	42	167	1644	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	68	0	26	181	0	68	2026	42	167	1644	4
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm			Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	12.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	19.0
Total Split (s)	32.0	32.0	0.0	32.0	32.0	0.0	17.0	79.0	79.0	29.0	91.0	91.0
Total Split (%)	22.9%	22.9%	0.0%	22.9%	22.9%	0.0%	12.1%	56.4%	56.4%	20.7%	65.0%	65.0%
Maximum Green (s)	25.0	25.0		25.0	25.0		10.0	72.0	72.0	22.0	84.0	84.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	21.9	21.9		21.9	21.9		11.7	83.0	83.0	20.1	94.2	94.2
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.08	0.59	0.59	0.14	0.67	0.67
v/c Ratio	0.02	0.25		0.13	0.70		0.47	0.69	0.05	0.68	0.49	0.00
Control Delay	47.0	52.7		50.0	69.6		72.0	22.5	14.6	70.4	13.1	10.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.0	52.7		50.0	69.6		72.0	22.5	14.6	70.4	13.1	10.2
LOS	D	D		D	E		E	C	B	E	B	B
Approach Delay		52.5			67.2			23.9			18.4	
Approach LOS		D			E			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay: 24.1		Intersection LOS: C	
Intersection Capacity Utilization 65.6%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 125: Dove Street & US 74

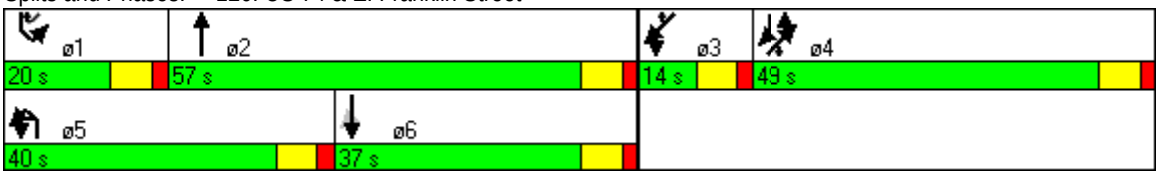
Lane Group	NBU	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT
Lane Configurations												
Volume (vph)	18	984	1453	127	128	1107	255	355	84	1044	129	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.86	0.97	0.86	0.86	1.00	0.91	1.00	1.00	1.00	0.88	1.00	1.00
Frt			0.988				0.850			0.850		
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	3335	6150	0	1719	4940	1538	1752	1845	2760	1752	1845
Flt Permitted		0.950			0.950			0.950			0.950	
Satd. Flow (perm)	0	3335	6150	0	1719	4940	1538	1752	1845	2760	1752	1845
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			45			35			20
Link Distance (ft)			341			436			391			335
Travel Time (s)			5.2			6.6			7.6			11.4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%
Adj. Flow (vph)	20	1093	1614	141	142	1230	283	394	93	1160	143	89
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1113	1755	0	142	1230	283	394	93	1160	143	89
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			24			24			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1	1	2		1	2	1	1	2	1	1	2
Detector Template	Left	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru
Leading Detector (ft)	20	20	100		20	100	20	20	100	20	20	100
Trailing Detector (ft)	0	0	0		0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0		0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	6		20	6	20	20	6	20	20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94			94			94			94
Detector 2 Size(ft)			6			6			6			6
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			0.0
Turn Type	Prot	Prot			Prot		pm+ov	Split		Prot	Split	
Protected Phases	5	5	2		1	6	4	4	4	4	3	3
Permitted Phases							6					
Detector Phase	5	5	2		1	6	4	4	4	4	3	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	12.0		7.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SWR
Lane Configurations	
Volume (vph)	171
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1568
Flt Permitted	
Satd. Flow (perm)	1568
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	3%
Adj. Flow (vph)	190
Shared Lane Traffic (%)	
Lane Group Flow (vph)	190
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	pt+ov
Protected Phases	3 1
Permitted Phases	
Detector Phase	3 1
Switch Phase	
Minimum Initial (s)	

Lane Group	NBU	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT
Minimum Split (s)	14.0	14.0	19.0		14.0	19.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	40.0	40.0	57.0	0.0	20.0	37.0	49.0	49.0	49.0	49.0	14.0	14.0
Total Split (%)	28.6%	28.6%	40.7%	0.0%	14.3%	26.4%	35.0%	35.0%	35.0%	35.0%	10.0%	10.0%
Maximum Green (s)	33.0	33.0	50.0		13.0	30.0	42.0	42.0	42.0	42.0	7.0	7.0
Yellow Time (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag		Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max		None	C-Max	None	None	None	None	None	None
Act Effct Green (s)		35.0	52.3		14.7	32.0	76.0	44.0	44.0	44.0	9.0	9.0
Actuated g/C Ratio		0.25	0.37		0.10	0.23	0.54	0.31	0.31	0.31	0.06	0.06
v/c Ratio		1.33	0.76		0.79	1.09	0.34	0.72	0.16	1.34	1.27	0.75
Control Delay		199.5	41.2		90.0	104.4	11.7	51.0	35.7	198.0	222.6	98.8
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		199.5	41.2		90.0	104.4	11.7	51.0	35.7	198.0	222.6	98.8
LOS		F	D		F	F	B	D	D	F	F	F
Approach Delay			102.6			87.3			153.7			117.4
Approach LOS			F			F			F			F

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 170			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.34			
Intersection Signal Delay: 112.5		Intersection LOS: F	
Intersection Capacity Utilization 110.3%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 126: US 74 & E. Franklin Street



Lane Group	SWR
Minimum Split (s)	
Total Split (s)	34.0
Total Split (%)	24.3%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Act Effct Green (s)	23.7
Actuated g/C Ratio	0.17
v/c Ratio	0.72
Control Delay	47.0
Queue Delay	0.0
Total Delay	47.0
LOS	D
Approach Delay	
Approach LOS	

Intersection Summary

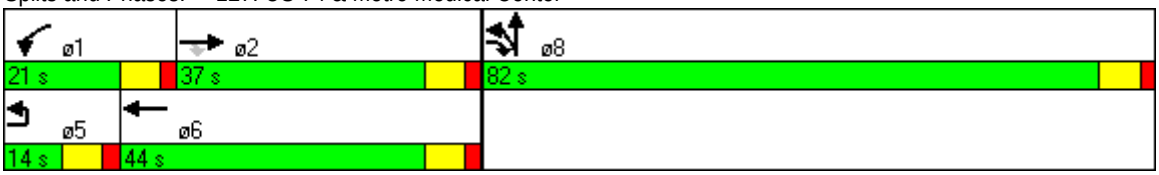
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	10	0	1135	930	219	1308	22	1541	0	319	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.91	0.91	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.998			0.947			
Flt Protected	0.950				0.950			0.950	0.969			
Satd. Flow (prot)	1719	0	4940	1538	1736	4978	0	1504	1453	0	0	0
Flt Permitted	0.950				0.950			0.950	0.969			
Satd. Flow (perm)	1719	0	4940	1538	1736	4978	0	1504	1453	0	0	0
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			55			45			25
Link Distance (ft)			239			375			459			142
Travel Time (s)			3.6			4.6			7.0			3.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	4%	4%	4%	14%	14%	14%	2%	2%
Adj. Flow (vph)	11	0	1261	1033	243	1453	24	1712	0	354	0	0
Shared Lane Traffic (%)								38%				
Lane Group Flow (vph)	11	0	1261	1033	243	1477	0	1061	1005	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			12			12			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1		2	1	1	2		1	2			
Detector Template	Left		Thru	Right	Left	Thru		Left	Thru			
Leading Detector (ft)	20		100	20	20	100		20	100			
Trailing Detector (ft)	0		0	0	0	0		0	0			
Detector 1 Position(ft)	0		0	0	0	0		0	0			
Detector 1 Size(ft)	20		6	20	20	6		20	6			
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 2 Position(ft)			94			94			94			
Detector 2 Size(ft)			6			6			6			
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			
Turn Type	Prot			pm+ov	Prot			Split				
Protected Phases	5		2	8	1	6		8	8			
Permitted Phases				2								
Detector Phase	5		2	8	1	6		8	8			
Switch Phase												
Minimum Initial (s)	7.0		12.0	12.0	7.0	14.0		12.0	12.0			

Lane Group	SBR
Lane Configurations	
Volume (vph)	35
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.865
Flt Protected	
Satd. Flow (prot)	1611
Flt Permitted	
Satd. Flow (perm)	1611
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	2%
Adj. Flow (vph)	39
Shared Lane Traffic (%)	
Lane Group Flow (vph)	39
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Detector Phase	
Switch Phase	
Minimum Initial (s)	

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Minimum Split (s)	14.0		19.0	19.0	14.0	21.0		19.0	19.0			
Total Split (s)	14.0	0.0	37.0	82.0	21.0	44.0	0.0	82.0	82.0	0.0	0.0	0.0
Total Split (%)	10.0%	0.0%	26.4%	58.6%	15.0%	31.4%	0.0%	58.6%	58.6%	0.0%	0.0%	0.0%
Maximum Green (s)	7.0		30.0	75.0	14.0	37.0		75.0	75.0			
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0		5.0	5.0			
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0		2.0	2.0			
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	2.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	2.0	2.0
Lead/Lag	Lead		Lag		Lead	Lag						
Lead-Lag Optimize?			Yes			Yes						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0		3.0	3.0			
Recall Mode	None		C-Max	None	None	C-Max		None	None			
Act Effct Green (s)	9.0		32.0	114.0	16.0	47.4		77.0	77.0			
Actuated g/C Ratio	0.06		0.23	0.81	0.11	0.34		0.55	0.55			
v/c Ratio	0.10		1.12	0.83	1.23	0.88		1.28	1.26			
Control Delay	63.9		113.7	14.7	188.4	50.6		166.0	155.8			
Queue Delay	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Total Delay	63.9		113.7	14.7	188.4	50.6		166.0	155.8			
LOS	E		F	B	F	D		F	F			
Approach Delay			69.1			70.1			161.0			
Approach LOS			E			E			F			

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 170			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.28			
Intersection Signal Delay: 99.9		Intersection LOS: F	
Intersection Capacity Utilization 99.0%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 127: US 74 & Metro Medical Center



Lane Group	SBR
Minimum Split (s)	
Total Split (s)	0.0
Total Split (%)	0.0%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	2.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Act Effct Green (s)	140.0
Actuated g/C Ratio	1.00
v/c Ratio	0.02
Control Delay	0.0
Queue Delay	0.0
Total Delay	0.0
LOS	A
Approach Delay	
Approach LOS	

Intersection Summary

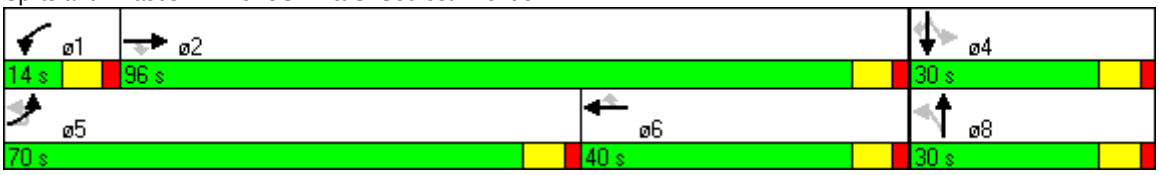
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	16	300	1073	36	9	1348	249	47	238	9	109	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850			0.850		0.996			
Flt Protected		0.950			0.950				0.992			0.974
Satd. Flow (prot)	0	1736	3471	1553	1736	3471	1553	0	1840	0	0	1814
Flt Permitted		0.062			0.950				0.508			0.335
Satd. Flow (perm)	0	113	3471	1553	1736	3471	1553	0	942	0	0	624
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			55			55			35			35
Link Distance (ft)			411			374			242			283
Travel Time (s)			5.1			4.6			4.7			5.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%
Adj. Flow (vph)	18	333	1192	40	10	1498	277	52	264	10	121	110
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	351	1192	40	10	1498	277	0	326	0	0	231
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			12			12			0			0
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1	1	2	1	1	2	1	1	2		1	2
Detector Template	Left	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru
Leading Detector (ft)	20	20	100	20	20	100	20	20	100		20	100
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0		0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0		0	0
Detector 1 Size(ft)	20	20	6	20	20	6	20	20	6		20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)			94			94			94			94
Detector 2 Size(ft)			6			6			6			6
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			0.0
Turn Type	custom	Prot		Perm	Prot		Perm	Perm			Perm	
Protected Phases		5	2		1	6			8			4
Permitted Phases	5			2			6	8			4	
Detector Phase	5	5	2	2	1	6	6	8	8		4	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	14.0	14.0	7.0	14.0	14.0	7.0	7.0		7.0	7.0

Lane Group	SBR
Lane Configurations	
Volume (vph)	165
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	2%
Adj. Flow (vph)	183
Shared Lane Traffic (%)	
Lane Group Flow (vph)	183
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Detector Phase	4
Switch Phase	
Minimum Initial (s)	7.0

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Minimum Split (s)	14.0	14.0	21.0	21.0	14.0	21.0	21.0	14.0	14.0		14.0	14.0
Total Split (s)	70.0	70.0	96.0	96.0	14.0	40.0	40.0	30.0	30.0	0.0	30.0	30.0
Total Split (%)	50.0%	50.0%	68.6%	68.6%	10.0%	28.6%	28.6%	21.4%	21.4%	0.0%	21.4%	21.4%
Maximum Green (s)	63.0	63.0	89.0	89.0	7.0	33.0	33.0	23.0	23.0		23.0	23.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Time Before Reduce (s)	0.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0	0.0		0.0	0.0
Time To Reduce (s)	0.0	0.0	50.0	50.0	0.0	50.0	50.0	0.0	0.0		0.0	0.0
Recall Mode	None	None	C-Min	C-Min	None	C-Min	C-Min	None	None		None	None
Act Effct Green (s)		65.0	102.2	102.2	9.0	35.0	35.0		25.0			25.0
Actuated g/C Ratio		0.46	0.73	0.73	0.06	0.25	0.25		0.18			0.18
v/c Ratio		6.75	0.47	0.04	0.09	1.73	0.71		1.94			2.08
Control Delay		2635.9	9.1	6.4	63.7	363.7	59.5		474.5			544.2
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0
Total Delay		2635.9	9.1	6.4	63.7	363.7	59.5		474.5			544.2
LOS		F	A	A	E	F	E		F			F
Approach Delay			591.4			314.8			474.5			332.4
Approach LOS			F			F			F			F

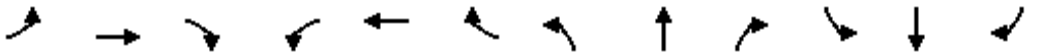
Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 6.75			
Intersection Signal Delay: 435.9		Intersection LOS: F	
Intersection Capacity Utilization 97.3%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 128: US 74 & S. Secrest Avenue



Lane Group	SBR
Minimum Split (s)	14.0
Total Split (s)	30.0
Total Split (%)	21.4%
Maximum Green (s)	23.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Minimum Gap (s)	3.0
Time Before Reduce (s)	0.0
Time To Reduce (s)	0.0
Recall Mode	None
Act Effct Green (s)	25.0
Actuated g/C Ratio	0.18
v/c Ratio	0.65
Control Delay	65.1
Queue Delay	0.0
Total Delay	65.1
LOS	E
Approach Delay	
Approach LOS	

Intersection Summary

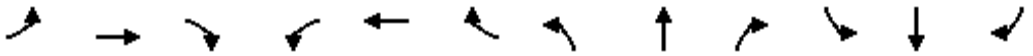


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	110	1131	32	6	1402	101	20	18	3	58	20	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.990			0.991				0.850
Flt Protected	0.950			0.950				0.976			0.964	
Satd. Flow (prot)	1736	3457	0	1736	3436	0	0	1802	0	0	1796	1583
Flt Permitted	0.950			0.950				0.762			0.792	
Satd. Flow (perm)	1736	3457	0	1736	3436	0	0	1407	0	0	1475	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			20			25	
Link Distance (ft)		245			259			179			276	
Travel Time (s)		4.8			5.0			6.1			7.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	122	1257	36	7	1558	112	22	20	3	64	22	88
Shared Lane Traffic (%)												
Lane Group Flow (vph)	122	1293	0	7	1670	0	0	45	0	0	86	88
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		pm+ov
Protected Phases	5	2		1	6			8			4	5
Permitted Phases							8			4		4
Detector Phase	5	2		1	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	17.0		14.0	17.0		14.0	14.0		14.0	14.0	14.0
Total Split (s)	25.0	107.0	0.0	14.0	96.0	0.0	19.0	19.0	0.0	19.0	19.0	25.0
Total Split (%)	17.9%	76.4%	0.0%	10.0%	68.6%	0.0%	13.6%	13.6%	0.0%	13.6%	13.6%	17.9%
Maximum Green (s)	18.0	100.0		7.0	89.0		12.0	12.0		12.0	12.0	18.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None
Act Effct Green (s)	16.5	113.2		9.0	94.4			14.0			14.0	35.6
Actuated g/C Ratio	0.12	0.81		0.06	0.67			0.10			0.10	0.25
v/c Ratio	0.60	0.46		0.06	0.72			0.32			0.58	0.22
Control Delay	70.1	5.3		63.0	17.5			64.2			76.0	41.3
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Delay	70.1	5.3		63.0	17.5			64.2			76.0	41.3
LOS	E	A		E	B			E			E	D
Approach Delay		10.9			17.7			64.2			58.4	
Approach LOS		B			B			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 17.6		Intersection LOS: B	
Intersection Capacity Utilization 69.5%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 129: US 74 & Bivens Street

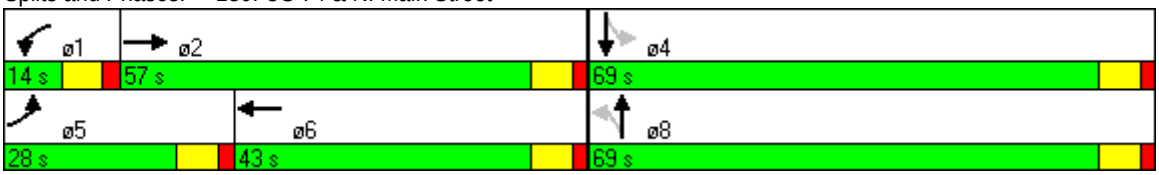


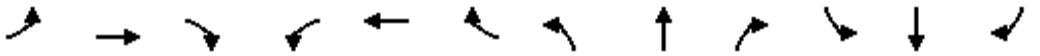
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	376	817	43	52	1042	102	54	369	51	77	280	361
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992			0.987			0.985			0.916	
Flt Protected	0.950			0.950				0.994		0.950		
Satd. Flow (prot)	1736	3443	0	1736	3426	0	0	1824	0	1770	1706	0
Flt Permitted	0.950			0.950				0.395		0.368		
Satd. Flow (perm)	1736	3443	0	1736	3426	0	0	725	0	685	1706	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		282			333			173			197	
Travel Time (s)		5.5			6.5			3.4			3.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	418	908	48	58	1158	113	60	410	57	86	311	401
Shared Lane Traffic (%)												
Lane Group Flow (vph)	418	956	0	58	1271	0	0	527	0	86	712	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	17.0		14.0	17.0		14.0	14.0		14.0	14.0	
Total Split (s)	28.0	57.0	0.0	14.0	43.0	0.0	69.0	69.0	0.0	69.0	69.0	0.0
Total Split (%)	20.0%	40.7%	0.0%	10.0%	30.7%	0.0%	49.3%	49.3%	0.0%	49.3%	49.3%	0.0%
Maximum Green (s)	21.0	50.0		7.0	36.0		62.0	62.0		62.0	62.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	None		None	None		None	None	
Act Effct Green (s)	23.0	54.8		9.0	38.0			64.0		64.0	64.0	
Actuated g/C Ratio	0.16	0.39		0.06	0.27			0.46		0.46	0.46	
v/c Ratio	1.47	0.71		0.52	1.37			1.59		0.27	0.91	
Control Delay	268.5	40.2		80.2	211.0			309.3		26.6	53.0	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	268.5	40.2		80.2	211.0			309.3		26.6	53.0	
LOS	F	D		F	F			F		C	D	
Approach Delay		109.7			205.3			309.3			50.1	
Approach LOS		F			F			F			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.59			
Intersection Signal Delay: 155.5		Intersection LOS: F	
Intersection Capacity Utilization 131.9%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 130: US 74 & N. Main Street





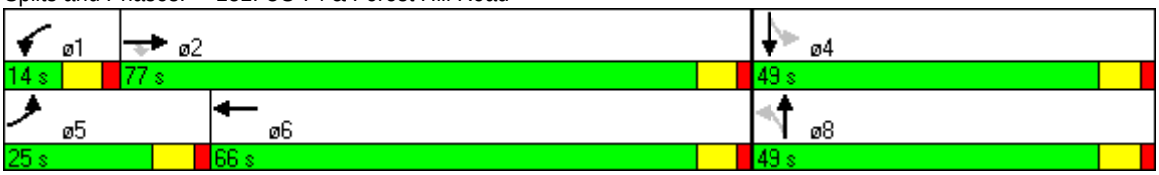
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	117	723	101	28	891	10	109	23	25	10	26	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.998			0.978			0.892	
Flt Protected	0.950			0.950				0.967			0.997	
Satd. Flow (prot)	1736	3471	1553	1736	3464	0	0	1679	0	0	1625	0
Flt Permitted	0.950			0.950				0.493			0.980	
Satd. Flow (perm)	1736	3471	1553	1736	3464	0	0	856	0	0	1597	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			35	
Link Distance (ft)		576			646			376			353	
Travel Time (s)		7.1			8.0			4.7			6.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	7%	7%	7%	4%	4%	4%
Adj. Flow (vph)	130	803	112	31	990	11	121	26	28	11	29	163
Shared Lane Traffic (%)												
Lane Group Flow (vph)	130	803	112	31	1001	0	0	175	0	0	203	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		Perm	Prot			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8			4		
Detector Phase	5	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	14.0	14.0	7.0	14.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	21.0	21.0	14.0	21.0		14.0	14.0		14.0	14.0	
Total Split (s)	25.0	77.0	77.0	14.0	66.0	0.0	49.0	49.0	0.0	49.0	49.0	0.0
Total Split (%)	17.9%	55.0%	55.0%	10.0%	47.1%	0.0%	35.0%	35.0%	0.0%	35.0%	35.0%	0.0%
Maximum Green (s)	18.0	70.0	70.0	7.0	59.0		42.0	42.0		42.0	42.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	
Act Effct Green (s)	17.7	88.3	88.3	10.3	75.4			31.9			31.9	
Actuated g/C Ratio	0.13	0.63	0.63	0.07	0.54			0.23			0.23	
v/c Ratio	0.59	0.37	0.11	0.24	0.54			0.90			0.56	
Control Delay	68.2	15.6	14.3	65.2	24.6			93.3			52.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Delay	68.2	15.6	14.3	65.2	24.6			93.3			52.3	
LOS	E	B	B	E	C			F			D	
Approach Delay		22.0			25.8			93.3			52.3	
Approach LOS		C			C			F			D	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 31.2 Intersection LOS: C
Intersection Capacity Utilization 67.8% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 131: US 74 & Forest Hill Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	512	89	290	237	48	80	137	4430	469	212	3525	321
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1719	3438	1538	1719	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	1719	3438	1538	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			45			55			55	
Link Distance (ft)		1096			1168			1536			3465	
Travel Time (s)		21.4			17.7			19.0			43.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	569	99	322	263	53	89	152	4922	521	236	3917	357
Shared Lane Traffic (%)												
Lane Group Flow (vph)	569	99	322	263	53	89	152	4922	521	236	3917	357
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	1	6	7	5	2	3
Permitted Phases			4			8			6			2
Detector Phase	7	4	5	3	8	1	1	6	7	5	2	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	14.0	7.0	7.0	14.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0	14.0	14.0	21.0	14.0	14.0	21.0	14.0
Total Split (s)	21.0	14.0	18.0	21.0	14.0	15.0	15.0	87.0	21.0	18.0	90.0	21.0
Total Split (%)	15.0%	10.0%	12.9%	15.0%	10.0%	10.7%	10.7%	62.1%	15.0%	12.9%	64.3%	15.0%
Maximum Green (s)	14.0	7.0	11.0	14.0	7.0	8.0	8.0	80.0	14.0	11.0	83.0	14.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	18.4	9.0	27.4	15.6	9.0	21.6	10.4	82.0	105.4	13.4	85.0	105.6
Actuated g/C Ratio	0.13	0.06	0.20	0.11	0.06	0.15	0.07	0.59	0.75	0.10	0.61	0.75
v/c Ratio	1.26	0.43	1.04	0.69	0.23	0.36	1.19	2.44	0.45	1.43	1.88	0.31
Control Delay	183.0	69.3	115.4	69.9	64.9	56.4	190.6	670.6	8.4	266.8	419.2	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	183.0	69.3	115.4	69.9	64.9	56.4	190.6	670.6	8.4	266.8	419.2	6.3
LOS	F	E	F	E	E	E	F	F	A	F	F	A
Approach Delay		149.7			66.3			595.9			378.5	
Approach LOS		F			E			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 2.44			
Intersection Signal Delay: 453.6		Intersection LOS: F	
Intersection Capacity Utilization 168.0%		ICU Level of Service H	
Analysis Period (min) 15			

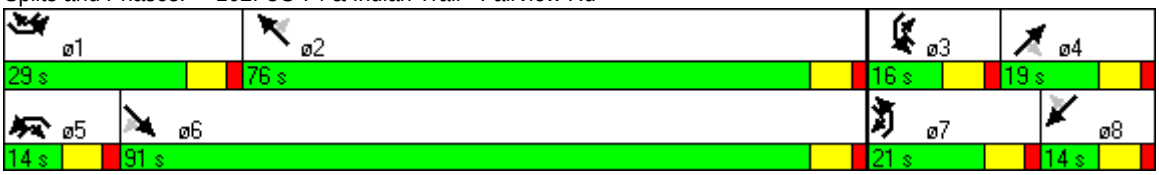
Splits and Phases: 101: Stallings Road & US 74

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	608	2067	402	82	1693	199	415	217	103	136	144	332
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3335	3438	1538	1719	3438	1538	3335	3438	1538	3335	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3438	1538	1719	3438	1538	3335	3438	1538	3335	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			35			35	
Link Distance (ft)		2103			2380			902			1112	
Travel Time (s)		26.1			29.5			17.6			21.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	676	2297	447	91	1881	221	461	241	114	151	160	369
Shared Lane Traffic (%)												
Lane Group Flow (vph)	676	2297	447	91	1881	221	461	241	114	151	160	369
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	7.0	14.0	7.0	7.0	14.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	21.0	14.0	14.0	21.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	29.0	91.0	21.0	14.0	76.0	16.0	21.0	19.0	14.0	16.0	14.0	29.0
Total Split (%)	20.7%	65.0%	15.0%	10.0%	54.3%	11.4%	15.0%	13.6%	10.0%	11.4%	10.0%	20.7%
Maximum Green (s)	22.0	84.0	14.0	7.0	69.0	9.0	14.0	12.0	7.0	9.0	7.0	22.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	24.0	86.0	107.0	9.0	71.0	86.9	16.0	14.1	28.1	10.9	9.0	38.0
Actuated g/C Ratio	0.17	0.61	0.76	0.06	0.51	0.62	0.11	0.10	0.20	0.08	0.06	0.27
v/c Ratio	1.18	1.09	0.38	0.82	1.08	0.23	1.21	0.69	0.37	0.58	0.72	0.88
Control Delay	148.0	75.3	6.6	111.1	79.8	12.5	167.3	72.2	52.4	71.9	83.0	72.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	148.0	75.3	6.6	111.1	79.8	12.5	167.3	72.2	52.4	71.9	83.0	72.3
LOS	F	E	A	F	E	B	F	E	D	E	F	E
Approach Delay		80.7			74.4			123.2			74.7	
Approach LOS		F			E			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 170			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.21			
Intersection Signal Delay: 83.0		Intersection LOS: F	
Intersection Capacity Utilization 98.5%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 102: US 74 & Indian Trail - Fairview Rd

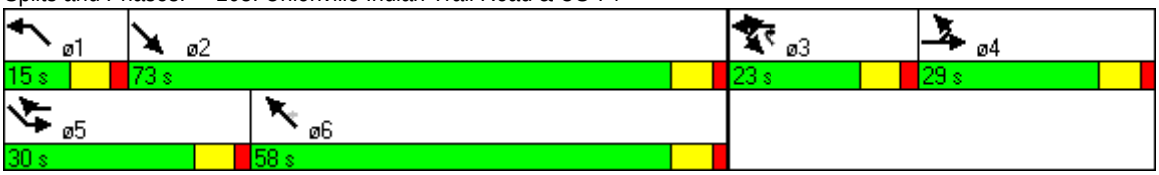


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	56	364	238	322	151	396	682	1648	40	139	1350	454
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.91	0.91	0.95	0.95	0.95	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Frt		0.941				0.850		0.996				0.850
Flt Protected	0.950			0.950	0.982		0.950			0.950		
Satd. Flow (prot)	1595	3159	0	1665	1721	1568	3335	3424	0	1719	3438	1538
Flt Permitted	0.950			0.950	0.982		0.950			0.950		
Satd. Flow (perm)	1595	3159	0	1665	1721	1568	3335	3424	0	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			45			55			55	
Link Distance (ft)		795			1304			1032			1062	
Travel Time (s)		15.5			19.8			12.8			13.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	62	404	264	358	168	440	758	1831	44	154	1500	504
Shared Lane Traffic (%)	10%			28%								
Lane Group Flow (vph)	56	674	0	258	268	440	758	1875	0	154	1500	504
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pt+ov	Prot			Prot		pm+ov
Protected Phases	4	4		3	3	3 5	5	2		1	6	3
Permitted Phases												6
Detector Phase	4	4		3	3	3 5	5	2		1	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	14.0		7.0	14.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	21.0		14.0	21.0	14.0
Total Split (s)	29.0	29.0	0.0	23.0	23.0	53.0	30.0	73.0	0.0	15.0	58.0	23.0
Total Split (%)	20.7%	20.7%	0.0%	16.4%	16.4%	37.9%	21.4%	52.1%	0.0%	10.7%	41.4%	16.4%
Maximum Green (s)	22.0	22.0		16.0	16.0		23.0	66.0		8.0	51.0	16.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	None
Act Effct Green (s)	24.0	24.0		18.0	18.0	43.0	25.0	68.0		10.0	53.0	76.0
Actuated g/C Ratio	0.17	0.17		0.13	0.13	0.31	0.18	0.49		0.07	0.38	0.54
v/c Ratio	0.21	1.24		1.21	1.21	0.91	1.27	1.13		1.25	1.15	0.60
Control Delay	52.2	171.4		178.3	179.8	56.2	180.7	100.0		214.4	117.3	25.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	52.2	171.4		178.3	179.8	56.2	180.7	100.0		214.4	117.3	25.6
LOS	D	F		F	F	E	F	F		F	F	C
Approach Delay		162.3			123.1			123.2			102.8	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 170			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.27			
Intersection Signal Delay: 120.8		Intersection LOS: F	
Intersection Capacity Utilization 99.2%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 103: Unionville Indian Trail Road & US 74

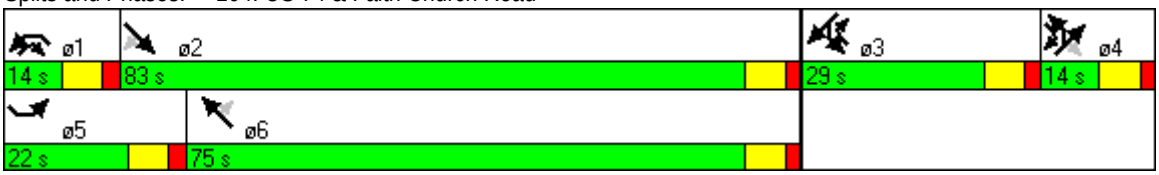


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	199	2012	40	53	1623	201	24	7	39	320	14	256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.858	
Flt Protected	0.950			0.950				0.963		0.950		
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	0	1679	1482	1770	1598	0
Flt Permitted	0.950			0.950				0.963		0.950		
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	0	1679	1482	1770	1598	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			15			35	
Link Distance (ft)		1177			2588			625			368	
Travel Time (s)		14.6			32.1			28.4			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	9%	9%	9%	2%	2%	2%
Adj. Flow (vph)	221	2236	44	59	1803	223	27	8	43	356	16	284
Shared Lane Traffic (%)												
Lane Group Flow (vph)	221	2236	44	59	1803	223	0	35	43	356	300	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Split		pm+ov	Split		
Protected Phases	5	2	4	1	6	3	4	4	1	3	3	
Permitted Phases			2			6			4			
Detector Phase	5	2	4	1	6	3	4	4	1	3	3	
Switch Phase												
Minimum Initial (s)	1.0	14.0	7.0	7.0	14.0	7.0	7.0	7.0	7.0	7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	21.0	14.0	14.0	21.0	14.0	14.0	14.0	14.0	14.0	14.0	
Total Split (s)	22.0	83.0	14.0	14.0	75.0	29.0	14.0	14.0	14.0	29.0	29.0	0.0
Total Split (%)	15.7%	59.3%	10.0%	10.0%	53.6%	20.7%	10.0%	10.0%	10.0%	20.7%	20.7%	0.0%
Maximum Green (s)	15.0	76.0	7.0	7.0	68.0	22.0	7.0	7.0	7.0	22.0	22.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	
Act Effct Green (s)	19.4	83.6	90.8	9.0	70.4	99.4		9.0	20.2	24.0	24.0	
Actuated g/C Ratio	0.14	0.60	0.65	0.06	0.50	0.71		0.06	0.14	0.17	0.17	
v/c Ratio	0.92	1.09	0.04	0.53	1.04	0.20		0.32	0.20	1.17	1.09	
Control Delay	101.4	77.8	5.7	81.2	68.2	7.5		71.1	53.2	157.2	134.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	101.4	77.8	5.7	81.2	68.2	7.5		71.1	53.2	157.2	134.8	
LOS	F	E	A	F	E	A		E	D	F	F	
Approach Delay		78.6			62.0			61.2			147.0	
Approach LOS		E			E			E			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.17			
Intersection Signal Delay: 80.3		Intersection LOS: F	
Intersection Capacity Utilization 98.3%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 104: US 74 & Faith Church Road



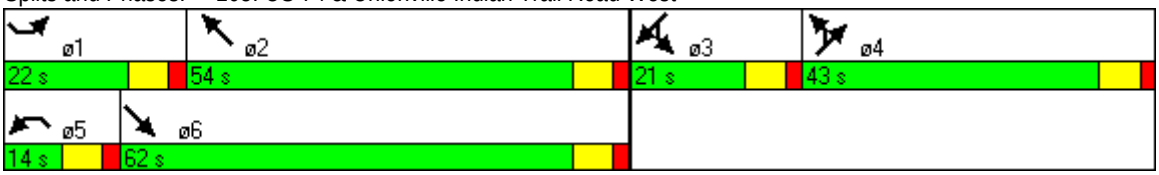
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	302	1286	731	132	952	312	790	174	193	247	95	177
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.946			0.963			0.921			0.902	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3252	0	1719	3311	0	1770	1716	0	1770	1680	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3252	0	1719	3311	0	1770	1716	0	1770	1680	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		606			973			698			813	
Travel Time (s)		7.5			12.1			10.6			12.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	336	1429	812	147	1058	347	878	193	214	274	106	197
Shared Lane Traffic (%)												
Lane Group Flow (vph)	336	2241	0	147	1405	0	878	407	0	274	303	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Split			Split		
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases												
Detector Phase	1	6		5	2		4	4		3	3	
Switch Phase												
Minimum Initial (s)	7.0	14.0		7.0	14.0		7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	21.0		14.0	21.0		14.0	14.0		14.0	14.0	
Total Split (s)	22.0	62.0	0.0	14.0	54.0	0.0	43.0	43.0	0.0	21.0	21.0	0.0
Total Split (%)	15.7%	44.3%	0.0%	10.0%	38.6%	0.0%	30.7%	30.7%	0.0%	15.0%	15.0%	0.0%
Maximum Green (s)	15.0	55.0		7.0	47.0		36.0	36.0		14.0	14.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	17.0	57.0		9.0	49.0		38.0	38.0		16.0	16.0	
Actuated g/C Ratio	0.12	0.41		0.06	0.35		0.27	0.27		0.11	0.11	
v/c Ratio	1.61	1.69		1.32	1.21		1.83	0.87		1.36	1.58	
Control Delay	332.5	343.9		243.5	143.3		411.3	68.9		234.3	322.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	332.5	343.9		243.5	143.3		411.3	68.9		234.3	322.4	
LOS	F	F		F	F		F	E		F	F	
Approach Delay		342.4			152.8			302.9			280.6	
Approach LOS		F			F			F			F	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 180
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.83
Intersection Signal Delay: 278.9 Intersection LOS: F
Intersection Capacity Utilization 142.6% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 105: US 74 & Unionville Indian Trail Road West



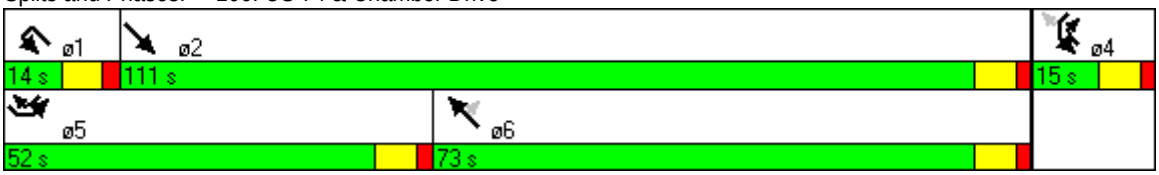
Lane Group	SEL	SET	NWU	NWT	NWR	SWL	SWR
Lane Configurations							
Volume (vph)	377	1426	10	1207	125	52	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Frt					0.850		0.850
Flt Protected	0.950		0.950			0.950	
Satd. Flow (prot)	1719	3438	1719	3438	1538	1770	1583
Flt Permitted	0.950		0.950			0.950	
Satd. Flow (perm)	1719	3438	1719	3438	1538	1770	1583
Right Turn on Red					No		No
Satd. Flow (RTOR)							
Link Speed (mph)		55		55		35	
Link Distance (ft)		2407		1378		1258	
Travel Time (s)		29.8		17.1		24.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	2%	2%
Adj. Flow (vph)	419	1584	11	1341	139	58	148
Shared Lane Traffic (%)							
Lane Group Flow (vph)	419	1584	11	1341	139	58	148
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Left	R NA	Left	Right	Left	Right
Median Width(ft)		12		12		12	
Link Offset(ft)		0		0		0	
Crosswalk Width(ft)		0		0		0	
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9		9	15	9
Number of Detectors	1	2	1	2	1	1	1
Detector Template	Left	Thru	Left	Thru	Right	Left	Right
Leading Detector (ft)	20	100	20	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94		94			
Detector 2 Size(ft)		6		6			
Detector 2 Type		Cl+Ex		Cl+Ex			
Detector 2 Channel							
Detector 2 Extend (s)		0.0		0.0			
Turn Type	Prot		Prot		pm+ov		pm+ov
Protected Phases	5	2	1	6	4	4	5
Permitted Phases					6		4
Detector Phase	5	2	1	6	4	4	5
Switch Phase							
Minimum Initial (s)	7.0	14.0	7.0	14.0	7.0	7.0	7.0

Lane Group	SEL	SET	NWU	NWT	NWR	SWL	SWR
Minimum Split (s)	14.0	21.0	14.0	21.0	14.0	14.0	14.0
Total Split (s)	52.0	111.0	14.0	73.0	15.0	15.0	52.0
Total Split (%)	37.1%	79.3%	10.0%	52.1%	10.7%	10.7%	37.1%
Maximum Green (s)	45.0	104.0	7.0	66.0	8.0	8.0	45.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag			Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	C-Max	None	None	None
Act Effct Green (s)	40.4	114.6	9.0	74.8	89.6	9.8	55.2
Actuated g/C Ratio	0.29	0.82	0.06	0.53	0.64	0.07	0.39
v/c Ratio	0.84	0.56	0.10	0.73	0.14	0.47	0.24
Control Delay	62.4	6.0	63.9	29.0	11.5	75.4	28.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.4	6.0	63.9	29.0	11.5	75.4	28.2
LOS	E	A	E	C	B	E	C
Approach Delay		17.8		27.6		41.5	
Approach LOS		B		C		D	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 23.1 Intersection LOS: C
Intersection Capacity Utilization 72.6% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 106: US 74 & Chamber Drive

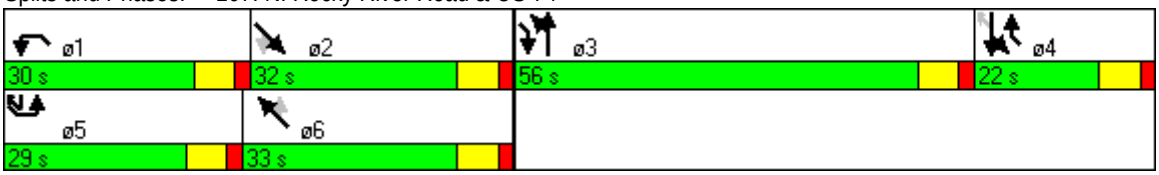


Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	447	83	295	172	95	174	261	681	770	400	535	203
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.952				0.850			0.850			0.850
Flt Protected		0.974			0.969		0.950			0.950		
Satd. Flow (prot)	0	1727	0	0	1805	1583	1719	3438	1538	1719	3438	1538
Flt Permitted		0.974			0.969		0.950			0.950		
Satd. Flow (perm)	0	1727	0	0	1805	1583	1719	3438	1538	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		1176			418			3021			3350	
Travel Time (s)		17.8			6.3			37.5			41.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	497	92	328	191	106	193	290	757	856	444	594	226
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	917	0	0	297	193	290	757	856	444	594	226
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	3	3		4	4	5	5	2	3	1	6	4
Permitted Phases						4			2			6
Detector Phase	3	3		4	4	5	5	2	3	1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	14.0	7.0	7.0	14.0	7.0

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0	14.0	14.0	21.0	14.0	14.0	21.0	14.0
Total Split (s)	56.0	56.0	0.0	22.0	22.0	29.0	29.0	32.0	56.0	30.0	33.0	22.0
Total Split (%)	40.0%	40.0%	0.0%	15.7%	15.7%	20.7%	20.7%	22.9%	40.0%	21.4%	23.6%	15.7%
Maximum Green (s)	49.0	49.0		15.0	15.0	22.0	22.0	25.0	49.0	23.0	26.0	15.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead		Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)		51.0			17.0	46.0	24.0	27.0	83.0	25.0	28.0	45.0
Actuated g/C Ratio		0.36			0.12	0.33	0.17	0.19	0.59	0.18	0.20	0.32
v/c Ratio		1.46			1.36	0.37	0.98	1.14	0.94	1.45	0.86	0.46
Control Delay		248.6			232.0	38.5	105.6	130.7	45.2	258.6	67.9	23.8
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		248.6			232.0	38.5	105.6	130.7	45.2	258.6	67.9	23.8
LOS		F			F	D	F	F	D	F	E	C
Approach Delay		248.6			155.8			88.4			127.0	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 160			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.46			
Intersection Signal Delay: 138.4		Intersection LOS: F	
Intersection Capacity Utilization 107.3%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 107: N. Rocky River Road & US 74

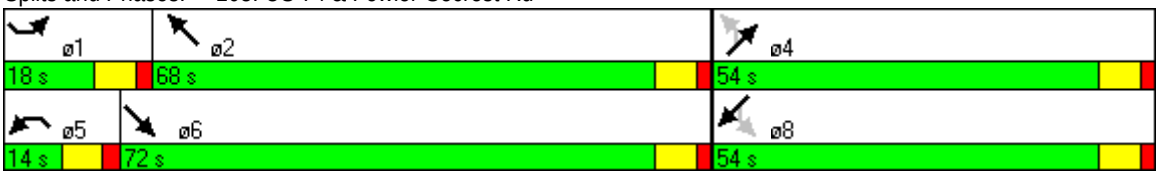


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	85	1161	29	58	929	173	33	120	83	138	66	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.976			0.953			0.972	
Flt Protected	0.950			0.950				0.993			0.974	
Satd. Flow (prot)	1719	3424	0	1719	3356	0	0	1763	0	0	1764	0
Flt Permitted	0.950			0.950				0.916			0.570	
Satd. Flow (perm)	1719	3424	0	1719	3356	0	0	1626	0	0	1032	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		2601			2354			277			1205	
Travel Time (s)		39.4			35.7			5.4			18.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	94	1290	32	64	1032	192	37	133	92	153	73	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	94	1322	0	64	1224	0	0	262	0	0	286	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		
Detector Phase	1	6		5	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	18.0	72.0	0.0	14.0	68.0	0.0	54.0	54.0	0.0	54.0	54.0	0.0
Total Split (%)	12.9%	51.4%	0.0%	10.0%	48.6%	0.0%	38.6%	38.6%	0.0%	38.6%	38.6%	0.0%
Maximum Green (s)	11.0	65.0		7.0	61.0		47.0	47.0		47.0	47.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	12.7	75.2		10.1	69.8			42.5			42.5	
Actuated g/C Ratio	0.09	0.54		0.07	0.50			0.30			0.30	
v/c Ratio	0.60	0.72		0.51	0.73			0.53			0.91	
Control Delay	77.4	29.5		77.7	32.4			43.7			79.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	77.4	29.5		77.7	32.4			43.7			79.4	
LOS	E	C		E	C			D			E	
Approach Delay		32.7			34.7			43.7			79.4	
Approach LOS		C			C			D			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay: 38.5		Intersection LOS: D	
Intersection Capacity Utilization 83.1%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 108: US 74 & Fowler-Secrest Rd



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	74	1251	157	16	1028	9	124	13	15	7	10	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00											
Frt		0.983				0.850		0.986			0.901	
Flt Protected	0.950			0.950				0.961			0.994	
Satd. Flow (prot)	1719	3380	0	1719	3266	1538	0	1765	0	0	1668	0
Flt Permitted	0.950			0.950				0.701			0.965	
Satd. Flow (perm)	1717	3380	0	1719	3266	1538	0	1288	0	0	1620	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		309			978			474			425	
Travel Time (s)		4.7			14.8			12.9			11.6	
Confl. Peds. (#/hr)	1											
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Parking (#/hr)					0							
Adj. Flow (vph)	82	1390	174	18	1142	10	138	14	17	8	11	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	82	1564	0	18	1142	10	0	169	0	0	71	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.07	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot		Perm	Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases						2	4			8		

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector Phase	1	6		5	2	2	4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	12.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	19.0		14.0	19.0	19.0	14.0	14.0		14.0	14.0	
Total Split (s)	18.0	90.0	0.0	14.0	86.0	86.0	36.0	36.0	0.0	36.0	36.0	0.0
Total Split (%)	12.9%	64.3%	0.0%	10.0%	61.4%	61.4%	25.7%	25.7%	0.0%	25.7%	25.7%	0.0%
Maximum Green (s)	11.0	83.0		7.0	79.0	79.0	29.0	29.0		29.0	29.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		None	None	
Act Effct Green (s)	12.7	99.6		9.2	87.7	87.7		24.6			24.6	
Actuated g/C Ratio	0.09	0.71		0.07	0.63	0.63		0.18			0.18	
v/c Ratio	0.53	0.65		0.16	0.56	0.01		0.75			0.25	
Control Delay	72.8	14.7		65.2	17.4	12.2		74.0			50.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	
Total Delay	72.8	14.7		65.2	17.4	12.2		74.0			50.1	
LOS	E	B		E	B	B		E			D	
Approach Delay		17.6			18.0			74.0			50.1	
Approach LOS		B			B			E			D	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 21.6 Intersection LOS: C
Intersection Capacity Utilization 73.0% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 110: US 74 & Rolling Hill Drive

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	133	10	150	95	10	84	79	1056	125	113	847	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.859			0.940			0.984				0.850
Flt Protected	0.950				0.975		0.950			0.950		
Satd. Flow (prot)	1770	1600	0	0	1707	0	1719	3383	0	1719	3438	1538
Flt Permitted	0.592				0.638		0.950			0.950		
Satd. Flow (perm)	1103	1600	0	0	1117	0	1719	3383	0	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		510			371			748			991	
Travel Time (s)		13.9			10.1			11.3			15.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	148	11	167	106	11	93	88	1173	139	126	941	80
Shared Lane Traffic (%)												
Lane Group Flow (vph)	148	178	0	0	210	0	88	1312	0	126	941	80
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm			Perm			Prot			Prot		Perm
Protected Phases		3			8		1	6		5	2	
Permitted Phases	3			8								2
Detector Phase	3	3		8	8		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	12.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0		14.0	19.0	19.0
Total Split (s)	45.0	45.0	0.0	45.0	45.0	0.0	19.0	72.0	0.0	23.0	76.0	76.0
Total Split (%)	32.1%	32.1%	0.0%	32.1%	32.1%	0.0%	13.6%	51.4%	0.0%	16.4%	54.3%	54.3%
Maximum Green (s)	38.0	38.0		38.0	38.0		12.0	65.0		16.0	69.0	69.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?								Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	Max		None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	40.0	40.0			40.0		12.8	68.9		16.1	72.2	72.2
Actuated g/C Ratio	0.29	0.29			0.29		0.09	0.49		0.12	0.52	0.52
v/c Ratio	0.47	0.39			0.66		0.56	0.79		0.64	0.53	0.10
Control Delay	47.2	43.3			55.3		74.5	34.1		73.9	24.2	18.2
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	47.2	43.3			55.3		74.5	34.1		73.9	24.2	18.2
LOS	D	D			E		E	C		E	C	B
Approach Delay		45.1			55.3			36.7			29.2	
Approach LOS		D			E			D			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 36.1		Intersection LOS: D	
Intersection Capacity Utilization 76.8%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 111: Roland Drive & US 74

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	134	1108	33	129	916	123	50	51	237	96	22	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996				0.850		0.877				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3424	0	1719	3438	1538	1770	1634	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3424	0	1719	3438	1538	1770	1634	0	1770	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		822			734			281			279	
Travel Time (s)		12.5			11.1			5.5			7.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	149	1231	37	143	1018	137	56	57	263	107	24	96
Shared Lane Traffic (%)												
Lane Group Flow (vph)	149	1268	0	143	1018	137	56	320	0	107	24	96
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot		pm+ov	Split			Split		pm+ov
Protected Phases	1	6		5	2	8	4	4		8	8	1
Permitted Phases						2						8
Detector Phase	1	6		5	2	8	4	4		8	8	1
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	7.0	7.0	7.0		7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0		14.0	19.0	14.0	14.0	14.0		14.0	14.0	14.0
Total Split (s)	25.0	65.0	0.0	20.0	60.0	16.0	39.0	39.0	0.0	16.0	16.0	25.0
Total Split (%)	17.9%	46.4%	0.0%	14.3%	42.9%	11.4%	27.9%	27.9%	0.0%	11.4%	11.4%	17.9%
Maximum Green (s)	18.0	58.0		13.0	53.0	9.0	32.0	32.0		9.0	9.0	18.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	C-Max		None	C-Max	Max	None	None		Max	Max	Max
Act Effct Green (s)	20.0	60.3		14.7	55.0	68.2	31.8	31.8		13.2	13.2	38.2
Actuated g/C Ratio	0.14	0.43		0.10	0.39	0.49	0.23	0.23		0.09	0.09	0.27
v/c Ratio	0.61	0.86		0.79	0.75	0.18	0.14	0.86		0.64	0.14	0.22
Control Delay	67.7	43.3		90.4	41.0	11.4	43.1	74.4		79.6	62.1	42.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	67.7	43.3		90.4	41.0	11.4	43.1	74.4		79.6	62.1	42.1
LOS	E	D		F	D	B	D	E		E	E	D
Approach Delay		45.9			43.3			69.7			61.9	
Approach LOS		D			D			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 48.7		Intersection LOS: D	
Intersection Capacity Utilization 78.6%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 112: US 74 & Williams Road

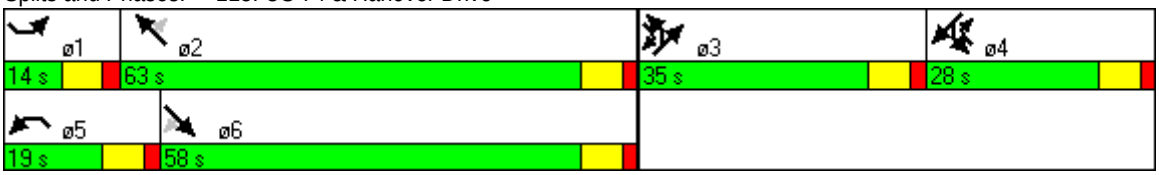
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	15	1303	101	193	1061	467	110	109	257	589	103	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850			0.850		0.895			0.980	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	1752	1651	0	3400	1808	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	1752	1651	0	3400	1808	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		338			529			376			313	
Travel Time (s)		5.1			8.0			7.3			8.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	17	1448	112	214	1179	519	122	121	286	654	114	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	1448	112	214	1179	519	122	407	0	654	132	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Split			Split		
Protected Phases	1	6	3	5	2	4	3	3		4	4	
Permitted Phases			6			2						
Detector Phase	1	6	3	5	2	4	3	3		4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0		14.0	14.0	
Total Split (s)	14.0	58.0	35.0	19.0	63.0	28.0	35.0	35.0	0.0	28.0	28.0	0.0
Total Split (%)	10.0%	41.4%	25.0%	13.6%	45.0%	20.0%	25.0%	25.0%	0.0%	20.0%	20.0%	0.0%
Maximum Green (s)	7.0	51.0	28.0	12.0	56.0	21.0	28.0	28.0		21.0	21.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Act Effct Green (s)	9.0	53.0	88.0	14.0	66.4	92.4	30.0	30.0		23.0	23.0	
Actuated g/C Ratio	0.06	0.38	0.63	0.10	0.47	0.66	0.21	0.21		0.16	0.16	
v/c Ratio	0.15	1.11	0.12	1.24	0.72	0.51	0.33	1.15		1.17	0.44	
Control Delay	65.3	102.2	10.8	199.0	33.8	12.5	49.3	143.3		144.5	58.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	65.3	102.2	10.8	199.0	33.8	12.5	49.3	143.3		144.5	58.2	
LOS	E	F	B	F	C	B	D	F		F	E	
Approach Delay		95.3			46.5			121.6			130.0	
Approach LOS		F			D			F			F	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 160
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.24
Intersection Signal Delay: 84.5 Intersection LOS: F
Intersection Capacity Utilization 101.7% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 113: US 74 & Hanover Drive

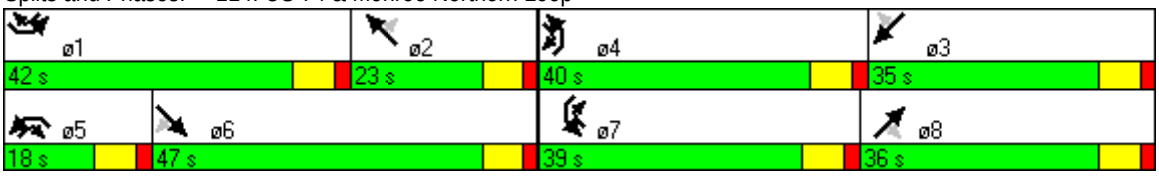


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	972	736	394	134	532	675	482	805	227	715	504	744
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3335	4940	1538	3335	4940	1538	3335	3438	1538	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	4940	1538	3335	4940	1538	3335	3438	1538	3433	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		858			915			405			209	
Travel Time (s)		13.0			13.9			7.9			3.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	2%	2%	2%
Adj. Flow (vph)	1080	818	438	149	591	750	536	894	252	794	560	827
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1080	818	438	149	591	750	536	894	252	794	560	827
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	1	6	4	5	2	7	4	8	5	7	3	1
Permitted Phases			6			2			8			3
Detector Phase	1	6	4	5	2	7	4	8	5	7	3	1
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	42.0	47.0	40.0	18.0	23.0	39.0	40.0	36.0	18.0	39.0	35.0	42.0
Total Split (%)	30.0%	33.6%	28.6%	12.9%	16.4%	27.9%	28.6%	25.7%	12.9%	27.9%	25.0%	30.0%
Maximum Green (s)	35.0	40.0	33.0	11.0	16.0	32.0	33.0	29.0	11.0	32.0	28.0	35.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	37.0	42.7	77.8	12.3	18.0	57.0	30.1	31.0	48.3	34.0	34.9	76.9
Actuated g/C Ratio	0.26	0.30	0.56	0.09	0.13	0.41	0.22	0.22	0.34	0.24	0.25	0.55
v/c Ratio	1.23	0.54	0.51	0.51	0.93	1.20	0.75	1.17	0.47	0.95	0.64	0.95
Control Delay	155.0	42.3	21.4	67.1	82.4	141.1	57.9	139.2	39.4	73.6	51.6	51.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	155.0	42.3	21.4	67.1	82.4	141.1	57.9	139.2	39.4	73.6	51.6	51.8
LOS	F	D	C	E	F	F	E	F	D	E	D	D
Approach Delay		90.5			110.4			98.3			59.7	
Approach LOS		F			F			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.23			
Intersection Signal Delay: 87.3		Intersection LOS: F	
Intersection Capacity Utilization 104.3%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 114: US 74 & Monroe Northern Loop



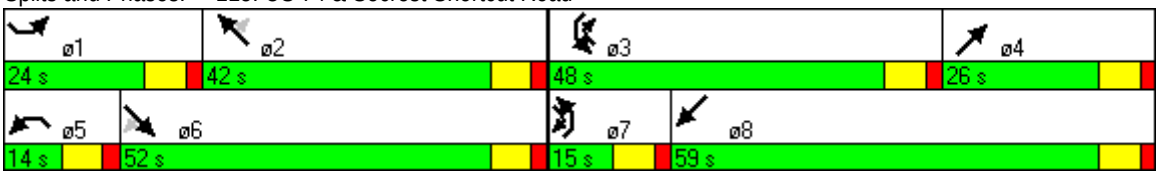
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	209	1429	55	119	1122	519	57	66	157	479	46	151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.894			0.885	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	3335	4940	1538	1770	1665	0	1770	1649	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	3335	4940	1538	1770	1665	0	1770	1649	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		413			1354			238			233	
Travel Time (s)		6.3			20.5			6.5			4.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	232	1588	61	132	1247	577	63	73	174	532	51	168
Shared Lane Traffic (%)												
Lane Group Flow (vph)	232	1588	61	132	1247	577	63	247	0	532	219	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot			Prot		
Protected Phases	1	6	7	5	2	3	7	4		3	8	
Permitted Phases			6			2						
Detector Phase	1	6	7	5	2	3	7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	

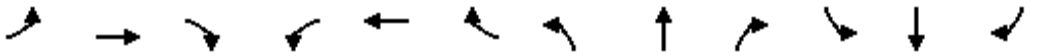
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0		14.0	14.0	
Total Split (s)	24.0	52.0	15.0	14.0	42.0	48.0	15.0	26.0	0.0	48.0	59.0	0.0
Total Split (%)	17.1%	37.1%	10.7%	10.0%	30.0%	34.3%	10.7%	18.6%	0.0%	34.3%	42.1%	0.0%
Maximum Green (s)	17.0	45.0	8.0	7.0	35.0	41.0	8.0	19.0		41.0	52.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Act Effct Green (s)	19.0	47.0	61.8	9.0	37.0	85.0	9.8	21.0		43.0	54.2	
Actuated g/C Ratio	0.14	0.34	0.44	0.06	0.26	0.61	0.07	0.15		0.31	0.39	
v/c Ratio	1.00	0.96	0.09	0.62	0.95	0.62	0.51	0.99		0.98	0.34	
Control Delay	117.6	59.6	23.2	76.8	66.8	20.9	77.6	112.7		81.4	32.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	117.6	59.6	23.2	76.8	66.8	20.9	77.6	112.7		81.4	32.3	
LOS	F	E	C	E	E	C	E	F		F	C	
Approach Delay		65.6			54.0			105.6			67.1	
Approach LOS		E			D			F			E	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.00
Intersection Signal Delay: 63.7 Intersection LOS: E
Intersection Capacity Utilization 89.8% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 115: US 74 & Secrest Shortcut Road



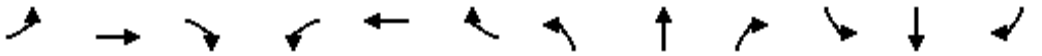


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	260	2085	253	288	1670	156	150	127	213	137	151	183
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00											
Frt		0.984			0.987			0.906			0.918	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4861	0	1719	4876	0	1770	1688	0	1770	1710	0
Flt Permitted	0.950			0.950			0.257			0.247		
Satd. Flow (perm)	1719	4861	0	1719	4876	0	479	1688	0	460	1710	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		443			590			549			636	
Travel Time (s)		6.7			8.9			15.0			12.4	
Confl. Peds. (#/hr)	1											
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	289	2317	281	320	1856	173	167	141	237	152	168	203
Shared Lane Traffic (%)												
Lane Group Flow (vph)	289	2598	0	320	2029	0	167	378	0	152	371	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Detector Phase	5	2		1	6		4	4		8	8	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	28.0	69.0	0.0	26.0	67.0	0.0	45.0	45.0	0.0	45.0	45.0	0.0
Total Split (%)	20.0%	49.3%	0.0%	18.6%	47.9%	0.0%	32.1%	32.1%	0.0%	32.1%	32.1%	0.0%
Maximum Green (s)	21.0	62.0		19.0	60.0		38.0	38.0		38.0	38.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	23.0	64.0		21.0	62.0		40.0	40.0		40.0	40.0	
Actuated g/C Ratio	0.16	0.46		0.15	0.44		0.29	0.29		0.29	0.29	
v/c Ratio	1.02	1.17		1.24	0.94		1.22	0.78		1.16	0.76	
Control Delay	116.6	116.6		184.5	47.0		189.9	58.8		172.3	57.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	116.6	116.6		184.5	47.0		189.9	58.8		172.3	57.0	
LOS	F	F		F	D		F	E		F	E	
Approach Delay		116.6			65.7			99.0			90.5	
Approach LOS		F			E			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 140			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.24			
Intersection Signal Delay: 94.0		Intersection LOS: F	
Intersection Capacity Utilization 106.0%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 120: US 74 & Stafford Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	195	2208	117	117	1805	107	159	10	195	53	10	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992			0.992			0.857			0.867	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4900	0	1719	4900	0	1770	1596	0	1770	1615	0
Flt Permitted	0.950			0.950			0.648			0.327		
Satd. Flow (perm)	1719	4900	0	1719	4900	0	1207	1596	0	609	1615	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			20	
Link Distance (ft)		493			536			238			211	
Travel Time (s)		7.5			8.1			6.5			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	217	2453	130	130	2006	119	177	11	217	59	11	87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	217	2583	0	130	2125	0	177	228	0	59	98	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	29.0	88.0	0.0	20.0	79.0	0.0	32.0	32.0	0.0	32.0	32.0	0.0
Total Split (%)	20.7%	62.9%	0.0%	14.3%	56.4%	0.0%	22.9%	22.9%	0.0%	22.9%	22.9%	0.0%
Maximum Green (s)	22.0	81.0		13.0	72.0		25.0	25.0		25.0	25.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	22.3	85.5		14.6	77.8		24.9	24.9		24.9	24.9	
Actuated g/C Ratio	0.16	0.61		0.10	0.56		0.18	0.18		0.18	0.18	
v/c Ratio	0.79	0.86		0.73	0.78		0.82	0.80		0.55	0.34	
Control Delay	77.1	27.0		83.3	27.8		84.1	76.1		71.4	53.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	77.1	27.0		83.3	27.8		84.1	76.1		71.4	53.2	
LOS	E	C		F	C		F	E		E	D	
Approach Delay		30.9			31.0			79.6			60.1	
Approach LOS		C			C			E			E	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 35.2 Intersection LOS: D
Intersection Capacity Utilization 86.8% ICU Level of Service E
Analysis Period (min) 15

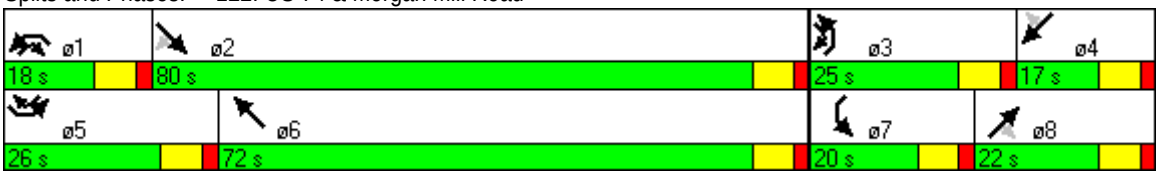
Splits and Phases: 121: US 74 & Boyte Street

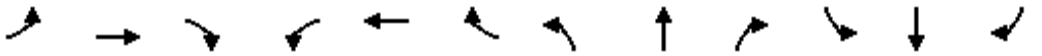
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	193	2119	174	109	1707	163	177	154	138	128	96	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.987				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	1719	4876	0	1687	1776	1509	1687	1776	1509
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	1719	4876	0	1687	1776	1509	1687	1776	1509
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		515			499			502			475	
Travel Time (s)		7.8			7.6			9.8			9.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	7%	7%	7%	7%	7%	7%
Adj. Flow (vph)	214	2354	193	121	1897	181	197	171	153	142	107	134
Shared Lane Traffic (%)												
Lane Group Flow (vph)	214	2354	193	121	2078	0	197	171	153	142	107	134
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot			Prot		pm+ov	Prot		pm+ov
Protected Phases	5	2	3	1	6		3	8	1	7	4	5
Permitted Phases			2						8			4
Detector Phase	5	2	3	1	6		3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0		7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0		14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	26.0	80.0	25.0	18.0	72.0	0.0	25.0	22.0	18.0	20.0	17.0	26.0
Total Split (%)	18.6%	57.1%	17.9%	12.9%	51.4%	0.0%	17.9%	15.7%	12.9%	14.3%	12.1%	18.6%
Maximum Green (s)	19.0	73.0	18.0	11.0	65.0		18.0	15.0	11.0	13.0	10.0	19.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max		None	None	None	None	None	None
Act Effct Green (s)	20.4	75.9	100.3	12.8	68.3		19.4	16.6	34.4	14.7	11.9	37.3
Actuated g/C Ratio	0.15	0.54	0.72	0.09	0.49		0.14	0.12	0.25	0.10	0.08	0.27
v/c Ratio	0.85	0.88	0.17	0.77	0.87		0.84	0.81	0.41	0.80	0.71	0.33
Control Delay	87.2	33.1	6.9	91.8	37.5		87.7	88.0	48.1	91.5	87.5	43.9
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	87.2	33.1	6.9	91.8	37.5		87.7	88.0	48.1	91.5	87.5	43.9
LOS	F	C	A	F	D		F	F	D	F	F	D
Approach Delay		35.5			40.5			76.2			73.7	
Approach LOS		D			D			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 43.5		Intersection LOS: D	
Intersection Capacity Utilization 79.6%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 122: US 74 & Morgan Mill Road



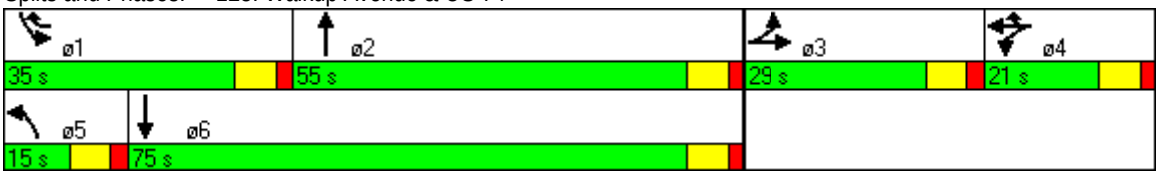


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	70	135	91	43	188	382	92	1536	31	348	1939	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.959				0.850		0.997			0.993	
Flt Protected		0.988		0.950			0.950			0.950		
Satd. Flow (prot)	0	1765	0	1770	1863	1583	1719	4925	0	1719	4905	0
Flt Permitted		0.988		0.950			0.950			0.950		
Satd. Flow (perm)	0	1765	0	1770	1863	1583	1719	4925	0	1719	4905	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		443			502			602			356	
Travel Time (s)		12.1			9.8			9.1			5.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	78	150	101	48	209	424	102	1707	34	387	2154	99
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	329	0	48	209	424	102	1741	0	387	2253	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pt+ov	Prot			Prot		
Protected Phases	3	3		4	4	4 1	5	2		1	6	
Permitted Phases												
Detector Phase	3	3		4	4	4 1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0		14.0	19.0	
Total Split (s)	29.0	29.0	0.0	21.0	21.0	56.0	15.0	55.0	0.0	35.0	75.0	0.0
Total Split (%)	20.7%	20.7%	0.0%	15.0%	15.0%	40.0%	10.7%	39.3%	0.0%	25.0%	53.6%	0.0%
Maximum Green (s)	22.0	22.0		14.0	14.0		8.0	48.0		28.0	68.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lead		Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)		24.0		16.0	16.0	51.0	10.0	50.0		30.0	70.0	
Actuated g/C Ratio		0.17		0.11	0.11	0.36	0.07	0.36		0.21	0.50	
v/c Ratio		1.09		0.24	0.98	0.73	0.83	0.99		1.05	0.92	
Control Delay		129.7		59.8	118.1	47.6	108.7	63.7		113.2	39.6	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		129.7		59.8	118.1	47.6	108.7	63.7		113.2	39.6	
LOS		F		E	F	D	F	E		F	D	
Approach Delay		129.7			70.1			66.2			50.4	
Approach LOS		F			E			E			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.09			
Intersection Signal Delay: 62.9		Intersection LOS: E	
Intersection Capacity Utilization 92.7%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 123: Walkup Avenue & US 74



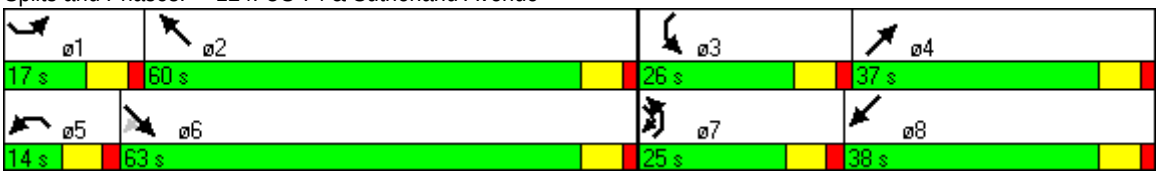
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	96	1739	169	43	1391	139	211	244	66	208	235	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.986			0.968			0.951	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	1719	4871	0	1752	1786	0	1752	1754	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	1719	4871	0	1752	1786	0	1752	1754	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		425			487			426			331	
Travel Time (s)		6.4			7.4			11.6			6.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	107	1932	188	48	1546	154	234	271	73	231	261	128
Shared Lane Traffic (%)												
Lane Group Flow (vph)	107	1932	188	48	1700	0	234	344	0	231	389	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot			Prot			Prot		
Protected Phases	1	6	7	5	2		7	4		3	8	
Permitted Phases			6									
Detector Phase	1	6	7	5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0		7.0	7.0		7.0	7.0	

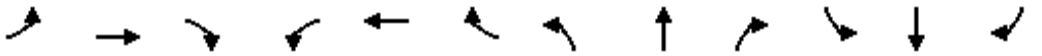
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	17.0	63.0	25.0	14.0	60.0	0.0	25.0	37.0	0.0	26.0	38.0	0.0
Total Split (%)	12.1%	45.0%	17.9%	10.0%	42.9%	0.0%	17.9%	26.4%	0.0%	18.6%	27.1%	0.0%
Maximum Green (s)	10.0	56.0	18.0	7.0	53.0		18.0	30.0		19.0	31.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes			Yes			Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max		None	None		None	None	
Act Effct Green (s)	11.8	61.0	86.0	9.0	55.3		20.0	32.1		20.8	32.8	
Actuated g/C Ratio	0.08	0.44	0.61	0.06	0.40		0.14	0.23		0.15	0.23	
v/c Ratio	0.74	0.90	0.20	0.43	0.88		0.94	0.84		0.89	0.95	
Control Delay	90.8	44.0	13.3	75.6	46.0		101.5	70.5		91.6	85.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	90.8	44.0	13.3	75.6	46.0		101.5	70.5		91.6	85.4	
LOS	F	D	B	E	D		F	E		F	F	
Approach Delay		43.7			46.8			83.0			87.7	
Approach LOS		D			D			F			F	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 54.4 Intersection LOS: D
Intersection Capacity Utilization 87.2% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 124: US 74 & Sutherland Avenue





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	48	61	36	34	151	26	1478	23	116	1825	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.916			0.878				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1706	0	1770	1635	0	1719	4940	1538	1719	4940	1538
Flt Permitted	0.378			0.589			0.950			0.950		
Satd. Flow (perm)	704	1706	0	1097	1635	0	1719	4940	1538	1719	4940	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		163			218			356			257	
Travel Time (s)		5.6			4.2			5.4			3.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	4	53	68	40	38	168	29	1642	26	129	2028	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	121	0	40	206	0	29	1642	26	129	2028	2
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm			Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	12.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	19.0
Total Split (s)	38.0	38.0	0.0	38.0	38.0	0.0	14.0	75.0	75.0	27.0	88.0	88.0
Total Split (%)	27.1%	27.1%	0.0%	27.1%	27.1%	0.0%	10.0%	53.6%	53.6%	19.3%	62.9%	62.9%
Maximum Green (s)	31.0	31.0		31.0	31.0		7.0	68.0	68.0	20.0	81.0	81.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	24.8	24.8		24.8	24.8		9.6	82.6	82.6	17.5	96.1	96.1
Actuated g/C Ratio	0.18	0.18		0.18	0.18		0.07	0.59	0.59	0.12	0.69	0.69
v/c Ratio	0.03	0.40		0.21	0.71		0.24	0.56	0.03	0.60	0.60	0.00
Control Delay	44.5	53.6		49.3	67.1		67.0	19.9	15.3	69.0	14.5	11.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.5	53.6		49.3	67.1		67.0	19.9	15.3	69.0	14.5	11.0
LOS	D	D		D	E		E	B	B	E	B	B
Approach Delay		53.3			64.2			20.6			17.7	
Approach LOS		D			E			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 22.6		Intersection LOS: C	
Intersection Capacity Utilization 64.7%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 125: Dove Street & US 74

Lane Group	NBU	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT
Lane Configurations												
Volume (vph)	13	1044	1107	129	171	1453	355	255	80	984	127	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.86	0.97	0.86	0.86	1.00	0.91	1.00	1.00	1.00	0.88	1.00	1.00
Frt			0.984				0.850			0.850		
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	3335	6125	0	1719	4940	1538	1752	1845	2760	1752	1845
Flt Permitted		0.950			0.950			0.950			0.950	
Satd. Flow (perm)	0	3335	6125	0	1719	4940	1538	1752	1845	2760	1752	1845
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			45			35			20
Link Distance (ft)			341			436			391			335
Travel Time (s)			5.2			6.6			7.6			11.4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%
Adj. Flow (vph)	14	1160	1230	143	190	1614	394	283	89	1093	141	93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1174	1373	0	190	1614	394	283	89	1093	141	93
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			24			24			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1	1	2		1	2	1	1	2	1	1	2
Detector Template	Left	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru
Leading Detector (ft)	20	20	100		20	100	20	20	100	20	20	100
Trailing Detector (ft)	0	0	0		0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0		0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	6		20	6	20	20	6	20	20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94			94			94			94
Detector 2 Size(ft)			6			6			6			6
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			0.0
Turn Type	Prot	Prot			Prot		pm+ov	Split		Prot	Split	
Protected Phases	5	5	2		1	6	4	4	4	4	3	3
Permitted Phases							6					
Detector Phase	5	5	2		1	6	4	4	4	4	3	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	12.0		7.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SWR
Lane Configurations	
Volume (vph)	128
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1568
Flt Permitted	
Satd. Flow (perm)	1568
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	3%
Adj. Flow (vph)	142
Shared Lane Traffic (%)	
Lane Group Flow (vph)	142
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	pt+ov
Protected Phases	3 1
Permitted Phases	
Detector Phase	3 1
Switch Phase	
Minimum Initial (s)	

Lane Group	NBU	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT
Minimum Split (s)	14.0	14.0	19.0		14.0	19.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	40.0	40.0	52.0	0.0	30.0	42.0	44.0	44.0	44.0	44.0	14.0	14.0
Total Split (%)	28.6%	28.6%	37.1%	0.0%	21.4%	30.0%	31.4%	31.4%	31.4%	31.4%	10.0%	10.0%
Maximum Green (s)	33.0	33.0	45.0		23.0	35.0	37.0	37.0	37.0	37.0	7.0	7.0
Yellow Time (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag		Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max		None	C-Max	None	None	None	None	None	None
Act Effct Green (s)		35.0	50.4		21.6	37.0	76.0	39.0	39.0	39.0	9.0	9.0
Actuated g/C Ratio		0.25	0.36		0.15	0.26	0.54	0.28	0.28	0.28	0.06	0.06
v/c Ratio		1.41	0.62		0.72	1.24	0.47	0.58	0.17	1.42	1.25	0.78
Control Delay		229.5	38.9		71.4	155.9	13.6	49.1	39.4	234.7	216.7	103.2
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		229.5	38.9		71.4	155.9	13.6	49.1	39.4	234.7	216.7	103.2
LOS		F	D		E	F	B	D	D	F	F	F
Approach Delay			126.8			123.1			187.0			117.1
Approach LOS			F			F			F			F

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 170			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.42			
Intersection Signal Delay: 138.4		Intersection LOS: F	
Intersection Capacity Utilization 116.4%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 126: US 74 & E. Franklin Street

Lane Group	SWR
Minimum Split (s)	
Total Split (s)	44.0
Total Split (%)	31.4%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Act Effct Green (s)	30.6
Actuated g/C Ratio	0.22
v/c Ratio	0.42
Control Delay	27.4
Queue Delay	0.0
Total Delay	27.4
LOS	C
Approach Delay	
Approach LOS	

Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	10	0	1331	1548	312	1116	35	922	0	227	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.91	0.91	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.995			0.939			
Flt Protected	0.950				0.950			0.950	0.971			
Satd. Flow (prot)	1719	0	4940	1538	1736	4963	0	1504	1444	0	0	0
Flt Permitted	0.950				0.950			0.950	0.971			
Satd. Flow (perm)	1719	0	4940	1538	1736	4963	0	1504	1444	0	0	0
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			55			45			25
Link Distance (ft)			239			375			459			145
Travel Time (s)			3.6			4.6			7.0			4.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	4%	4%	4%	14%	14%	14%	2%	2%
Adj. Flow (vph)	11	0	1479	1720	347	1240	39	1024	0	252	0	0
Shared Lane Traffic (%)								36%				
Lane Group Flow (vph)	11	0	1479	1720	347	1279	0	655	621	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			12			12			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1		2	1	1	2		1	2			
Detector Template	Left		Thru	Right	Left	Thru		Left	Thru			
Leading Detector (ft)	20		100	20	20	100		20	100			
Trailing Detector (ft)	0		0	0	0	0		0	0			
Detector 1 Position(ft)	0		0	0	0	0		0	0			
Detector 1 Size(ft)	20		6	20	20	6		20	6			
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 2 Position(ft)			94			94			94			
Detector 2 Size(ft)			6			6			6			
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			
Turn Type	Prot			pm+ov	Prot			Split				
Protected Phases	5		2	8	1	6		8	8			
Permitted Phases				2								
Detector Phase	5		2	8	1	6		8	8			
Switch Phase												
Minimum Initial (s)	7.0		12.0	12.0	7.0	14.0		12.0	12.0			

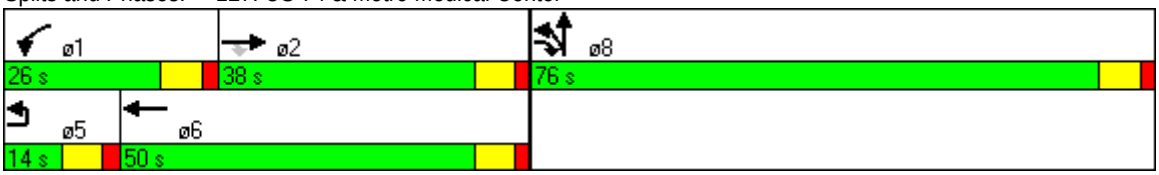
Lane Group	SBR
Lane Configurations	
Volume (vph)	22
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.865
Flt Protected	
Satd. Flow (prot)	1611
Flt Permitted	
Satd. Flow (perm)	1611
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	2%
Adj. Flow (vph)	24
Shared Lane Traffic (%)	
Lane Group Flow (vph)	24
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Detector Phase	
Switch Phase	
Minimum Initial (s)	

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Minimum Split (s)	14.0		19.0	19.0	14.0	21.0		19.0	19.0			
Total Split (s)	14.0	0.0	38.0	76.0	26.0	50.0	0.0	76.0	76.0	0.0	0.0	0.0
Total Split (%)	10.0%	0.0%	27.1%	54.3%	18.6%	35.7%	0.0%	54.3%	54.3%	0.0%	0.0%	0.0%
Maximum Green (s)	7.0		31.0	69.0	19.0	43.0		69.0	69.0			
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0		5.0	5.0			
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0		2.0	2.0			
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	2.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	2.0	2.0
Lead/Lag	Lead		Lag		Lead	Lag						
Lead-Lag Optimize?			Yes			Yes						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0		3.0	3.0			
Recall Mode	None		C-Max	None	None	C-Max		None	None			
Act Effct Green (s)	9.0		33.0	109.0	21.0	53.4		71.0	71.0			
Actuated g/C Ratio	0.06		0.24	0.78	0.15	0.38		0.51	0.51			
v/c Ratio	0.10		1.27	1.44	1.33	0.68		0.86	0.85			
Control Delay	63.9		171.8	221.6	218.9	39.3		43.1	42.6			
Queue Delay	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Total Delay	63.9		171.8	221.6	218.9	39.3		43.1	42.6			
LOS	E		F	F	F	D		D	D			
Approach Delay			198.1			77.7			42.9			
Approach LOS			F			E			D			

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.44
Intersection Signal Delay: 133.2 Intersection LOS: F
Intersection Capacity Utilization 121.5% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 127: US 74 & Metro Medical Center



Lane Group	SBR
Minimum Split (s)	
Total Split (s)	0.0
Total Split (%)	0.0%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	2.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Act Effct Green (s)	140.0
Actuated g/C Ratio	1.00
v/c Ratio	0.01
Control Delay	0.0
Queue Delay	0.0
Total Delay	0.0
LOS	A
Approach Delay	
Approach LOS	

Intersection Summary

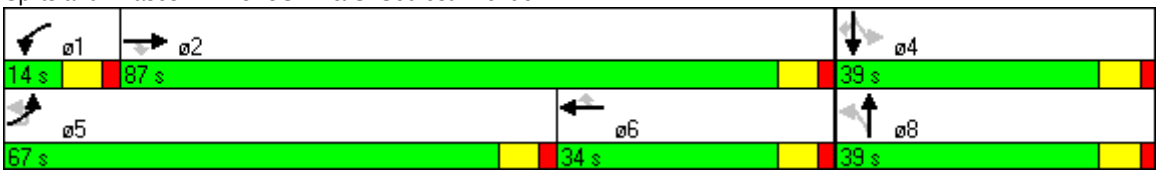
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	25	165	1348	47	9	1073	109	36	99	9	249	238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850			0.850		0.992			
Flt Protected		0.950			0.950				0.988			0.975
Satd. Flow (prot)	0	1736	3471	1553	1736	3471	1553	0	1826	0	0	1816
Flt Permitted		0.065			0.950				0.155			0.680
Satd. Flow (perm)	0	119	3471	1553	1736	3471	1553	0	286	0	0	1267
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			55			55			35			35
Link Distance (ft)			411			374			242			283
Travel Time (s)			5.1			4.6			4.7			5.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%
Adj. Flow (vph)	28	183	1498	52	10	1192	121	40	110	10	277	264
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	211	1498	52	10	1192	121	0	160	0	0	541
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			12			12			0			0
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1	1	2	1	1	2	1	1	2		1	2
Detector Template	Left	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru
Leading Detector (ft)	20	20	100	20	20	100	20	20	100		20	100
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0		0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0		0	0
Detector 1 Size(ft)	20	20	6	20	20	6	20	20	6		20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)			94			94			94			94
Detector 2 Size(ft)			6			6			6			6
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			0.0
Turn Type	custom	Prot		Perm	Prot		Perm	Perm			Perm	
Protected Phases		5	2		1	6			8			4
Permitted Phases	5			2			6	8			4	
Detector Phase	5	5	2	2	1	6	6	8	8		4	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	14.0	14.0	7.0	14.0	14.0	7.0	7.0		7.0	7.0

Lane Group	SBR
Lane Configurations	
Volume (vph)	300
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	2%
Adj. Flow (vph)	333
Shared Lane Traffic (%)	
Lane Group Flow (vph)	333
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Detector Phase	4
Switch Phase	
Minimum Initial (s)	7.0

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Minimum Split (s)	14.0	14.0	21.0	21.0	14.0	21.0	21.0	14.0	14.0		14.0	14.0
Total Split (s)	67.0	67.0	87.0	87.0	14.0	34.0	34.0	39.0	39.0	0.0	39.0	39.0
Total Split (%)	47.9%	47.9%	62.1%	62.1%	10.0%	24.3%	24.3%	27.9%	27.9%	0.0%	27.9%	27.9%
Maximum Green (s)	60.0	60.0	80.0	80.0	7.0	27.0	27.0	32.0	32.0		32.0	32.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Time Before Reduce (s)	0.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0	0.0		0.0	0.0
Time To Reduce (s)	0.0	0.0	50.0	50.0	0.0	50.0	50.0	0.0	0.0		0.0	0.0
Recall Mode	None	None	C-Min	C-Min	None	C-Min	C-Min	None	None		None	None
Act Effct Green (s)		62.0	93.2	93.2	9.0	29.0	29.0		34.0			34.0
Actuated g/C Ratio		0.44	0.67	0.67	0.06	0.21	0.21		0.24			0.24
v/c Ratio		3.98	0.65	0.05	0.09	1.66	0.38		2.32			1.76
Control Delay		1399.2	16.2	9.4	63.7	336.8	51.7		660.8			385.4
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0
Total Delay		1399.2	16.2	9.4	63.7	336.8	51.7		660.8			385.4
LOS		F	B	A	E	F	D		F			F
Approach Delay			181.7			308.6			660.8			266.6
Approach LOS			F			F			F			F

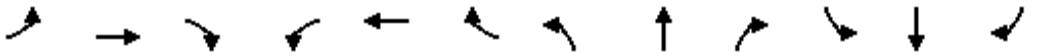
Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 3.98			
Intersection Signal Delay: 259.1		Intersection LOS: F	
Intersection Capacity Utilization 93.1%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 128: US 74 & S. Secrest Avenue



Lane Group	SBR
Minimum Split (s)	14.0
Total Split (s)	39.0
Total Split (%)	27.9%
Maximum Green (s)	32.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Minimum Gap (s)	3.0
Time Before Reduce (s)	0.0
Time To Reduce (s)	0.0
Recall Mode	None
Act Effct Green (s)	34.0
Actuated g/C Ratio	0.24
v/c Ratio	0.87
Control Delay	73.6
Queue Delay	0.0
Total Delay	73.6
LOS	E
Approach Delay	
Approach LOS	

Intersection Summary



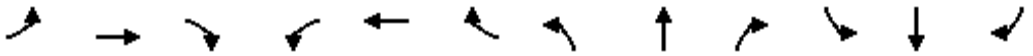
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	79	1402	20	3	1130	58	32	20	6	101	18	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.993			0.985				0.850
Flt Protected	0.950			0.950				0.973			0.959	
Satd. Flow (prot)	1736	3464	0	1736	3447	0	0	1785	0	0	1786	1583
Flt Permitted	0.950			0.950				0.662			0.722	
Satd. Flow (perm)	1736	3464	0	1736	3447	0	0	1215	0	0	1345	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			20			25	
Link Distance (ft)		242			246			170			270	
Travel Time (s)		4.7			4.8			5.8			7.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	88	1558	22	3	1256	64	36	22	7	112	20	122
Shared Lane Traffic (%)												
Lane Group Flow (vph)	88	1580	0	3	1320	0	0	65	0	0	132	122
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		pm+ov
Protected Phases	5	2		1	6			8			4	5
Permitted Phases							8			4		4
Detector Phase	5	2		1	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	17.0		14.0	17.0		14.0	14.0		14.0	14.0	14.0
Total Split (s)	20.0	95.0	0.0	14.0	89.0	0.0	31.0	31.0	0.0	31.0	31.0	20.0
Total Split (%)	14.3%	67.9%	0.0%	10.0%	63.6%	0.0%	22.1%	22.1%	0.0%	22.1%	22.1%	14.3%
Maximum Green (s)	13.0	88.0		7.0	82.0		24.0	24.0		24.0	24.0	13.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None
Act Effct Green (s)	13.5	106.6		9.0	90.9			20.6			20.6	39.1
Actuated g/C Ratio	0.10	0.76		0.06	0.65			0.15			0.15	0.28
v/c Ratio	0.52	0.60		0.03	0.59			0.37			0.67	0.28
Control Delay	71.2	10.0		62.0	16.3			58.1			72.1	39.4
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Delay	71.2	10.0		62.0	16.3			58.1			72.1	39.4
LOS	E	A		E	B			E			E	D
Approach Delay		13.2			16.4			58.1			56.4	
Approach LOS		B			B			E			E	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.67
Intersection Signal Delay: 18.7 Intersection LOS: B
Intersection Capacity Utilization 67.6% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 129: US 74 & Bivens Street

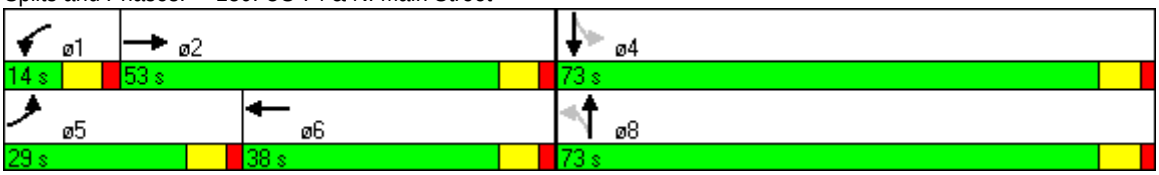


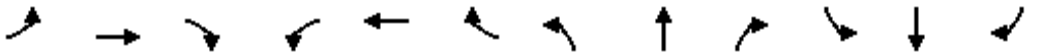
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	361	1042	54	51	817	77	43	280	52	102	369	376
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993			0.987			0.981			0.924	
Flt Protected	0.950			0.950				0.994		0.950		
Satd. Flow (prot)	1736	3447	0	1736	3426	0	0	1816	0	1770	1721	0
Flt Permitted	0.950			0.950				0.335		0.444		
Satd. Flow (perm)	1736	3447	0	1736	3426	0	0	612	0	827	1721	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		282			333			173			197	
Travel Time (s)		5.5			6.5			3.4			3.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	401	1158	60	57	908	86	48	311	58	113	410	418
Shared Lane Traffic (%)												
Lane Group Flow (vph)	401	1218	0	57	994	0	0	417	0	113	828	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	17.0		14.0	17.0		14.0	14.0		14.0	14.0	
Total Split (s)	29.0	53.0	0.0	14.0	38.0	0.0	73.0	73.0	0.0	73.0	73.0	0.0
Total Split (%)	20.7%	37.9%	0.0%	10.0%	27.1%	0.0%	52.1%	52.1%	0.0%	52.1%	52.1%	0.0%
Maximum Green (s)	22.0	46.0		7.0	31.0		66.0	66.0		66.0	66.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	None		None	None		None	None	
Act Effct Green (s)	24.0	50.8		9.0	33.0			68.0		68.0	68.0	
Actuated g/C Ratio	0.17	0.36		0.06	0.24			0.49		0.49	0.49	
v/c Ratio	1.35	0.97		0.51	1.23			1.40		0.28	0.99	
Control Delay	219.7	64.1		79.7	158.8			231.4		23.9	64.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	219.7	64.1		79.7	158.8			231.4		23.9	64.7	
LOS	F	E		E	F			F		C	E	
Approach Delay		102.6			154.5			231.4			59.8	
Approach LOS		F			F			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT, Start of Green			
Natural Cycle: 160			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.40			
Intersection Signal Delay: 119.5		Intersection LOS: F	
Intersection Capacity Utilization 112.3%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 130: US 74 & N. Main Street



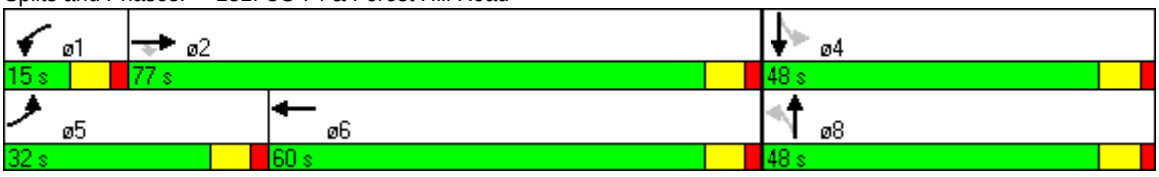


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	147	891	109	25	723	10	101	26	28	10	23	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.998			0.976			0.895	
Flt Protected	0.950			0.950				0.968			0.997	
Satd. Flow (prot)	1736	3471	1553	1736	3464	0	0	1678	0	0	1630	0
Flt Permitted	0.950			0.950				0.550			0.975	
Satd. Flow (perm)	1736	3471	1553	1736	3464	0	0	953	0	0	1594	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			35	
Link Distance (ft)		576			646			376			353	
Travel Time (s)		7.1			8.0			4.7			6.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	7%	7%	7%	4%	4%	4%
Adj. Flow (vph)	163	990	121	28	803	11	112	29	31	11	26	130
Shared Lane Traffic (%)												
Lane Group Flow (vph)	163	990	121	28	814	0	0	172	0	0	167	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		Perm	Prot			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8			4		
Detector Phase	5	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	14.0	14.0	7.0	14.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	21.0	21.0	14.0	21.0		14.0	14.0		14.0	14.0	
Total Split (s)	32.0	77.0	77.0	15.0	60.0	0.0	48.0	48.0	0.0	48.0	48.0	0.0
Total Split (%)	22.9%	55.0%	55.0%	10.7%	42.9%	0.0%	34.3%	34.3%	0.0%	34.3%	34.3%	0.0%
Maximum Green (s)	25.0	70.0	70.0	8.0	53.0		41.0	41.0		41.0	41.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	
Act Effct Green (s)	20.4	91.0	91.0	10.2	75.2			29.4			29.4	
Actuated g/C Ratio	0.15	0.65	0.65	0.07	0.54			0.21			0.21	
v/c Ratio	0.64	0.44	0.12	0.22	0.44			0.86			0.50	
Control Delay	67.7	15.2	12.9	65.0	22.7			87.5			52.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Delay	67.7	15.2	12.9	65.0	22.7			87.5			52.5	
LOS	E	B	B	E	C			F			D	
Approach Delay		21.7			24.1			87.5			52.5	
Approach LOS		C			C			F			D	

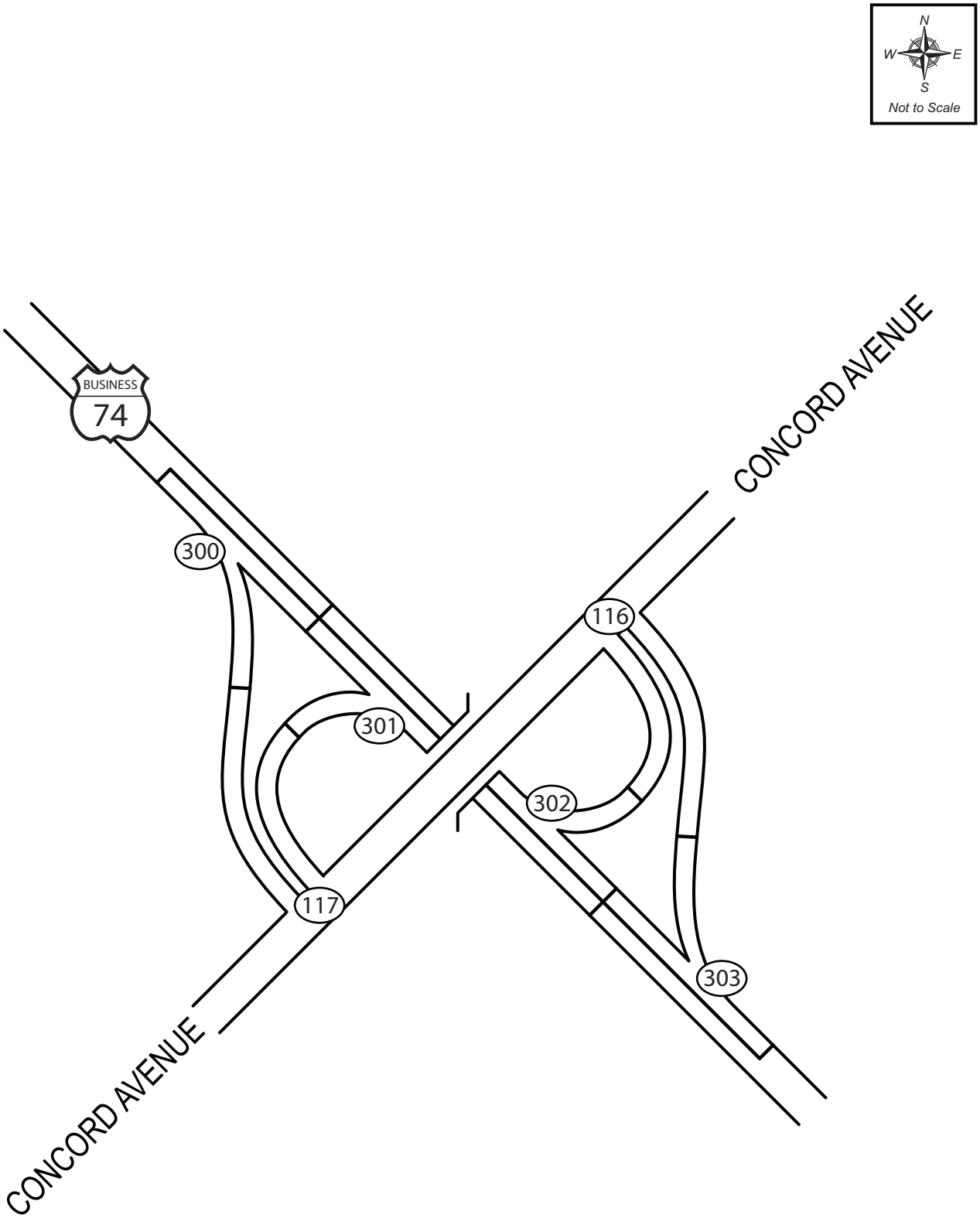
Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 29.2		Intersection LOS: C	
Intersection Capacity Utilization 64.8%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 131: US 74 & Forest Hill Road



E-11-3

Business US 74 / Concord Ave I/C



NORTH CAROLINA Turnpike Authority

MONROE CONNECTOR / BYPASS

TIP Project Numbers R-3329 & R-2559

Mecklenburg and Union Counties

Business US 74 Corridor
Concord Avenue
Key Sheet

Appendix E

KeySheetUS74CorridorConcordAve.ai

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*WB US 74 Ramp at Concord Ave*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 3C*
Analysis Time Period	*AM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *WB US 74 Ramp*	North/South Street: *Concord Ave.*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*371*	*114*	*106*	*431*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*412*	*126*	*117*	*478*	*0*
Percent Heavy Vehicles		--	--	*4*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*183*	*0*	*67*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*203*	*0*	*74*	*0*	*0*	*0*
Percent Heavy Vehicles	*5*		*5*			
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (vph)		*117*		*277*				
C (m) (vph)		*1020*		*222*				
v/c		*0.11*		*1.25*				
95% queue length		*0.39*		*14.19*				
Control Delay		*9.0*		*187.5*				
LOS		*A*		*F*				
Approach Delay	--	--	*187.5*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*WB US 74 Ramp at Concord Ave*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 3C*
Analysis Time Period	*PM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *WB US 74 Ramp*	North/South Street: *Concord Ave.*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*469*	*116*	*86*	*352*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*521*	*128*	*95*	*391*	*0*
Percent Heavy Vehicles		--	--	*4*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*145*	*0*	*68*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*161*	*0*	*75*	*0*	*0*	*0*
Percent Heavy Vehicles	*5*		*5*			
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (vph)		*95*		*236*				
C (m) (vph)		*927*		*236*				
v/c		*0.10*		*1.00*				
95% queue length		*0.34*		*9.41*				
Control Delay		*9.3*		*103.1*				
LOS		*A*		*F*				
Approach Delay	--	--	*103.1*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*EB US 74 Ramp at Concord Ave*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 3C*
Analysis Time Period	*AM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *EB US 74 Ramp*	North/South Street: *Concord Ave.*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*145*	*399*			*546*	*68*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*161*	*443*	*0*	*0*	*606*	*75*
Percent Heavy Vehicles	*4*	--	--		--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume		*0*		*86*	*0*	*116*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*95*	*0*	*128*
Percent Heavy Vehicles				*5*		*5*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*161*						*223*	
C (m) (vph)	*902*						*213*	
v/c	*0.18*						*1.05*	
95% queue length	*0.65*						*9.79*	
Control Delay	*9.9*						*122.3*	
LOS	*A*						*F*	
Approach Delay	--	--				*122.3*		
Approach LOS	--	--				*F*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*EB US 74 Ramp at Concord Ave*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 3C*
Analysis Time Period	*AM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *EB US 74 Ramp*	North/South Street: *Concord Ave.*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*183*	*479*			*430*	*67*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*203*	*532*	*0*	*0*	*477*	*74*
Percent Heavy Vehicles	*4*	--	--		--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume		*0*		*106*	*0*	*114*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*117*	*0*	*126*
Percent Heavy Vehicles				*5*		*5*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*203*						*243*	
C (m) (vph)	*1009*						*192*	
v/c	*0.20*						*1.27*	
95% queue length	*0.75*						*13.25*	
Control Delay	*9.5*						*202.9*	
LOS	*A*						*F*	
Approach Delay	--	--				*202.9*		
Approach LOS	--	--				*F*		

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Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB off to Concord Ave.
Junction:	300
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1728	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	202	vph
Length of first accel/decel lane	680	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	213	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1728	202	213	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	480	56	59	v
Trucks and buses	5	5	4	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.943	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2064	241	251	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.697 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1512 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2064	6750	No
v_{12}	1512	4400	No
$v_{FO} = v_F - v_R$	1823	6750	No
v_R	241	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 11.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.385

Space mean speed in ramp influence area, S_R = 50.0 mph

Space mean speed in outer lanes, S_0 = 60.3 mph

Space mean speed for all vehicles, S = 52.4 mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB off to Concord Ave.
Junction:	300
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2103	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	220	vph
Length of first accel/decel lane	680	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	250	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2103	220	250	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	584	61	69	v
Trucks and buses	5	5	4	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.943	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2512	263	294	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.685 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1804 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2512	6750	No
v_{12}	1804	4400	No
$v_{FO} = v_F - v_R$	2249	6750	No
v_R	263	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 13.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.387	
Space mean speed in ramp influence area,	S_R = 50.0	mph
Space mean speed in outer lanes,	S_O = 60.3	mph
Space mean speed for all vehicles,	S = 52.5	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB on from Concord Ave.
Junction:	301
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1526	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	213	vph
Length of first accel/decel lane	100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	202	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1526	213	202	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	424	59	56	v
Trucks and buses	5	4	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1823	251	241	pcph

Estimation of V12 Merge Areas

L_{EQ} = -606.76 (Equation 25-2 or 25-3)

P_{FM} = 0.580 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1058 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2074	6750	No
v_{R12}	1309	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 14.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.330	
Space mean speed in ramp influence area,	S_R = 50.7	mph
Space mean speed in outer lanes,	S_O = 54.0	mph
Space mean speed for all vehicles,	S = 51.9	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB on from Concord Ave.
Junction:	301
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1883	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	250	vph
Length of first accel/decel lane	100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	220	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1883	250	220	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	523	69	61	v
Trucks and buses	5	4	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2249	294	263	pcph

Estimation of V12 Merge Areas

L_{EQ} = -506.40 (Equation 25-2 or 25-3)

P_{FM} = 0.580 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1305 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2543	6750	No
v_{R12}	1599	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 17.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.335	
Space mean speed in ramp influence area,	S_R = 50.6	mph
Space mean speed in outer lanes,	S_O = 53.4	mph
Space mean speed for all vehicles,	S = 51.6	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB on from Concord Ave.
Junction:	302
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1883	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	220	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	250	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1883	220	250	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	523	61	69	v
Trucks and buses	5	4	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2249	259	299	pcph

Estimation of V12 Merge Areas

L_{EQ} = -425.09 (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1318 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2508	6750	No
v_{R12}	1577	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 15.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.325	
Space mean speed in ramp influence area,	S_R = 50.8	mph
Space mean speed in outer lanes,	S_O = 53.4	mph
Space mean speed for all vehicles,	S = 51.7	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB on from Concord Ave.
Junction:	302
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1526	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	202	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	213	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1526	202	213	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	424	56	59	v
Trucks and buses	5	4	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1823	238	254	pcph

Estimation of V12 Merge Areas

L_{EQ} = -520.75 (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1068 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2061	6750	No
v_{R12}	1306	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 13.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.320	
Space mean speed in ramp influence area,	S_R = 50.8	mph
Space mean speed in outer lanes,	S_O = 54.1	mph
Space mean speed for all vehicles,	S = 52.0	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB off to Concord Ave.
Junction:	303
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2133	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	250	vph
Length of first accel/decel lane	680	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	220	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2133	250	220	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	593	69	61	v
Trucks and buses	5	5	4	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.943	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2548	299	259	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.683 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1834 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2548	6750	No
v_{12}	1834	4400	No
$v_{FO} = v_F - v_R$	2249	6750	No
v_R	299	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 13.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.390	
Space mean speed in ramp influence area,	S_R = 49.9	mph
Space mean speed in outer lanes,	S_O = 60.3	mph
Space mean speed for all vehicles,	S = 52.5	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB off to Concord Ave.
Junction:	303
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1739	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	213	vph
Length of first accel/decel lane	680	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	202	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	1739		213		202		vph
Peak-hour factor, PHF	0.90		0.90		0.90		
Peak 15-min volume, v15	483		59		56		v
Trucks and buses	5		5		4		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		

Heavy vehicle adjustment, fHV	0.930	0.930	0.943	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2077	254	238	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.696 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1524 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2077	6750	No
v_{12}	1524	4400	No
$v_{FO} = v_F - v_R$	1823	6750	No
v_R	254	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 11.2 pc/mi/ln

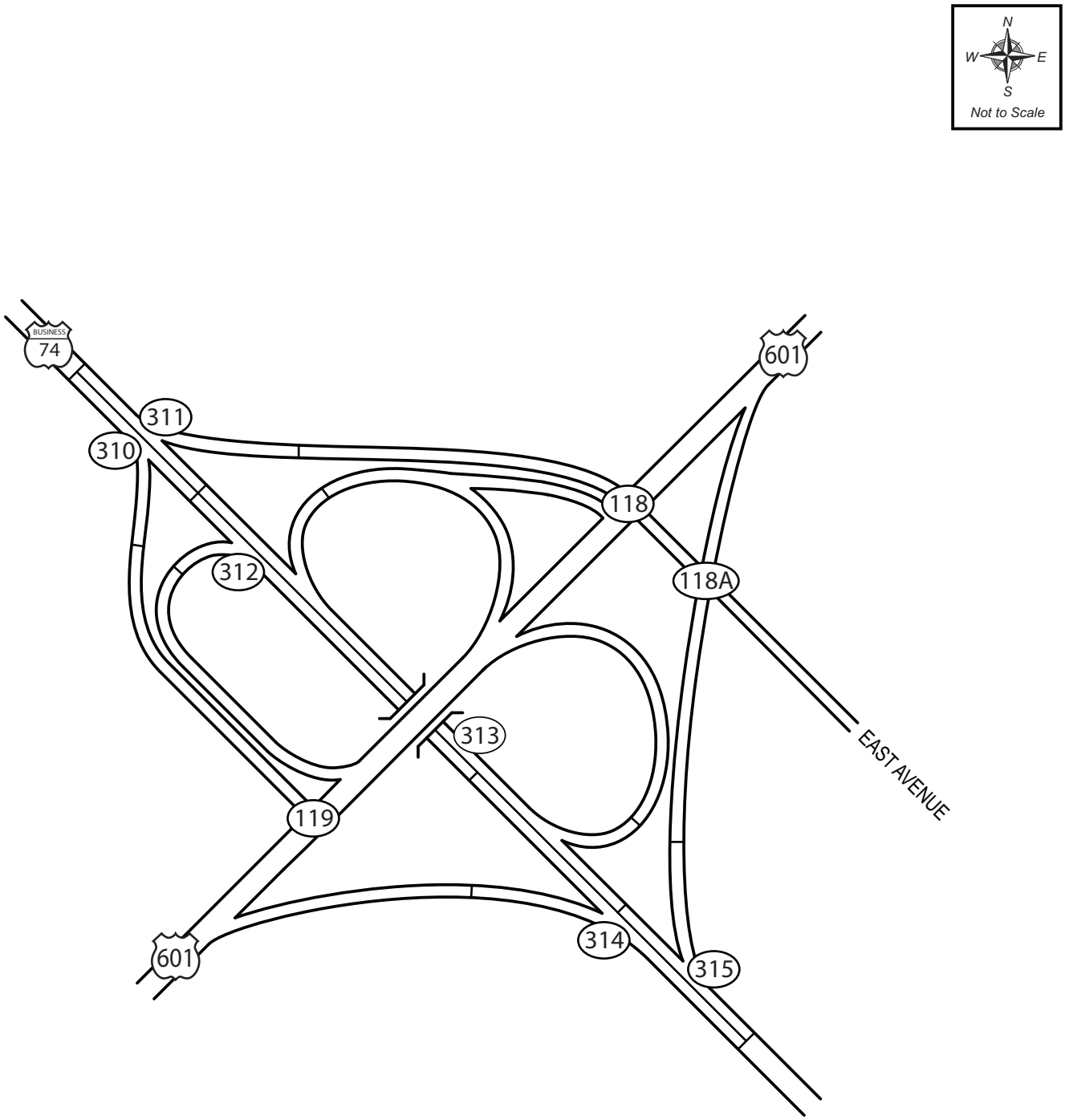
Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.386	
Space mean speed in ramp influence area,	S_R = 50.0	mph
Space mean speed in outer lanes,	S_0 = 60.3	mph
Space mean speed for all vehicles,	S = 52.4	mph

E-11-4

Business US 74 / US 601I/C



NORTH CAROLINA Turnpike Authority

MONROE CONNECTOR / BYPASS

TIP Project Numbers R-3329 & R-2559

Mecklenburg and Union Counties

Business US 74 Corridor
US 601
Key Sheet

Appendix E

KeySheetUS74CorridorUS601.ai

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*East Ave. at US 74 Off Ramp*
Agency/Co.	*PBS&J*	Jurisdiction	*118A*
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 3C*
Analysis Time Period	*AM Peak Hour*		
Project Description	*Monroe Connector/Bypass*		
East/West Street:	*East Ave.*	North/South Street:	*US 74 Off Ramp*
Intersection Orientation:	*North-South*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*10*	*481*	*10*			
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*11*	*534*	*11*	*0*	*0*	*0*
Percent Heavy Vehicles	*5*	--	--		--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration	*LTR*					
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume		*120*	*150*	*10*	*270*	
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*133*	*166*	*11*	*300*	*0*
Percent Heavy Vehicles		*5*	*5*	*8*	*8*	
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*				*TR*	*LT*		
v (vph)	*11*				*299*	*311*		
C (m) (vph)	*1604*				*482*	*401*		
v/c	*0.01*				*0.62*	*0.78*		
95% queue length	*0.02*				*4.15*	*6.55*		
Control Delay	*7.3*				*23.9*	*38.9*		
LOS	*A*				*C*	*E*		
Approach Delay	--	--	*23.9*			*38.9*		
Approach LOS	--	--	*C*			*E*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*East Ave. at US 74 Off Ramp*
Agency/Co.	*PBS&J*	Jurisdiction	*118A*
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 3C*
Analysis Time Period	*PM Peak Hour*		
Project Description	*Monroe Connector/Bypass*		
East/West Street:	*East Ave.*	North/South Street:	*US 74 Off Ramp*
Intersection Orientation:	*North-South*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*10*	*368*	*10*			
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*11*	*408*	*11*	*0*	*0*	*0*
Percent Heavy Vehicles	*5*	--	--		--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration	*LTR*					
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume		*150*	*150*	*10*	*290*	
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*166*	*166*	*11*	*322*	*0*
Percent Heavy Vehicles		*5*	*5*	*8*	*8*	
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*				*TR*	*LT*		
v (vph)	*11*				*332*	*333*		
C (m) (vph)	*1604*				*561*	*476*		
v/c	*0.01*				*0.59*	*0.70*		
95% queue length	*0.02*				*3.84*	*5.37*		
Control Delay	*7.3*				*20.3*	*28.3*		
LOS	*A*				*C*	*D*		
Approach Delay	--	--	*20.3*			*28.3*		
Approach LOS	--	--	*C*			*D*		

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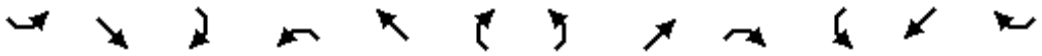


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	10	10	10	120	10	0	10	689	150	120	632	319
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.955							0.850			0.850
Flt Protected		0.984		0.950			0.950			0.950		
Satd. Flow (prot)	0	1700	0	1719	1810	0	1671	3343	1495	1671	3343	1495
Flt Permitted		0.984		0.950			0.950			0.950		
Satd. Flow (perm)	0	1700	0	1719	1810	0	1671	3343	1495	1671	3343	1495
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		412			451			446			441	
Travel Time (s)		8.0			8.8			6.8			6.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	8%	8%	8%	8%	8%	8%
Adj. Flow (vph)	11	11	11	133	11	0	11	766	167	133	702	354
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	33	0	133	11	0	11	766	167	133	702	354
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split			Prot		Perm	Prot		pm+ov
Protected Phases	4	4		8	8		5	2		1	6	4
Permitted Phases									2			6
Detector Phase	4	4		8	8		5	2	2	1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	14.0
Total Split (s)	20.0	20.0	0.0	22.0	22.0	0.0	14.0	46.0	46.0	22.0	54.0	20.0
Total Split (%)	18.2%	18.2%	0.0%	20.0%	20.0%	0.0%	12.7%	41.8%	41.8%	20.0%	49.1%	18.2%
Maximum Green (s)	13.0	13.0		15.0	15.0		7.0	39.0	39.0	15.0	47.0	13.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	None	None
Act Effct Green (s)		10.2		15.3	15.3		9.0	49.6	49.6	14.8	66.7	81.9
Actuated g/C Ratio		0.09		0.14	0.14		0.08	0.45	0.45	0.13	0.61	0.74
v/c Ratio		0.21		0.56	0.04		0.08	0.51	0.25	0.59	0.35	0.32
Control Delay		48.7		52.7	39.3		48.2	24.4	21.9	55.4	13.0	6.9
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		48.7		52.7	39.3		48.2	24.4	21.9	55.4	13.0	6.9
LOS		D		D	D		D	C	C	E	B	A
Approach Delay		48.7			51.6			24.2			16.0	
Approach LOS		D			D			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 2:NET, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 22.0		Intersection LOS: C	
Intersection Capacity Utilization 51.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 118: US 74 Ramps & US 601

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (vph)	325	147	0	713	677	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	3335	1538	0	3343	3343	0
Flt Permitted	0.950					
Satd. Flow (perm)	3335	1538	0	3343	3343	0
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	35			45	45	
Link Distance (ft)	529			486	575	
Travel Time (s)	10.3			7.4	8.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	8%	8%	8%	8%
Adj. Flow (vph)	361	163	0	792	752	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	361	163	0	792	752	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (ft)	20	20		100	100	
Trailing Detector (ft)	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	
Detector 1 Size(ft)	20	20		6	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type		Perm				
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						
Minimum Initial (s)	7.0	7.0		12.0	12.0	

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Minimum Split (s)	14.0	14.0		19.0	19.0	
Total Split (s)	42.0	42.0	0.0	68.0	68.0	0.0
Total Split (%)	38.2%	38.2%	0.0%	61.8%	61.8%	0.0%
Maximum Green (s)	35.0	35.0		61.0	61.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		C-Max	C-Max	
Act Effct Green (s)	37.0	37.0		63.0	63.0	
Actuated g/C Ratio	0.34	0.34		0.57	0.57	
v/c Ratio	0.32	0.32		0.41	0.39	
Control Delay	28.2	29.2		14.0	13.7	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	28.2	29.2		14.0	13.7	
LOS	C	C		B	B	
Approach Delay	28.5			14.0	13.7	
Approach LOS	C			B	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 2:NET and 6:SWT, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.41			
Intersection Signal Delay: 17.6		Intersection LOS: B	
Intersection Capacity Utilization 37.3%		ICU Level of Service A	
Analysis Period (min) 15			

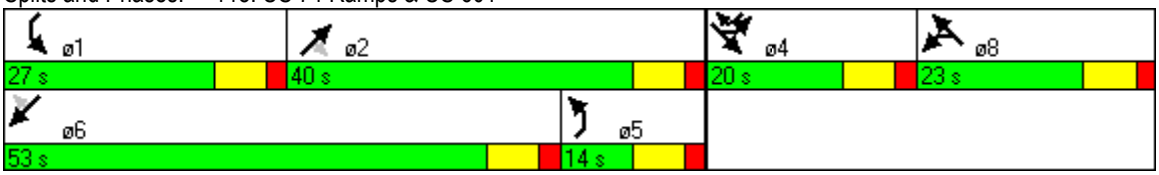
Splits and Phases: 119: EB US 74 Off Ramp & US 601

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	10	10	10	150	10	0	10	583	120	170	845	325
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.955							0.850			0.850
Flt Protected		0.984		0.950			0.950			0.950		
Satd. Flow (prot)	0	1700	0	1719	1810	0	1671	3343	1495	1671	3343	1495
Flt Permitted		0.984		0.950			0.950			0.950		
Satd. Flow (perm)	0	1700	0	1719	1810	0	1671	3343	1495	1671	3343	1495
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		412			451			446			441	
Travel Time (s)		8.0			8.8			6.8			6.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	8%	8%	8%	8%	8%	8%
Adj. Flow (vph)	11	11	11	167	11	0	11	648	133	189	939	361
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	33	0	167	11	0	11	648	133	189	939	361
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split			Prot		Perm	Prot		pm+ov
Protected Phases	4	4		8	8		5	2		1	6	4
Permitted Phases									2			6
Detector Phase	4	4		8	8		5	2	2	1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	14.0
Total Split (s)	20.0	20.0	0.0	23.0	23.0	0.0	14.0	40.0	40.0	27.0	53.0	20.0
Total Split (%)	18.2%	18.2%	0.0%	20.9%	20.9%	0.0%	12.7%	36.4%	36.4%	24.5%	48.2%	18.2%
Maximum Green (s)	13.0	13.0		16.0	16.0		7.0	33.0	33.0	20.0	46.0	13.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lag	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		Max	Max		None	C-Max	C-Max	None	None	None
Act Effct Green (s)		10.6		22.4	22.4		9.1	38.3	38.3	18.7	59.1	73.7
Actuated g/C Ratio		0.10		0.20	0.20		0.08	0.35	0.35	0.17	0.54	0.67
v/c Ratio		0.20		0.48	0.03		0.08	0.56	0.26	0.66	0.52	0.36
Control Delay		47.8		44.7	37.2		47.9	32.0	28.5	53.9	18.6	8.0
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		47.8		44.7	37.2		47.9	32.0	28.5	53.9	18.6	8.0
LOS		D		D	D		D	C	C	D	B	A
Approach Delay		47.8			44.2			31.6			20.5	
Approach LOS		D			D			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 2:NET, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 26.1		Intersection LOS: C	
Intersection Capacity Utilization 56.7%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 118: US 74 Ramps & US 601



Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (vph)	319	199	0	531	801	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	3335	1538	0	3343	3343	0
Flt Permitted	0.950					
Satd. Flow (perm)	3335	1538	0	3343	3343	0
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	35			45	45	
Link Distance (ft)	529			486	575	
Travel Time (s)	10.3			7.4	8.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	8%	8%	8%	8%
Adj. Flow (vph)	354	221	0	590	890	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	354	221	0	590	890	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (ft)	20	20		100	100	
Trailing Detector (ft)	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	
Detector 1 Size(ft)	20	20		6	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type		Perm				
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						
Minimum Initial (s)	7.0	7.0		12.0	12.0	

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Minimum Split (s)	14.0	14.0		19.0	19.0	
Total Split (s)	45.0	45.0	0.0	65.0	65.0	0.0
Total Split (%)	40.9%	40.9%	0.0%	59.1%	59.1%	0.0%
Maximum Green (s)	38.0	38.0		58.0	58.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		None	None	
Act Effct Green (s)	40.2	40.2		29.7	29.7	
Actuated g/C Ratio	0.50	0.50		0.37	0.37	
v/c Ratio	0.21	0.29		0.48	0.72	
Control Delay	12.4	14.1		20.3	24.9	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	12.4	14.1		20.3	24.9	
LOS	B	B		C	C	
Approach Delay	13.1			20.3	24.9	
Approach LOS	B			C	C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 79.9			
Natural Cycle: 40			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 20.3		Intersection LOS: C	
Intersection Capacity Utilization 42.8%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 119: EB US 74 Off Ramp & US 601

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB off to US 601
Junction:	310
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1737	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	472	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	386	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	700	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1737	472	386	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	483	131	107	v
Trucks and buses	5	5	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2075	564	480	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.682 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1595 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2075	6750	No
v_{12}	1595	4400	No
$v_{FO} = v_F - v_R$	1511	6750	No
v_R	564	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 16.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.414	
Space mean speed in ramp influence area,	S_R = 49.6	mph
Space mean speed in outer lanes,	S_0 = 60.3	mph
Space mean speed for all vehicles,	S = 51.7	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB off to US 601
Junction:	310
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2137	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	518	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	481	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	700	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2137		518		481		vph
Peak-hour factor, PHF	0.90		0.90		0.90		
Peak 15-min volume, v15	594		144		134		v
Trucks and buses	5		5		8		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		

Heavy vehicle adjustment, fHV	0.930	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2553	619	599	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.668 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1910 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2553	6750	No
v_{12}	1910	4400	No
$v_{FO} = v_F - v_R$	1934	6750	No
v_R	619	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 18.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.419	
Space mean speed in ramp influence area,	S_R = 49.6	mph
Space mean speed in outer lanes,	S_0 = 60.3	mph
Space mean speed for all vehicles,	S = 51.9	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB on from US 601
Junction:	311
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1818	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	40.0	mph
Volume on ramp	329	vph
Length of first accel/decel lane	250	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	413	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1818	329	413	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	505	91	115	v
Trucks and buses	5	8	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2171	409	493	pcph

Estimation of V12 Merge Areas

L_{EQ} = 352.92 (Equation 25-2 or 25-3)

P_{FM} = 0.585 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1269 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2580	6750	No
v_{R12}	1678	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 16.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.322

Space mean speed in ramp influence area, S_R = 50.8 mph

Space mean speed in outer lanes, S_O = 53.6 mph

Space mean speed for all vehicles, S = 51.7 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB on from US 601
Junction:	311
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1412	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	40.0	mph
Volume on ramp	335	vph
Length of first accel/decel lane	250	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	437	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1412	335	437	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	392	93	121	v
Trucks and buses	5	8	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1687	417	522	pcph

Estimation of V12 Merge Areas

L_{EQ} = 251.06 (Equation 25-2 or 25-3)

P_{FM} = 0.585 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 986 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2104	6750	No
v_{R12}	1403	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 14.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.317	
Space mean speed in ramp influence area,	S_R = 50.9	mph
Space mean speed in outer lanes,	S_O = 54.3	mph
Space mean speed for all vehicles,	S = 52.0	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB on from US 601 SB
Junction:	312
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1265	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	368	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	472	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	700	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1265	368	472	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	351	102	131	v
Trucks and buses	5	8	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1511	458	564	pcph

Estimation of V12 Merge Areas

L_{EQ} = -540.43 (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 885 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	1969	6750	No
v_{R12}	1343	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 13.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.321	
Space mean speed in ramp influence area,	S_R = 50.8	mph
Space mean speed in outer lanes,	S_O = 54.5	mph
Space mean speed for all vehicles,	S = 52.0	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB on from US 601 SB
Junction:	312
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1619	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	481	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	518	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	700	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1619	481	518	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	450	134	144	v
Trucks and buses	5	8	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1934	599	619	pcph

Estimation of V12 Merge Areas

L_{EQ} = -419.74 (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1133 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2533	6750	No
v_{R12}	1732	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 16.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.328

Space mean speed in ramp influence area, S_R = 50.7 mph

Space mean speed in outer lanes, S_O = 53.9 mph

Space mean speed for all vehicles, S = 51.7 mph

FREEWAY WEAVING WORKSHEET

General Information

Analyst	OSR
Agency/Company	PBSJ
Date Performed	4/30/08
Analysis Time Period	AM Peak

Site Information

Freeway/Dir of Travel	US 74 WB
Weaving Seg Location	313
Jurisdiction	
Analysis Year	2035 Build Alternative 3C

Inputs

Freeway free-flow speed, SFF (mi/h)	55	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.28
Weaving seg length, L (ft)	550	Weaving ratio, R	0.33
Terrain	Rolling		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	1619	0.90	5	0	2.5	2.0	0.930	1.00	1933
Vo2	0	0.90	0	0	2.5	2.0	1.000	1.00	0
Vw1	413	0.90	5	0	2.5	2.0	0.930	1.00	493
Vw2	199	0.90	8	0	2.5	2.0	0.893	1.00	247
Vw				740	Vnw				1933
V									2673

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.15	0.00		
b (Exhibit 24-6)	2.20	4.00		
c (Exhibit 24-6)	0.97	1.30		
d (Exhibit 24-6)	0.80	0.75		
Weaving intensity factor, Wi	0.91	0.39		
Weaving and non-weaving speeds, Si (mi/h)	38.60	47.48		

Number of lanes required for unconstrained operation, Nw 1.26
Maximum number of lanes, Nw (max) 1.40

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	44.64
Weaving segment density, D (pc/mi/ln)	14.97
Level of service, LOS	B
Capacity of base condition, c_b (pc/h)	5894
Capacity as a 15-minute flow rate, c (veh/h)	5483
Capacity as a full-hour volume, c_h (veh/h)	4935

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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FREEWAY WEAVING WORKSHEET

General Information

Analyst	OSR
Agency/Company	PBSJ
Date Performed	4/30/08
Analysis Time Period	PM Peak

Site Information

Freeway/Dir of Travel	US 74 WB
Weaving Seg Location	313
Jurisdiction	
Analysis Year	2035 Build Alternative 3C

Inputs

Freeway free-flow speed, SFF (mi/h)	55	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.32
Weaving seg length, L (ft)	550	Weaving ratio, R	0.26
Terrain	Rolling		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	1265	0.90	5	0	2.5	2.0	0.930	1.00	1510
Vo2	0	0.90	0	0	2.5	2.0	1.000	1.00	0
Vw1	437	0.90	5	0	2.5	2.0	0.930	1.00	521
Vw2	147	0.90	8	0	2.5	2.0	0.893	1.00	182
Vw				703	Vnw				1510
V									2213

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.15	0.00		
b (Exhibit 24-6)	2.20	4.00		
c (Exhibit 24-6)	0.97	1.30		
d (Exhibit 24-6)	0.80	0.75		
Weaving intensity factor, Wi	0.81	0.34		
Weaving and non-weaving speeds, Si (mi/h)	39.87	48.54		

Number of lanes required for unconstrained operation, Nw 1.34
Maximum number of lanes, Nw (max) 1.40

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	45.40
Weaving segment density, D (pc/mi/ln)	12.19
Level of service, LOS	B
Capacity of base condition, c_b (pc/h)	5681
Capacity as a 15-minute flow rate, c (veh/h)	5285
Capacity as a full-hour volume, c_h (veh/h)	4756

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB on from US 601 NB
Junction:	314
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1633	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	40.0	mph
Volume on ramp	437	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	386	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1633	437	386	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	454	121	107	v
Trucks and buses	5	8	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1951	544	480	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1143 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2495	6750	No
v_{R12}	1687	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 16.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.318

Space mean speed in ramp influence area, S_R = 50.9 mph

Space mean speed in outer lanes, S_O = 53.9 mph

Space mean speed for all vehicles, S = 51.8 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB on from US 601 NB
Junction:	314
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2100	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	40.0	mph
Volume on ramp	413	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	481	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2100	413	481	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	583	115	134	v
Trucks and buses	5	8	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2508	514	599	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1469 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3022	6750	No
v_{R12}	1983	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 18.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.325	
Space mean speed in ramp influence area,	S_R = 50.8	mph
Space mean speed in outer lanes,	S_O = 53.1	mph
Space mean speed for all vehicles,	S = 51.5	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB off to US 601
Junction:	315
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2513	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	481	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	199	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	400	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2513	481	199	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	698	134	55	v
Trucks and buses	5	5	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3002	575	248	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.659 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2173 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3002	6750	No
v_{12}	2173	4400	No
$v_{FO} = v_F - v_R$	2427	6750	No
v_R	575	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 20.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.415	
Space mean speed in ramp influence area,	S_R = 49.6	mph
Space mean speed in outer lanes,	S_0 = 60.3	mph
Space mean speed for all vehicles,	S = 52.2	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB off to US 601
Junction:	315
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2070	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	368	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	147	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	400	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2070		368		147		vph
Peak-hour factor, PHF	0.90		0.90		0.90		
Peak 15-min volume, v15	575		102		41		v
Trucks and buses	5		5		8		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		

Heavy vehicle adjustment, fHV	0.930	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2472	440	183	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.678 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1818 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2472	6750	No
v_{12}	1818	4400	No
$v_{FO} = v_F - v_R$	2032	6750	No
v_R	440	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 17.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

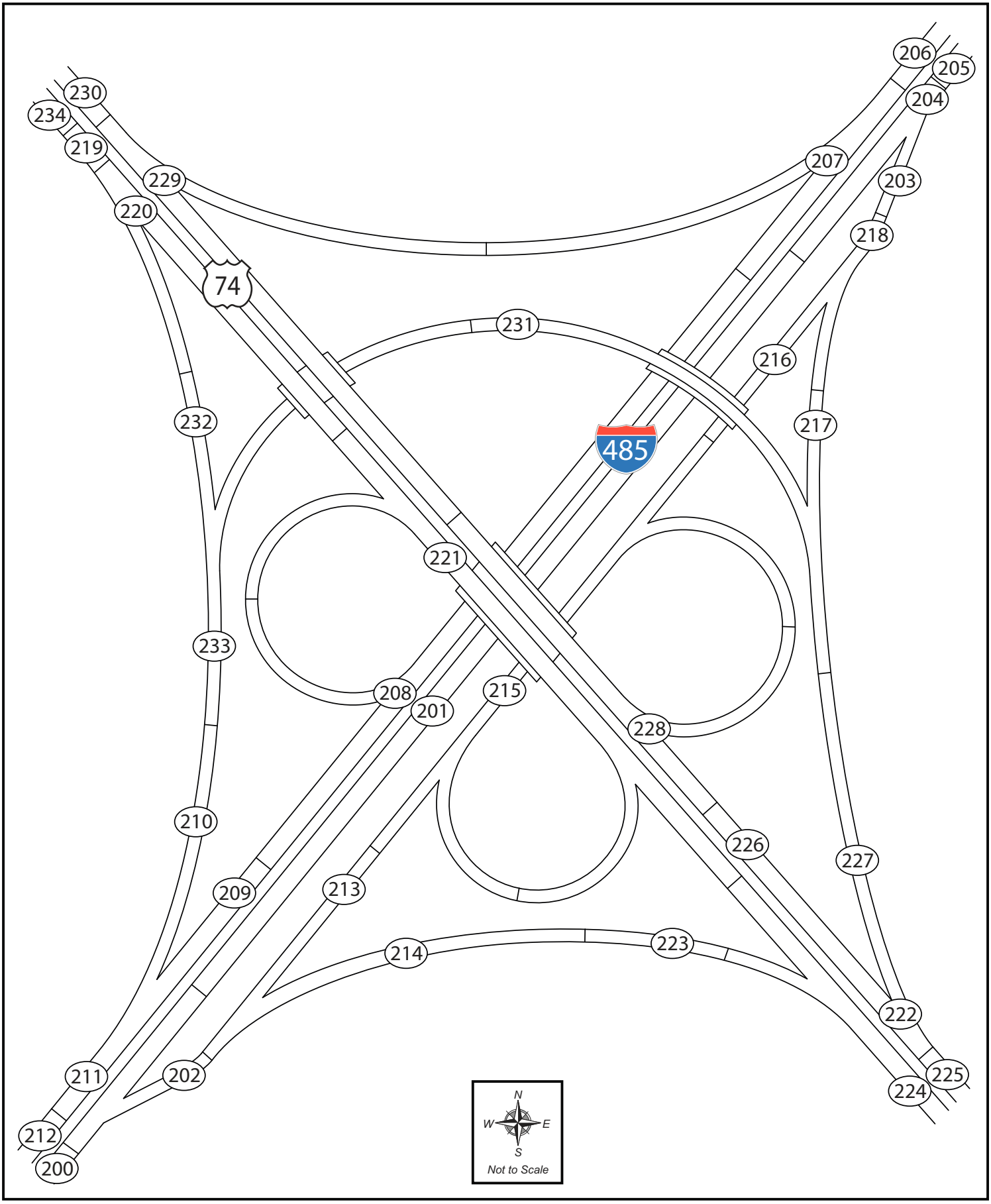
Intermediate speed variable,	D_S = 0.403	
Space mean speed in ramp influence area,	S_R = 49.8	mph
Space mean speed in outer lanes,	S_0 = 60.3	mph
Space mean speed for all vehicles,	S = 52.2	mph

E-12

Alternative 3C

E-12-1

US 74 / I-485 I/C



NORTH CAROLINA Turnpike Authority

MONROE CONNECTOR / BYPASS

TIP Project Numbers R-3329 & R-2559

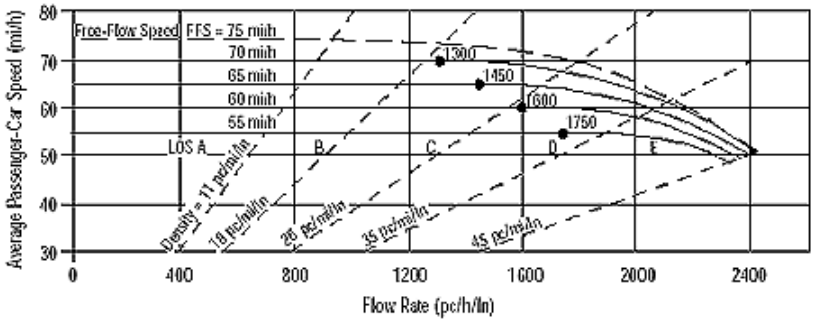
Mecklenburg and Union Counties

US 74 Corridor
I-485
Key Sheet

Appendix E

KeysheetUS74CorridorI485.ai

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	04/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 NB south of Interchange
From/To	
Jurisdiction	200
Analysis Year	2035 Build Toll Alternative 3D

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4133 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	67.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1714	pc/h/ln
S	66.2	mi/h
D = v_p / S	25.9	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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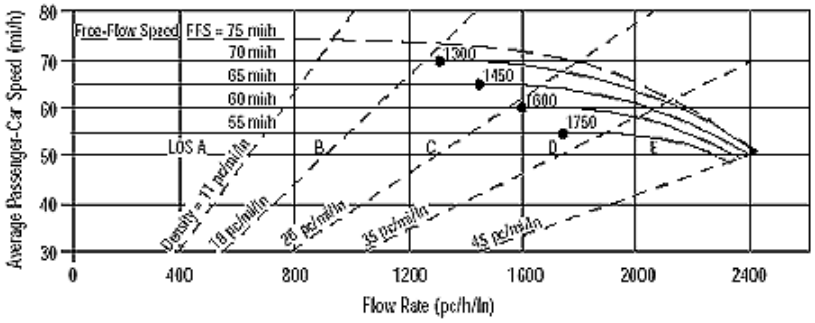
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	04/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 NB south of Interchange
From/To	
Jurisdiction	200
Analysis Year	2035 Build Toll Alternative 3D

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	5069 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	67.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	2103	pc/h/ln
S	60.7	mi/h
D = v_p / S	34.6	pc/mi/ln
LOS	D	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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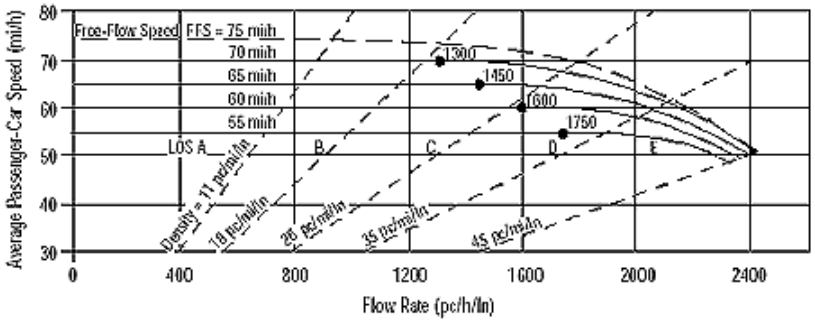
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	04/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 NB
From/To	
Jurisdiction	201
Analysis Year	2035 Build Toll Alternative 3D

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	2442 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	4.5	mi/h
FFS	65.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1519	pc/h/ln
S	65.5	mi/h
D = v_p / S	23.2	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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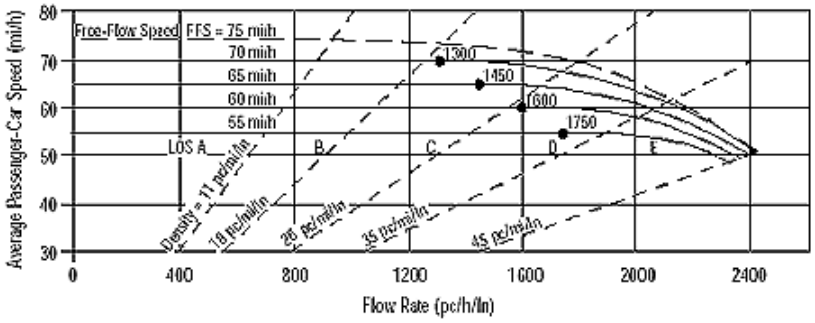

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	04/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 NB
From/To	
Jurisdiction	201
Analysis Year	2035 Build Toll Alternative 3D

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	3111 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	4.5	mi/h
FFS	65.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1936	pc/h/ln
S	62.8	mi/h
D = v_p / S	30.8	pc/mi/ln
LOS	D	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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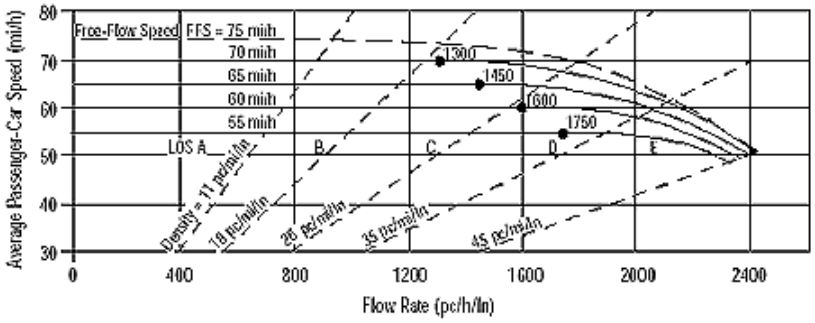

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 NB off ramp
From/To	
Jurisdiction	202
Analysis Year	2035 Build Toll Alternative 3D

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1691 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1052	pc/h/ln
S	55.0	mi/h
D = v_p / S	19.1	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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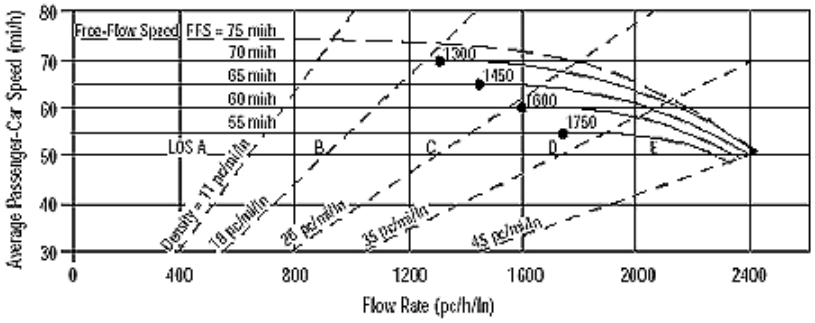
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 NB off ramp
From/To	
Jurisdiction	202
Analysis Year	2035 Build Toll Alternative 3D

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1958 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1218	pc/h/ln
S	55.0	mi/h
D = v_p / S	22.1	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	AM Peak

Site Information

Highway/Dir of Travel	I-485 NB On Ramp
From/To	
Jurisdiction	203
Analysis Year	2035 Build Toll Alternative 3D

Flow Inputs

Volume, V	1300 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	9%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.88106$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 1639.44$$

LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **30.0**

LOS: **D**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	PM Peak

Site Information

Highway/Dir of Travel	I-485 NB On Ramp
From/To	
Jurisdiction	203
Analysis Year	2035 Build Toll Alternative 3D

Flow Inputs

Volume, V	1447 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	9%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.88106$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 1824.83$$

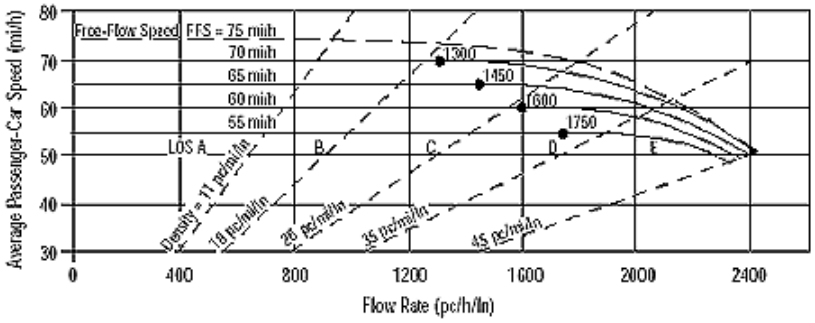
LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **33.4**

LOS: **D**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 NB
From/To	
Jurisdiction	204
Analysis Year	2035 Build Toll Alternative 3D

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	3742 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.930

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	67.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1490	pc/h/ln
S	67.0	mi/h
D = v_p / S	22.3	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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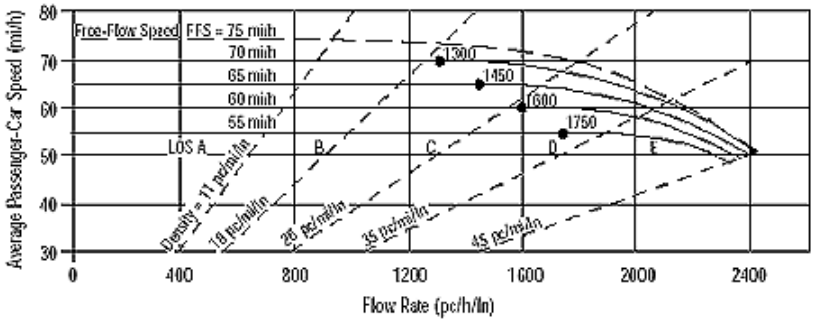
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 NB
From/To	
Jurisdiction	204
Analysis Year	2035 Build Toll Alternative 3D

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4558 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.930

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	67.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1815	pc/h/ln
S	65.4	mi/h
D = v_p / S	27.8	pc/mi/ln
LOS	D	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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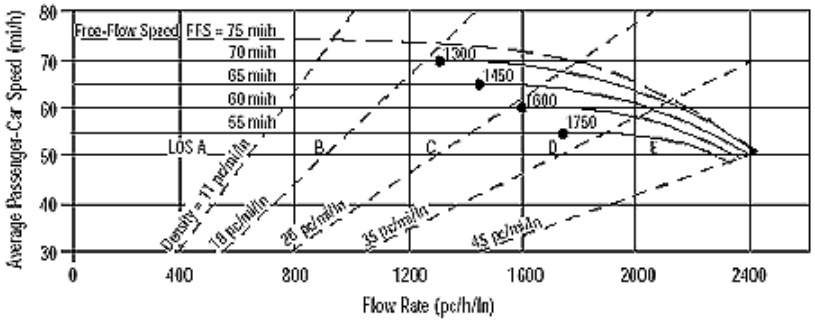
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 NB
From/To	
Jurisdiction	205
Analysis Year	2035 Build Toll Alternative 3D

Project Description Monroe Bypass / Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	3742 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.930

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	4.5	mi/h
FFS	65.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	2235	pc/h/ln
S	56.3	mi/h
D = v_p / S	39.7	pc/mi/ln
LOS	E	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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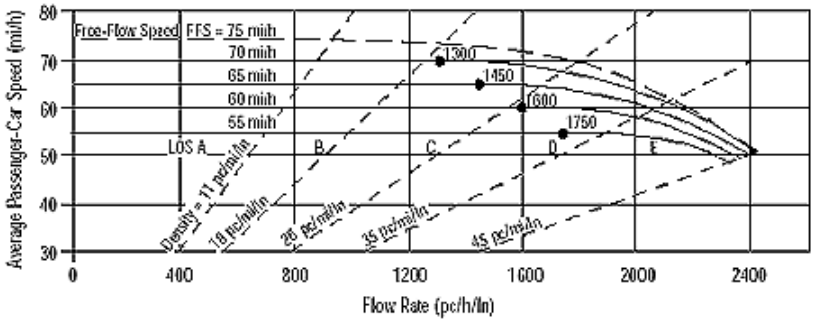
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 NB
From/To	
Jurisdiction	205
Analysis Year	2035 Build Toll Alternative 3D

Project Description Monroe Bypass / Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4558 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.930

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	4.5	mi/h
FFS	65.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	2722	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	F	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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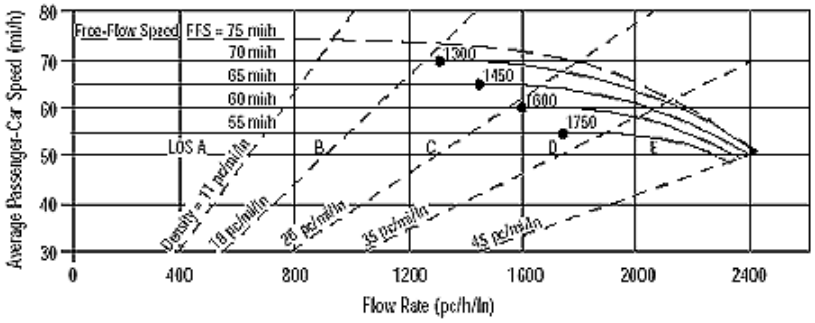
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 SB
From/To	
Jurisdiction	206
Analysis Year	2035 Build Toll Alternative 3D

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4558 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.930

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	4.5	mi/h
FFS	65.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	2722	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	F	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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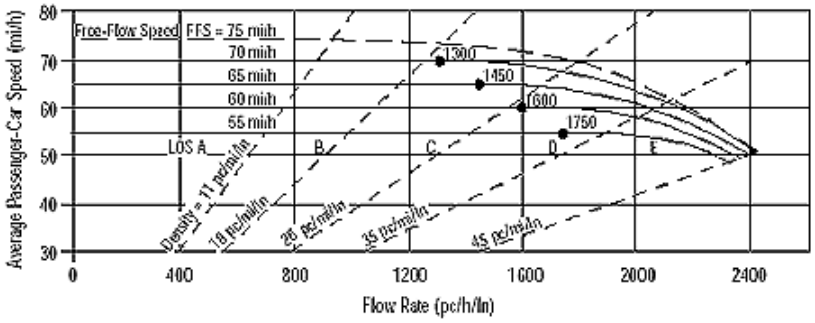
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 SB
From/To	
Jurisdiction	206
Analysis Year	2035 Build Toll Alternative 3D

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	3742 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.930

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	4.5	mi/h
FFS	65.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	2235	pc/h/ln
S	56.3	mi/h
D = v_p / S	39.7	pc/mi/ln
LOS	E	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/24/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-485 SB Off Ramp
Junction:	I-485 SB and US 74 WB
Jurisdiction:	207
Analysis Year:	2035 Build Toll Alternative 3D
Description:	Monroe Bypass/Connector

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4558	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	640	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent ramp		vph
Position of adjacent ramp		
Type of adjacent ramp		
Distance to adjacent ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4558	640		vph
Peak-hour factor, PHF	0.90	0.90		
Peak 15-min volume, v15	1266	178		v
Trucks and buses	5	5		%
Recreational vehicles	0	0		%
Terrain type:	Rolling	Rolling		
Grade	0.00 %	0.00 %		%
Length	0.00 mi	0.00 mi		mi
Trucks and buses PCE, ET	2.5	2.5		
Recreational vehicle PCE, ER	2.0	2.0		

Heavy vehicle adjustment, fHV	0.930	0.930	
Driver population factor, fP	1.00	1.00	
Flow rate, vp	5444	764	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 5444 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5444	4800	Yes
v_{12}	5444	4400	Yes
$v_{FO} = v_F - v_R$	4680	4800	No
v_R	764	2100	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 48.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable,	D_S = 0.367	
Space mean speed in ramp influence area,	S_R = 59.7	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 59.7	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/24/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-485 SB Off Ramp
Junction:	I-485 SB and US 74 WB
Jurisdiction:	207
Analysis Year:	2035 Build Toll Alternative 3D
Description:	Monroe Bypass/Connector

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3742	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	498	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent ramp		vph
Position of adjacent ramp		
Type of adjacent ramp		
Distance to adjacent ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3742	498		vph
Peak-hour factor, PHF	0.90	0.90		
Peak 15-min volume, v15	1039	138		v
Trucks and buses	5	5		%
Recreational vehicles	0	0		%
Terrain type:	Rolling	Rolling		
Grade	0.00 %	0.00 %		%
Length	0.00 mi	0.00 mi		mi
Trucks and buses PCE, ET	2.5	2.5		
Recreational vehicle PCE, ER	2.0	2.0		

Heavy vehicle adjustment, fHV	0.930	0.930	
Driver population factor, fP	1.00	1.00	
Flow rate, vp	4470	595	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 4470 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4470	4800	No
v_{12}	4470	4400	Yes
$v_{FO} = v_F - v_R$	3875	4800	No
v_R	595	2100	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 40.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable,	D_S = 0.352	
Space mean speed in ramp influence area,	S_R = 60.2	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 60.2	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/24/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-485 SB Off Ramp
Junction:	I-485 SB and US 74 EB
Jurisdiction:	208
Analysis Year:	2035 Build Toll Alternative 3D
Description:	Monroe Bypass/Connector

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3918	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	25.0	mph
Volume on ramp	807	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent ramp		vph
Position of adjacent ramp		
Type of adjacent ramp		
Distance to adjacent ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	3918		807			vph
Peak-hour factor, PHF	0.90		0.90			
Peak 15-min volume, v15	1088		224			v
Trucks and buses	5		5			%
Recreational vehicles	0		0			%
Terrain type:	Rolling		Rolling			
Grade	0.00	%	0.00	%		%
Length	0.00	mi	0.00	mi		mi
Trucks and buses PCE, ET	2.5		2.5			
Recreational vehicle PCE, ER	2.0		2.0			

Heavy vehicle adjustment, fHV	0.930	0.930	
Driver population factor, fP	1.00	1.00	
Flow rate, vp	4680	964	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 4680 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4680	4800	No
v_{12}	4680	4400	Yes
$v_{FO} = v_F - v_R$	3716	4800	No
v_R	964	1900	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 40.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable,	D_S = 0.645	
Space mean speed in ramp influence area,	S_R = 51.9	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 51.9	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/24/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-485 SB Off Ramp
Junction:	I-485 SB and US 74 EB
Jurisdiction:	208
Analysis Year:	2035 Build Toll Alternative 3D
Description:	Monroe Bypass/Connector

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3244	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	25.0	mph
Volume on ramp	802	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent ramp		vph
Position of adjacent ramp		
Type of adjacent ramp		
Distance to adjacent ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3244	802		vph
Peak-hour factor, PHF	0.90	0.90		
Peak 15-min volume, v15	901	223		v
Trucks and buses	5	5		%
Recreational vehicles	0	0		%
Terrain type:	Rolling	Rolling		
Grade	0.00 %	0.00 %		%
Length	0.00 mi	0.00 mi		mi
Trucks and buses PCE, ET	2.5	2.5		
Recreational vehicle PCE, ER	2.0	2.0		

Heavy vehicle adjustment, fHV	0.930	0.930	
Driver population factor, fP	1.00	1.00	
Flow rate, vp	3875	958	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3875 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3875	4800	No
v_{12}	3875	4400	No
$v_{FO} = v_F - v_R$	2917	4800	No
v_R	958	1900	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 33.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable,	D_S = 0.644	
Space mean speed in ramp influence area,	S_R = 52.0	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 52.0	mph

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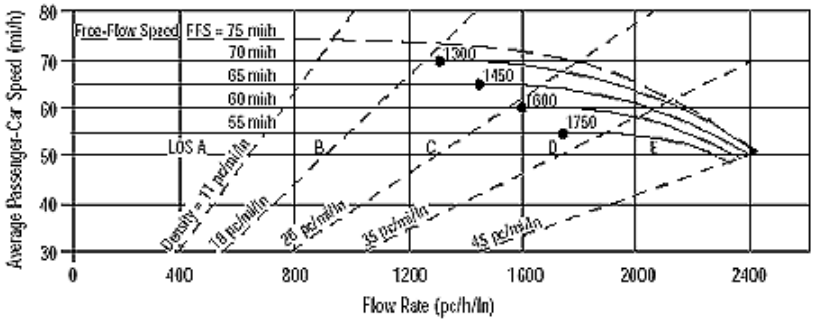

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 SB
From/To	
Jurisdiction	209
Analysis Year	2035 Build Toll Alternative 3D

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	3111 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	4.5	mi/h
FFS	65.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1936	pc/h/ln
S	62.8	mi/h
D = v_p / S	30.8	pc/mi/ln
LOS	D	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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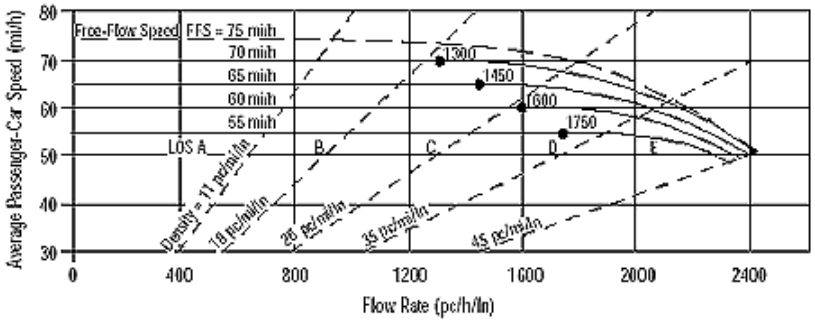

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 SB
From/To	
Jurisdiction	209
Analysis Year	2035 Build Toll Alternative 3D

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	2442 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	4.5	mi/h
FFS	65.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1519	pc/h/ln
S	65.5	mi/h
D = v_p / S	23.2	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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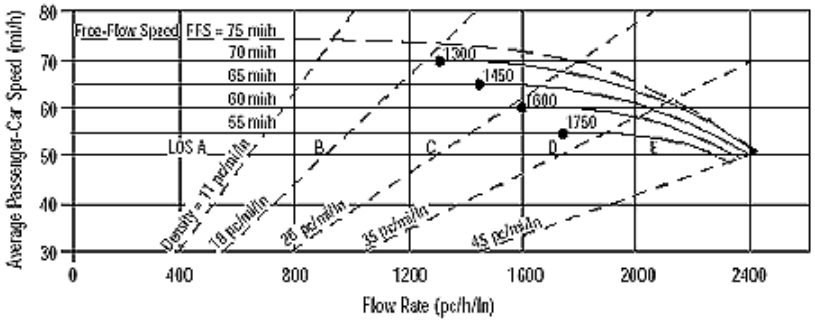

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 SB On Ramp
From/To	
Jurisdiction	210
Analysis Year	2035 Build Toll Alternative 3D

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1958 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1235	pc/h/ln
S	55.0	mi/h
D = v_p / S	22.5	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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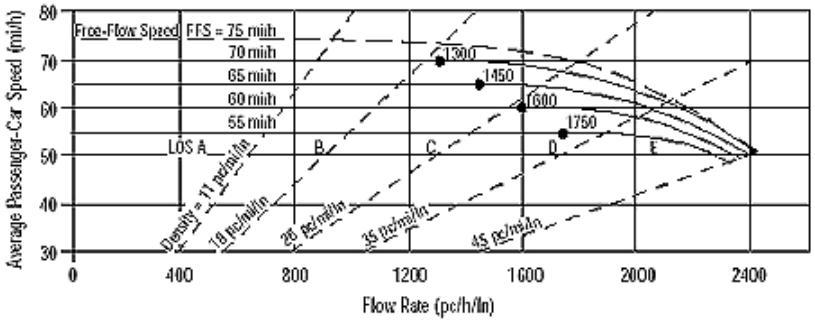

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 SB On Ramp
From/To	
Jurisdiction	210
Analysis Year	2035 Build Toll Alternative 3D

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1691 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1066	pc/h/ln
S	55.0	mi/h
D = v_p / S	19.4	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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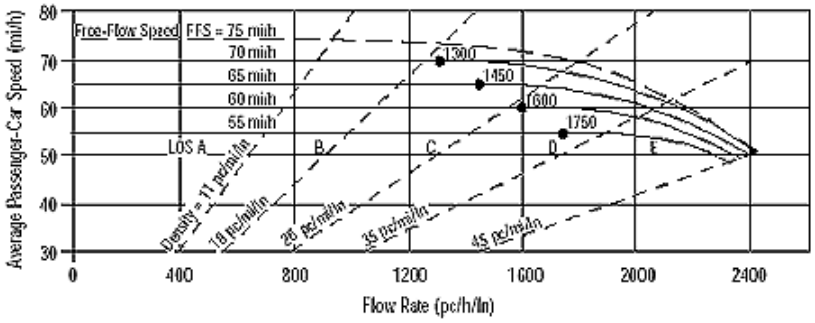
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 SB
From/To	
Jurisdiction	211
Analysis Year	2035 Build Toll Alternative 3D

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	5069 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	1.5	mi/h
FFS	68.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1577	pc/h/ln
S	68.2	mi/h
D = v_p / S	23.1	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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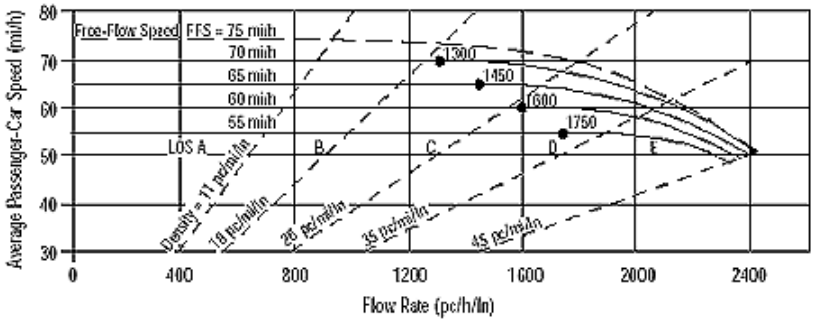
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 SB
From/To	
Jurisdiction	211
Analysis Year	2035 Build Toll Alternative 3D

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4133 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	1.5	mi/h
FFS	68.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1286	pc/h/ln
S	68.5	mi/h
D = v_p / S	18.8	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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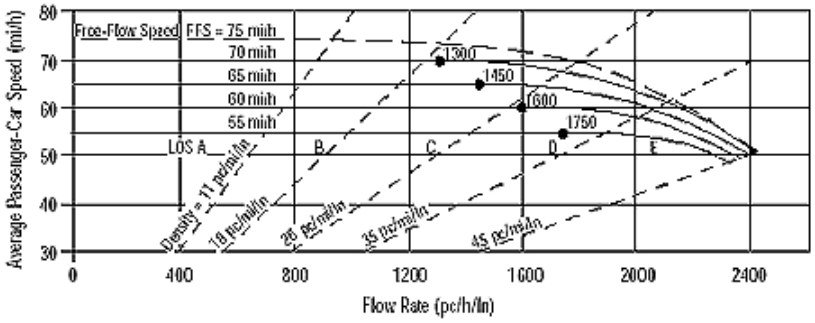
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 SB
From/To	
Jurisdiction	212
Analysis Year	2035 Build Toll Alternative 3D

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	5069 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	67.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	2103	pc/h/ln
S	60.7	mi/h
D = v_p / S	34.6	pc/mi/ln
LOS	D	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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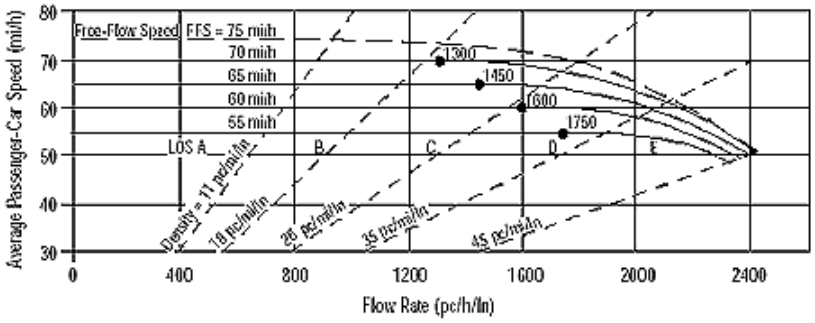
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 SB
From/To	
Jurisdiction	212
Analysis Year	2035 Build Toll Alternative 3D

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4133 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	67.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1714	pc/h/ln
S	66.2	mi/h
D = v_p / S	25.9	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	AM Peak

Site Information

Highway/Dir of Travel	I-485 NB Off Ramp
From/To	
Jurisdiction	213
Analysis Year	2035 Build Toll Alternative 3D

Flow Inputs

Volume, V	662 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	8%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.89286$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 823.82$$

LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **15.0**

LOS: **B**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	PM Peak

Site Information

Highway/Dir of Travel	I-485 NB Off Ramp
From/To	
Jurisdiction	213
Analysis Year	2035 Build Toll Alternative 3D

Flow Inputs

Volume, V	656 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	8%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.89286$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 816.36$$

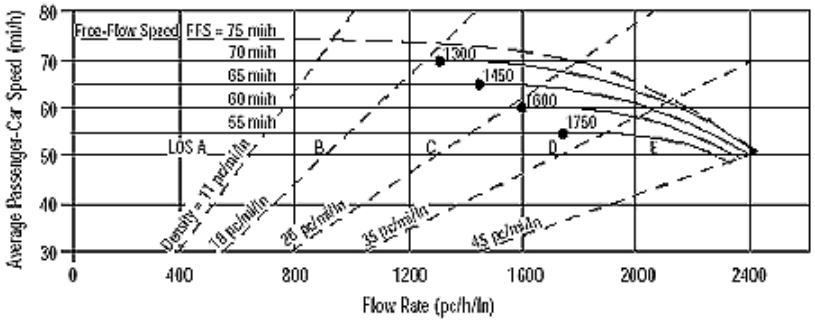
LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **14.8**

LOS: **B**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 NB Off Ramp
From/To	
Jurisdiction	214
Analysis Year	2035 Build Toll Alternative 3D

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1029 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	640	pc/h/ln
S	55.0	mi/h
D = v_p / S	11.6	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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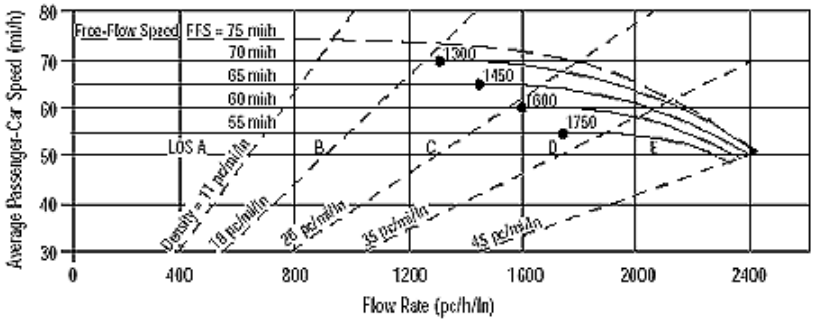
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 NB Off Ramp
From/To	
Jurisdiction	214
Analysis Year	2035 Build Toll Alternative 3D

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1302 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	810	pc/h/ln
S	55.0	mi/h
D = v_p / S	14.7	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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FREEWAY WEAVING WORKSHEET

General Information

Analyst	OSR
Agency/Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Freeway/Dir of Travel	I-485 NB
Weaving Seg Location	215
Jurisdiction	
Analysis Year	2035 Build Toll Alternative 3D

Inputs

Freeway free-flow speed, S_{FF} (mi/h)	45	Weaving type	A
Weaving number of lanes, N	2	Volume ratio, VR	1.00
Weaving seg length, L (ft)	700	Weaving ratio, R	0.43
Terrain	Rolling		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	0	0.90	0	0	2.5	2.0	1.000	1.00	0
Vo2	0	0.90	0	0	2.5	2.0	1.000	1.00	0
Vw1	662	0.90	8	0	2.5	2.0	0.893	1.00	823
Vw2	498	0.90	9	0	2.5	2.0	0.881	1.00	628
Vw				1451	Vnw				0
V									1451

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.00
b (Exhibit 24-6)			4.00	4.00
c (Exhibit 24-6)			0.97	1.30
d (Exhibit 24-6)			0.80	0.75
Weaving intensity factor, Wi			5.07	1.23
Weaving and non-weaving speeds, Si (mi/h)			20.77	30.69

Number of lanes required for unconstrained operation, Nw 1.64
Maximum number of lanes, Nw (max) 1.40

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	20.77
Weaving segment density, D (pc/mi/ln)	34.94
Level of service, LOS	D
Capacity of base condition, c_b (pc/h)	
Capacity as a 15-minute flow rate, c (veh/h)	
Capacity as a full-hour volume, c_h (veh/h)	

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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FREEWAY WEAVING WORKSHEET

General Information

Analyst	OSR
Agency/Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Freeway/Dir of Travel	I-485 NB
Weaving Seg Location	215
Jurisdiction	
Analysis Year	2035 Build Toll Alternative 3D

Inputs

Freeway free-flow speed, S_{FF} (mi/h)	45	Weaving type	A
Weaving number of lanes, N	2	Volume ratio, VR	1.00
Weaving seg length, L (ft)	700	Weaving ratio, R	0.50
Terrain	Rolling		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	0	0.90	0	0	2.5	2.0	1.000	1.00	0
Vo2	0	0.90	0	0	2.5	2.0	1.000	1.00	0
Vw1	656	0.90	8	0	2.5	2.0	0.893	1.00	816
Vw2	640	0.90	9	0	2.5	2.0	0.881	1.00	807
Vw				1623	Vnw				0
V									1623

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.00
b (Exhibit 24-6)			4.00	4.00
c (Exhibit 24-6)			0.97	1.30
d (Exhibit 24-6)			0.80	0.75
Weaving intensity factor, Wi			5.65	1.42
Weaving and non-weaving speeds, Si (mi/h)			20.26	29.44

Number of lanes required for unconstrained operation, Nw 1.67
Maximum number of lanes, Nw (max) 1.40

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	20.26
Weaving segment density, D (pc/mi/ln)	40.05
Level of service, LOS	E
Capacity of base condition, c_b (pc/h)	
Capacity as a 15-minute flow rate, c (veh/h)	
Capacity as a full-hour volume, c_h (veh/h)	

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	AM Peak

Site Information

Highway/Dir of Travel	I-485 NB On Ramp
From/To	
Jurisdiction	216
Analysis Year	2035 Build Toll Alternative 3D

Flow Inputs

Volume, V	498 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	8%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.89286$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 619.73$$

LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **11.3**

LOS: **B**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	PM Peak

Site Information

Highway/Dir of Travel	I-485 NB On Ramp
From/To	
Jurisdiction	216
Analysis Year	2035 Build Toll Alternative 3D

Flow Inputs

Volume, V	640 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	8%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.89286$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 796.44$$

LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **14.5**

LOS: **B**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	AM Peak

Site Information

Highway/Dir of Travel	I-485 NB On Ramp
From/To	
Jurisdiction	217
Analysis Year	2035 Build Toll Alternative 3D

Flow Inputs

Volume, V	802 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	9%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.88106$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 1011.41$$

LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **18.4**

LOS: **C**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	PM Peak

Site Information

Highway/Dir of Travel	I-485 NB On Ramp
From/To	
Jurisdiction	217
Analysis Year	2035 Build Toll Alternative 3D

Flow Inputs

Volume, V	807 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	9%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.88106$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 1017.72$$

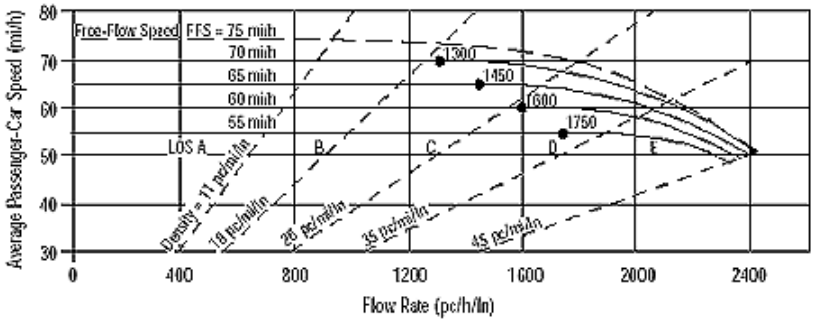
LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **18.5**

LOS: **C**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 NB On Ramp
From/To	
Jurisdiction	218
Analysis Year	2035 Build Toll Alternative 3D

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1300 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	820	pc/h/ln
S	55.0	mi/h
D = v_p / S	14.9	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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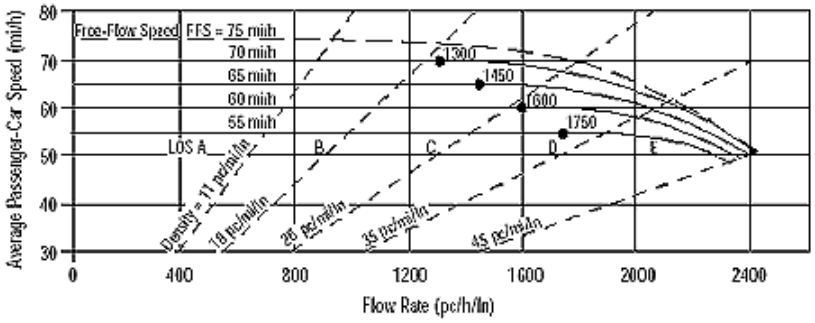
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 NB On Ramp
From/To	
Jurisdiction	218
Analysis Year	2035 Build Toll Alternative 3D

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1447 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	912	pc/h/ln
S	55.0	mi/h
D = v_p / S	16.6	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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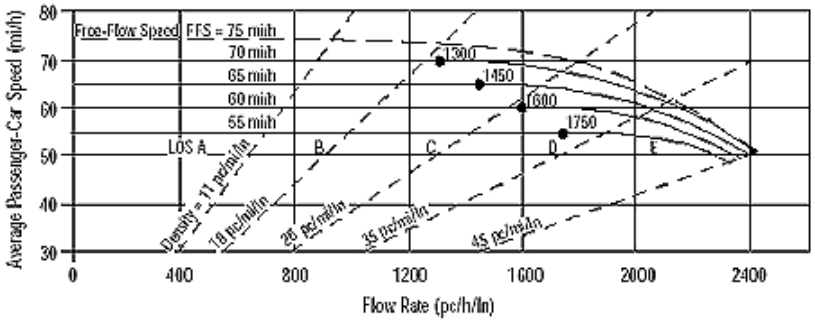
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	US 74 EB
From/To	
Jurisdiction	219
Analysis Year	2035 Build Toll Alternative 3D

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	3390 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	1.5	mi/h
FFS	58.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1069	pc/h/ln
S	58.5	mi/h
D = v_p / S	18.3	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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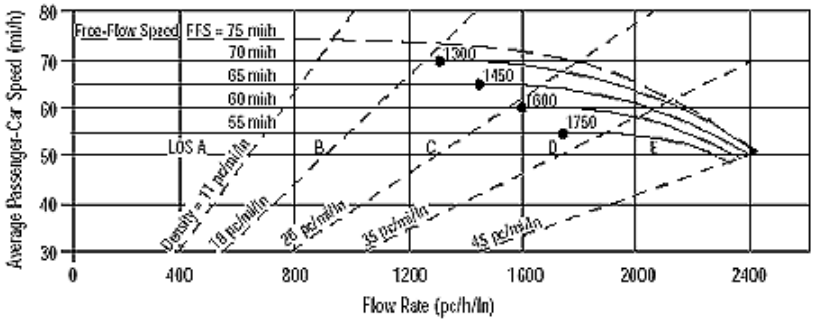
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	US 74 EB
From/To	
Jurisdiction	219
Analysis Year	2035 Build Toll Alternative 3D

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4157 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	1.5	mi/h
FFS	58.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1311	pc/h/ln
S	58.5	mi/h
D = v_p / S	22.4	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/24/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB Off Ramp
Junction:	US 74 EB and I-485 SB
Jurisdiction:	220
Analysis Year:	2035 Build Toll Alternative 3D
Description:	Monroe Bypass/Connector

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3390	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	656	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent ramp		vph
Position of adjacent ramp		
Type of adjacent ramp		
Distance to adjacent ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3390	656		vph
Peak-hour factor, PHF	0.90	0.90		
Peak 15-min volume, v15	942	182		v
Trucks and buses	9	9		%
Recreational vehicles	0	0		%
Terrain type:	Rolling	Rolling		
Grade	0.00 %	0.00 %		%
Length	0.00 mi	0.00 mi		mi
Trucks and buses PCE, ET	2.5	2.5		
Recreational vehicle PCE, ER	2.0	2.0		

Heavy vehicle adjustment, fHV	0.881	0.881	
Driver population factor, fP	1.00	1.00	
Flow rate, vp	4275	827	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2330 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4275	9200	No
v_{12}	2330	4400	No
$v_{FO} = v_F - v_R$	3448	9200	No
v_R	827	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 22.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.372	
Space mean speed in ramp influence area,	S_R = 53.3	mph
Space mean speed in outer lanes,	S_O = 65.8	mph
Space mean speed for all vehicles,	S = 58.3	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/24/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB Off Ramp
Junction:	US 74 EB and I-485 SB
Jurisdiction:	220
Analysis Year:	2035 Build Toll Alternative 3D
Description:	Monroe Bypass/Connector

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	4157	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	662	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent ramp		vph
Position of adjacent ramp		
Type of adjacent ramp		
Distance to adjacent ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4157	662		vph
Peak-hour factor, PHF	0.90	0.90		
Peak 15-min volume, v15	1155	184		v
Trucks and buses	9	9		%
Recreational vehicles	0	0		%
Terrain type:	Rolling	Rolling		
Grade	0.00 %	0.00 %	%	
Length	0.00 mi	0.00 mi	mi	
Trucks and buses PCE, ET	2.5	2.5		
Recreational vehicle PCE, ER	2.0	2.0		

Heavy vehicle adjustment, fHV	0.881	0.881	
Driver population factor, fP	1.00	1.00	
Flow rate, vp	5242	835	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2756 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5242	9200	No
v_{12}	2756	4400	No
$v_{FO} = v_F - v_R$	4407	9200	No
v_R	835	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 26.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.373	
Space mean speed in ramp influence area,	S_R = 53.3	mph
Space mean speed in outer lanes,	S_0 = 64.9	mph
Space mean speed for all vehicles,	S = 58.2	mph

FREEWAY WEAVING WORKSHEET

General Information

Analyst	OSR
Agency/Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Freeway/Dir of Travel	I-485 NB
Weaving Seg Location	221
Jurisdiction	
Analysis Year	2035 Build Toll Alternative 3D

Inputs

Freeway free-flow speed, S_{FF} (mi/h)	60	Weaving type	A
Weaving number of lanes, N	5	Volume ratio, VR	0.36
Weaving seg length, L (ft)	700	Weaving ratio, R	0.39
Terrain	Rolling		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	2236	0.90	9	0	2.5	2.0	0.881	1.00	2819
Vo2	0	0.90	0	0	2.5	2.0	1.000	1.00	0
Vw1	498	0.90	9	0	2.5	2.0	0.881	1.00	628
Vw2	807	0.90	5	0	2.5	2.0	0.930	1.00	963
Vw				1591	Vnw				2819
V									4410

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.00
b (Exhibit 24-6)			4.00	4.00
c (Exhibit 24-6)			0.97	1.30
d (Exhibit 24-6)			0.80	0.75
Weaving intensity factor, Wi			2.63	0.34
Weaving and non-weaving speeds, Si (mi/h)			28.79	52.31

Number of lanes required for unconstrained operation, Nw 1.93
Maximum number of lanes, Nw (max) 1.40

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	40.40
Weaving segment density, D (pc/mi/ln)	21.83
Level of service, LOS	C
Capacity of base condition, c_b (pc/h)	8580
Capacity as a 15-minute flow rate, c (veh/h)	7559
Capacity as a full-hour volume, c_h (veh/h)	6803

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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FREEWAY WEAVING WORKSHEET

General Information

Analyst	OSR
Agency/Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Freeway/Dir of Travel	I-485 NB
Weaving Seg Location	221
Jurisdiction	
Analysis Year	2035 Build Toll Alternative 3D

Inputs

Freeway free-flow speed, S_{FF} (mi/h)	60	Weaving type	A
Weaving number of lanes, N	5	Volume ratio, VR	0.33
Weaving seg length, L (ft)	700	Weaving ratio, R	0.46
Terrain	Rolling		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	2855	0.90	9	0	2.5	2.0	0.881	1.00	3600
Vo2	0	0.90	0	0	2.5	2.0	1.000	1.00	0
Vw1	640	0.90	9	0	2.5	2.0	0.881	1.00	807
Vw2	802	0.90	5	0	2.5	2.0	0.930	1.00	957
Vw				1764	Vnw				3600
V									5364

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.00
b (Exhibit 24-6)			4.00	4.00
c (Exhibit 24-6)			0.97	1.30
d (Exhibit 24-6)			0.80	0.75
Weaving intensity factor, Wi			3.01	0.40
Weaving and non-weaving speeds, Si (mi/h)			27.45	50.74

Number of lanes required for unconstrained operation, Nw 1.87
Maximum number of lanes, Nw (max) 1.40

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	39.68
Weaving segment density, D (pc/mi/ln)	27.04
Level of service, LOS	C
Capacity of base condition, c_b (pc/h)	8580
Capacity as a 15-minute flow rate, c (veh/h)	7559
Capacity as a full-hour volume, c_h (veh/h)	6803

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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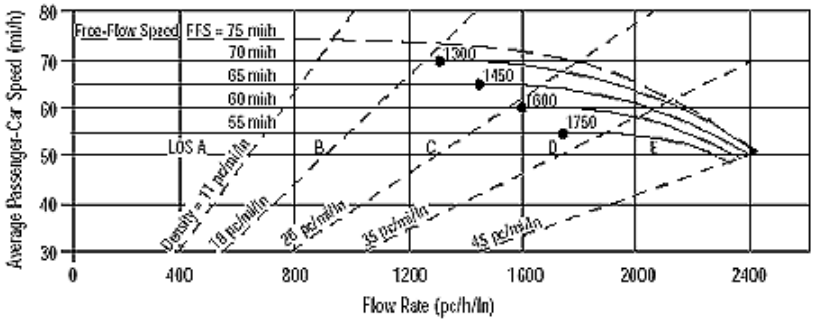
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	US 74 EB
From/To	
Jurisdiction	222
Analysis Year	2035 Build Toll Alternative 3D

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4959 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	1.5	mi/h
FFS	58.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1563	pc/h/ln
S	58.5	mi/h
D = v_p / S	26.7	pc/mi/ln
LOS	D	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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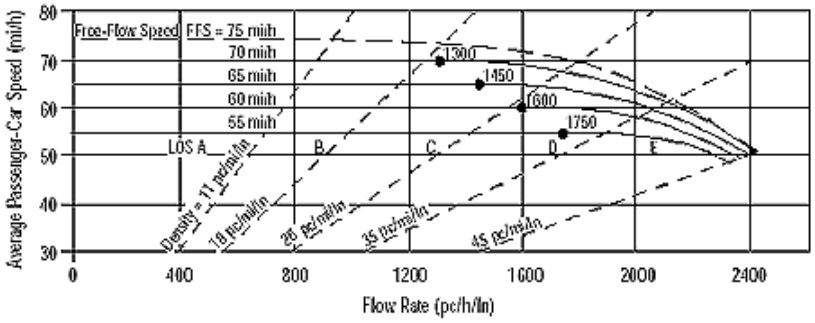
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	US 74 EB
From/To	
Jurisdiction	222
Analysis Year	2035 Build Toll Alternative 3D

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4072 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	1.5	mi/h
FFS	58.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1284	pc/h/ln
S	58.5	mi/h
D = v_p / S	21.9	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	AM Peak

Site Information

Highway/Dir of Travel	US 74 SB On Ramp
From/To	
Jurisdiction	223
Analysis Year	2035 Build Toll Alternative 3D

Flow Inputs

Volume, V	1029 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	8%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.89286$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 1280.53$$

LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **23.3**

LOS: **C**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	PM Peak

Site Information

Highway/Dir of Travel	US 74 SB On Ramp
From/To	
Jurisdiction	223
Analysis Year	2035 Build Toll Alternative 3D

Flow Inputs

Volume, V	1302 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	8%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.89286$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 1620.27$$

LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **29.6**

LOS: **D**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

FREEWAY WEAVING WORKSHEET

General Information

Analyst	OSR
Agency/Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Freeway/Dir of Travel	I-485 NB
Weaving Seg Location	224
Jurisdiction	
Analysis Year	2035 Build Toll Alternative 3D

Inputs

Freeway free-flow speed, S_{FF} (mi/h)	60	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.34
Weaving seg length, L (ft)	2100	Weaving ratio, R	0.39
Terrain	Rolling		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	2501	0.90	9	0	2.5	2.0	0.881	1.00	3154
Vo2	181	0.90	8	0	2.5	2.0	0.893	1.00	225
Vw1	542	0.90	9	0	2.5	2.0	0.881	1.00	683
Vw2	848	0.90	8	0	2.5	2.0	0.893	1.00	1055
Vw				1738	Vnw				3379
V									5117

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.00
b (Exhibit 24-6)			4.00	4.00
c (Exhibit 24-6)			0.97	1.30
d (Exhibit 24-6)			0.80	0.75
Weaving intensity factor, Wi			1.51	0.23
Weaving and non-weaving speeds, Si (mi/h)			34.91	55.74

Number of lanes required for unconstrained operation, Nw 1.80
Maximum number of lanes, Nw (max) 1.40

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	46.35
Weaving segment density, D (pc/mi/ln)	27.60
Level of service, LOS	C
Capacity of base condition, c_b (pc/h)	7259
Capacity as a 15-minute flow rate, c (veh/h)	6396
Capacity as a full-hour volume, c_h (veh/h)	5756

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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FREEWAY WEAVING WORKSHEET

General Information

Analyst	OSR
Agency/Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Freeway/Dir of Travel	I-485 NB
Weaving Seg Location	224
Jurisdiction	
Analysis Year	2035 Build Toll Alternative 3D

Inputs

Freeway free-flow speed, S_{FF} (mi/h)	60	Weaving type	A
Weaving number of lanes, N	5	Volume ratio, VR	0.34
Weaving seg length, L (ft)	700	Weaving ratio, R	0.37
Terrain	Rolling		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	3021	0.90	9	0	2.5	2.0	0.881	1.00	3809
Vo2	223	0.90	8	0	2.5	2.0	0.893	1.00	277
Vw1	636	0.90	9	0	2.5	2.0	0.881	1.00	802
Vw2	1079	0.90	8	0	2.5	2.0	0.893	1.00	1342
Vw				2144	Vnw				4086
V									6230

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.00
b (Exhibit 24-6)			4.00	4.00
c (Exhibit 24-6)			0.97	1.30
d (Exhibit 24-6)			0.80	0.75
Weaving intensity factor, Wi			3.57	0.51
Weaving and non-weaving speeds, Si (mi/h)			25.93	48.17

Number of lanes required for unconstrained operation, Nw 1.97
Maximum number of lanes, Nw (max) 1.40

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	37.19
Weaving segment density, D (pc/mi/ln)	33.50
Level of service, LOS	D
Capacity of base condition, c_b (pc/h)	8580
Capacity as a 15-minute flow rate, c (veh/h)	7559
Capacity as a full-hour volume, c_h (veh/h)	6803

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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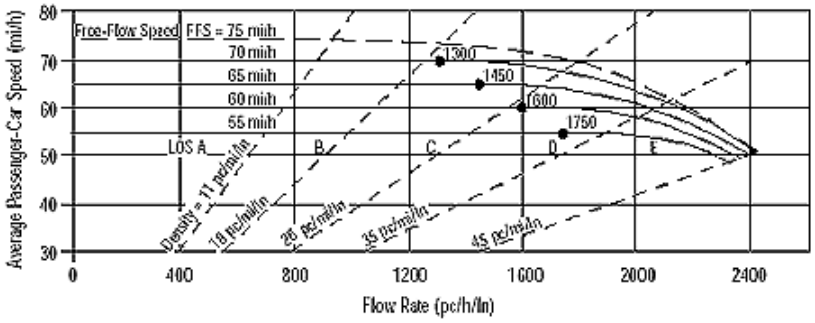
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	US 74 WB
From/To	
Jurisdiction	225
Analysis Year	2035 Build Toll Alternative 3D

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4959 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	1.5	mi/h
FFS	58.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1563	pc/h/ln
S	58.5	mi/h
D = v_p / S	26.7	pc/mi/ln
LOS	D	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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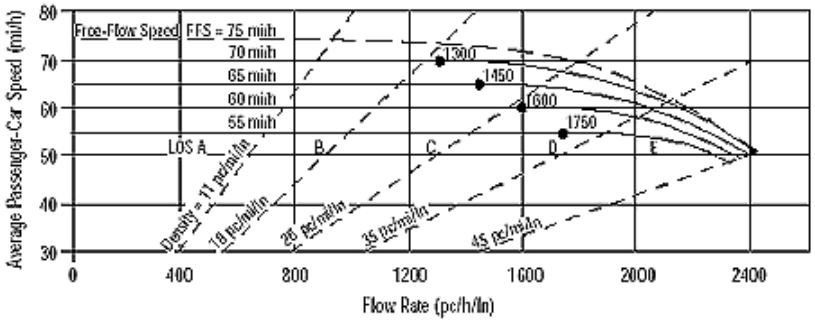
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	US 74 WB
From/To	
Jurisdiction	225
Analysis Year	2035 Build Toll Alternative 3D

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4072 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	1.5	mi/h
FFS	58.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1284	pc/h/ln
S	58.5	mi/h
D = v_p / S	21.9	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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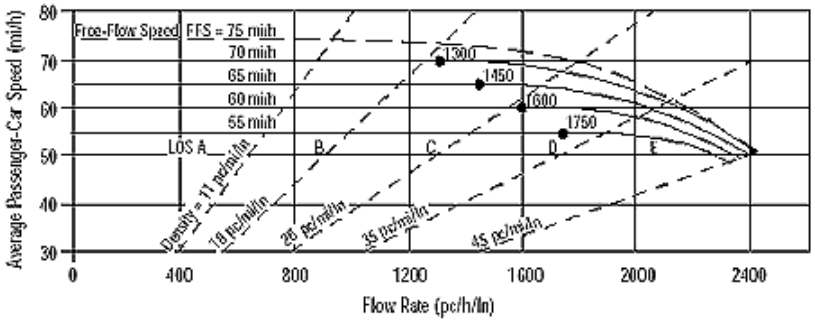

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	US 74 WB
From/To	
Jurisdiction	226
Analysis Year	2035 Build Toll Alternative 3D

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	2855 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	57.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1200	pc/h/ln
S	57.0	mi/h
D = v_p / S	21.1	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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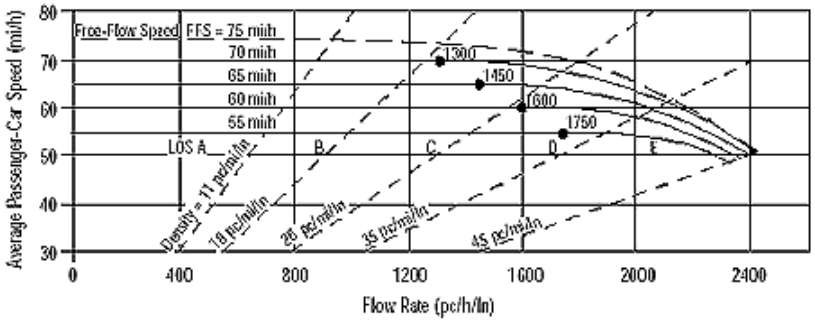

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	US 74 WB
From/To	
Jurisdiction	226
Analysis Year	2035 Build Toll Alternative 3D

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	2236 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	57.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	940	pc/h/ln
S	57.0	mi/h
D = v_p / S	16.5	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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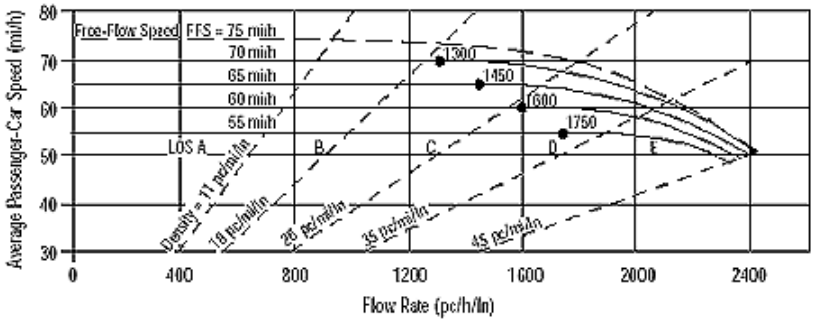

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	US 74 WB Off Ramp
From/To	
Jurisdiction	227
Analysis Year	2035 Build Toll Alternative 3D

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	2104 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1327	pc/h/ln
S	55.0	mi/h
D = v_p / S	24.1	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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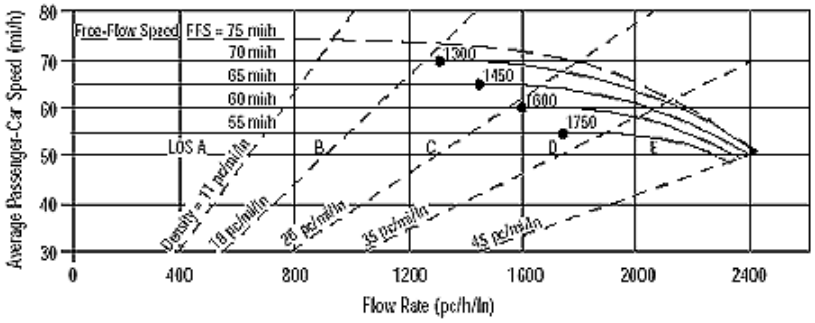

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	US 74 WB Off Ramp
From/To	
Jurisdiction	227
Analysis Year	2035 Build Toll Alternative 3D

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1836 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1158	pc/h/ln
S	55.0	mi/h
D = v_p / S	21.1	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/24/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB
Junction:	US 74 WB and I-485 NB
Jurisdiction:	228
Analysis Year:	2035 Build Toll Alternative 3D
Description:	Monroe Bypass/Connector

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2855	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	662	vph
Length of first accel/decel lane	700	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	640	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	2150	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2855	662	640	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	793	184	178	v
Trucks and buses	9	8	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.881	0.893	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3600	824	764	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.597 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 2150 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4424	6900	No
v_{R12}	2974	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 23.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.362	
Space mean speed in ramp influence area,	S_R = 53.5	mph
Space mean speed in outer lanes,	S_O = 56.6	mph
Space mean speed for all vehicles,	S = 54.5	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/24/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB
Junction:	US 74 WB and I-485 NB
Jurisdiction:	228
Analysis Year:	2035 Build Toll Alternative 3D
Description:	Monroe Bypass/Connector

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2236	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	656	vph
Length of first accel/decel lane	700	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	498	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	2150	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2236	656	498	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	621	182	138	v
Trucks and buses	9	8	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.881	0.893	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2820	816	595	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.597 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1684 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3636	6900	No
v_{R12}	2500	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 20.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.334	
Space mean speed in ramp influence area,	S_R = 54.0	mph
Space mean speed in outer lanes,	S_O = 57.7	mph
Space mean speed for all vehicles,	S = 55.1	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/24/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB
Junction:	US 74 WB and I-485 SB
Jurisdiction:	229
Analysis Year:	2035 Build Toll Alternative 3D
Description:	Monroe Bypass/Connector

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3517	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	640	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	662	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	2150	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3517	640	662	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	977	178	184	v
Trucks and buses	9	5	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.881	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4435	764	824	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.591 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 2623 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	5199	6900	No
v_{R12}	3387	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 28.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, M_S = 0.391

Space mean speed in ramp influence area, S_R = 53.0 mph

Space mean speed in outer lanes, S_O = 55.3 mph

Space mean speed for all vehicles, S = 53.7 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/24/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB
Junction:	US 74 WB and I-485 SB
Jurisdiction:	229
Analysis Year:	2035 Build Toll Alternative 3D
Description:	Monroe Bypass/Connector

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2892	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	498	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	656	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	2150	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2892	498	656	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	803	138	182	v
Trucks and buses	9	5	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.881	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3647	595	816	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.591 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 2157 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4242	6900	No
v_{R12}	2752	4600	No

Level of Service Determination (if not F)

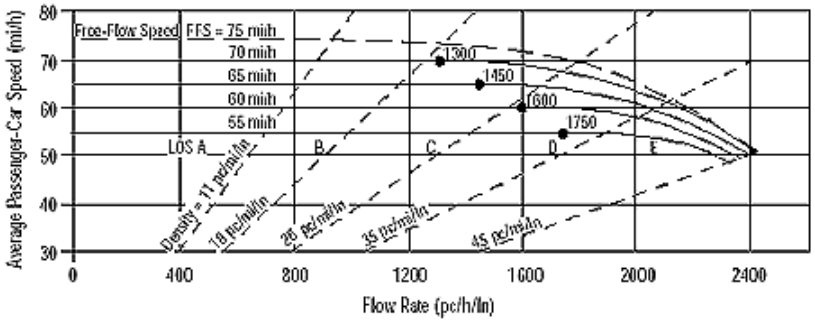
Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 23.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.337	
Space mean speed in ramp influence area,	S_R = 53.9	mph
Space mean speed in outer lanes,	S_O = 56.4	mph
Space mean speed for all vehicles,	S = 54.8	mph

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	US 74 WB Off Ramp
From/To	
Jurisdiction	230
Analysis Year	2035 Build Toll Alternative 3D

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4157 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	57.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1747	pc/h/ln
S	57.0	mi/h
D = v_p / S	30.7	pc/mi/ln
LOS	D	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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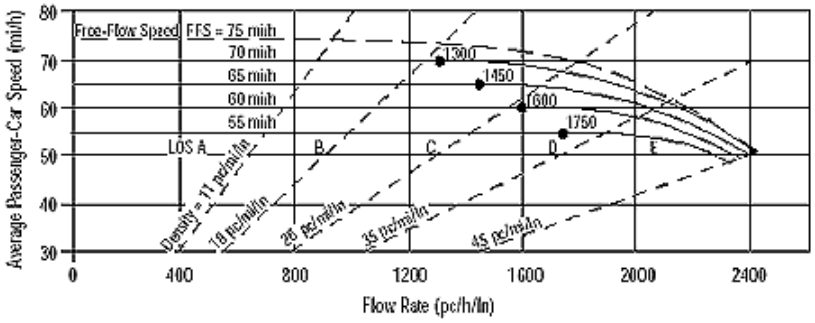

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	US 74 WB Off Ramp
From/To	
Jurisdiction	230
Analysis Year	2035 Build Toll Alternative 3D

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	3390 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	57.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1425	pc/h/ln
S	57.0	mi/h
D = v_p / S	25.0	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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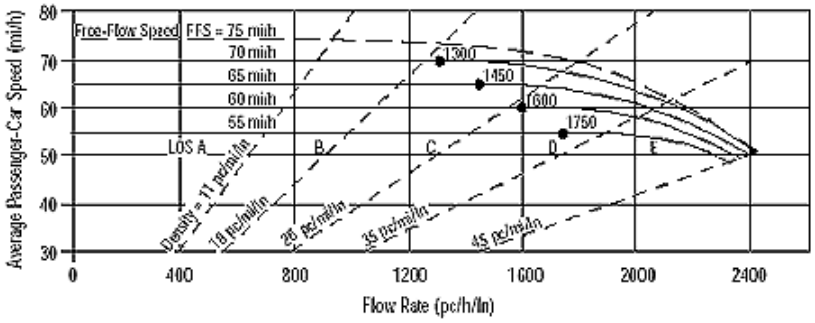

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	US 74 Flyover
From/To	
Jurisdiction	231
Analysis Year	2035 Build Toll Alternative 3D

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1302 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	821	pc/h/ln
S	55.0	mi/h
D = v_p / S	14.9	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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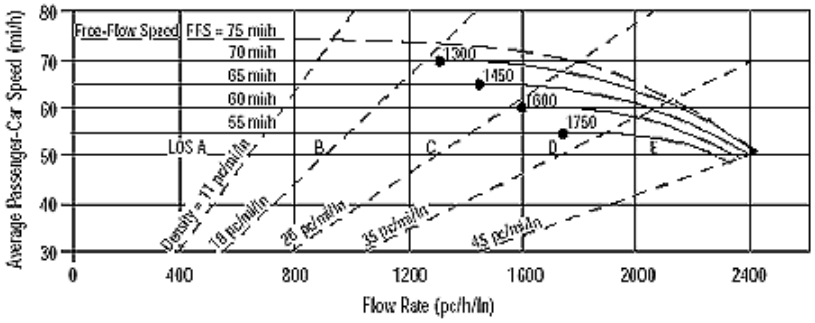
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	US 74 Flyover
From/To	
Jurisdiction	231
Analysis Year	2035 Build Toll Alternative 3D

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1029 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	649	pc/h/ln
S	55.0	mi/h
D = v_p / S	11.8	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	AM Peak

Site Information

Highway/Dir of Travel	US 74 SB Off Ramp
From/To	
Jurisdiction	232
Analysis Year	2035 Build Toll Alternative 3D

Flow Inputs

Volume, V	656 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	9%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.88106$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 827.29$$

LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **15.0**

LOS: **B**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	AM Peak

Site Information

Highway/Dir of Travel	US 74 SB Off Ramp
From/To	
Jurisdiction	232
Analysis Year	2035 Build Toll Alternative 3D

Flow Inputs

Volume, V	662 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	9%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.88106$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 834.86$$

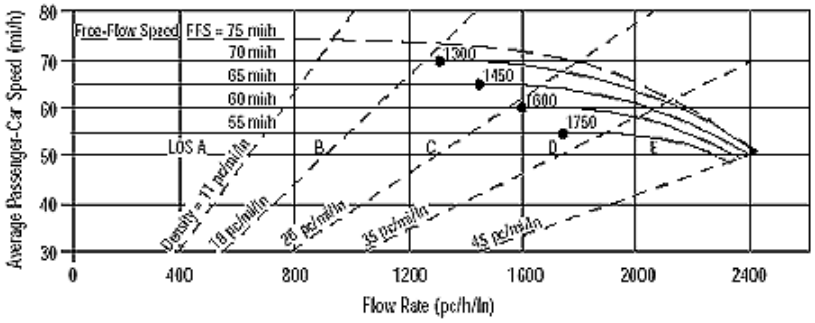
LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **15.2**

LOS: **B**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 NB On Ramp
From/To	
Jurisdiction	233
Analysis Year	2035 Build Toll Alternative 3D

Project Description Monroe Bypass / Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1958 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	823	pc/h/ln
S	55.0	mi/h
D = v_p / S	15.0	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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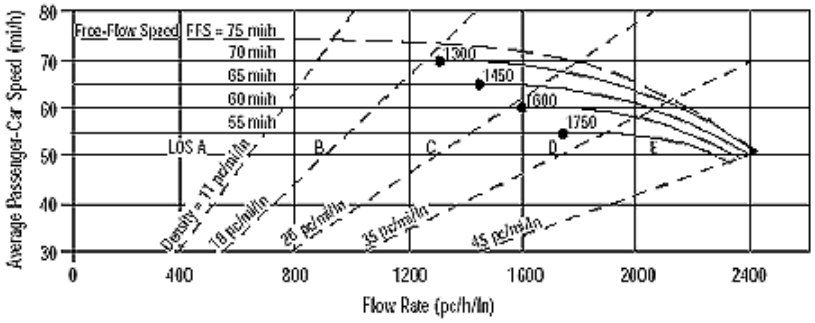
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 NB On Ramp
From/To	
Jurisdiction	233
Analysis Year	2035 Build Toll Alternative 3D

Project Description Monroe Bypass / Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1691 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	711	pc/h/ln
S	55.0	mi/h
D = v_p / S	12.9	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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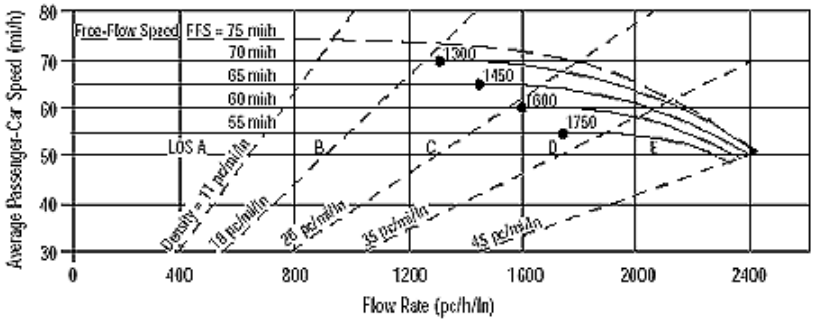
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	US 74 EB
From/To	
Jurisdiction	234
Analysis Year	2035 Build Toll Alternative 3D

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	3390 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	57.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1425	pc/h/ln
S	57.0	mi/h
D = v_p / S	25.0	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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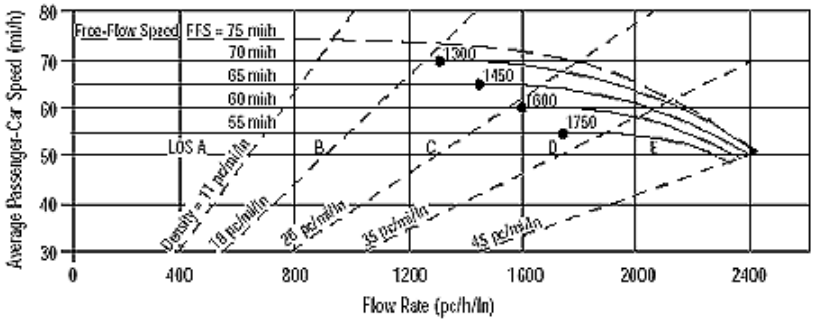
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	US 74 EB
From/To	
Jurisdiction	234
Analysis Year	2035 Build Toll Alternative 3D

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4157 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	57.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1747	pc/h/ln
S	57.0	mi/h
D = v_p / S	30.7	pc/mi/ln
LOS	D	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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E-12-2

Business US 74 Intersections

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*US 74 and Bivens Road*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Toll Alternative 3D*
Analysis Time Period	*AM Peak*		

Project Description *Monroe Connector/Bypass*

East/West Street: *US 74* | North/South Street: *Bivens Road*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*120*	*1128*	*10*	*10*	*1391*	*135*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*133*	*1253*	*11*	*11*	*1545*	*150*
Proportion of heavy vehicles, P_{HV}	*5*	--	--	*5*	--	--
Median type	*Undivided*					
RT Channelized?			*0*			*1*
Lanes	*1*	*2*	*1*	*1*	*2*	*1*
Configuration	*L*	*T*	*R*	*L*	*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*10*	*10*	*10*	*101*	*10*	*111*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*11*	*11*	*11*	*112*	*11*	*123*
Proportion of heavy vehicles, P_{HV}	*2*	*2*	*2*	*2*	*2*	*2*
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
Volume, v (vph)	*133*	*11*		*33*			*246*	
Capacity, c_m (vph)	*411*	*530*		*0*			*0*	
v/c ratio	*0.32*	*0.02*						
Queue length (95%)	*1.38*	*0.06*						
Control Delay (s/veh)	*17.9*	*11.9*						
LOS	*C*	*B*		*F*			*F*	
Approach delay (s/veh)	--	--						
Approach LOS	--	--						

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*US 74 and Bivens Road*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Toll Alternative 3D*
Analysis Time Period	*PM Peak*		

Project Description *Monroe Connector/Bypass*

East/West Street: *US 74* | North/South Street: *Bivens Road*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*111*	*1391*	*10*	*10*	*1128*	*101*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*123*	*1545*	*11*	*11*	*1253*	*112*
Proportion of heavy vehicles, P_{HV}	*5*	--	--	*5*	--	--
Median type	*Undivided*					
RT Channelized?			*0*			*1*
Lanes	*1*	*2*	*1*	*1*	*2*	*1*
Configuration	*L*	*T*	*R*	*L*	*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*10*	*10*	*10*	*135*	*10*	*120*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*11*	*11*	*11*	*150*	*11*	*133*
Proportion of heavy vehicles, P_{HV}	*2*	*2*	*2*	*2*	*2*	*2*
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
Volume, v (vph)	*123*	*11*		*33*			*294*	
Capacity, c_m (vph)	*535*	*407*		*0*			*0*	
v/c ratio	*0.23*	*0.03*						
Queue length (95%)	*0.88*	*0.08*						
Control Delay (s/veh)	*13.7*	*14.1*						
LOS	*B*	*B*		*F*			*F*	
Approach delay (s/veh)	--	--						
Approach LOS	--	--						

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*OSR*
Agency/Co.	*PBS&J*
Date Performed	*4/30/08*
Analysis Time Period	*AM Peak*

Site Information

Intersection	*US 74 and Seacrest Shortcut*
Jurisdiction	
Analysis Year	*2035 Build Toll Alternative 3D*

Project Description *Monroe Connector/Bypass*

East/West Street: *US 74* | North/South Street: *Seacrest Shortcut RIRO*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*0*	*960*	*306*	*0*	*1470*	*0*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*0*	*1066*	*340*	*0*	*1633*	*0*
Proportion of heavy vehicles, P_{HV}		--	--		--	--
Median type	*Undivided*					
RT Channelized?			*0*			*1*
Lanes	*0*	*2*	*1*	*0*	*2*	*0*
Configuration		*T*	*R*		*T*	
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*428*	*0*	*0*	*0*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*0*	*0*	*475*	*0*	*0*	*0*
Proportion of heavy vehicles, P_{HV}			*4*			
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					*R*			
Volume, v (vph)					*475*			
Capacity, c_m (vph)					*486*			
v/c ratio					*0.98*			
Queue length (95%)					*12.68*			
Control Delay (s/veh)					*64.6*			
LOS					*F*			
Approach delay (s/veh)	--	--	*64.6*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*US 74 and Seacrest Shortcut*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Toll Alternative 3D*
Analysis Time Period	*PM Peak*		

Project Description *Monroe Connector/Bypass*

East/West Street: *US 74* | North/South Street: *Seacrest Shortcut RIRO*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*0*	*1226*	*430*	*0*	*1203*	*0*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*0*	*1362*	*477*	*0*	*1336*	*0*
Proportion of heavy vehicles, P_{HV}		--	--		--	--
Median type	*Undivided*					
RT Channelized?			*0*			*1*
Lanes	*0*	*2*	*1*	*0*	*2*	*0*
Configuration		*T*	*R*		*T*	
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*304*	*0*	*0*	*0*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*0*	*0*	*337*	*0*	*0*	*0*
Proportion of heavy vehicles, P_{HV}			*4*			
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					*R*			
Volume, v (vph)					*337*			
Capacity, c_m (vph)					*388*			
v/c ratio					*0.87*			
Queue length (95%)					*8.50*			
Control Delay (s/veh)					*51.8*			
LOS					*F*			
Approach delay (s/veh)	--	--	*51.8*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*Stallings Rd & Union West Blvd*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*7/7/2008*	Analysis Year	*2035 Build Toll Alternative 3D*
Analysis Time Period	*AM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *Union West Blvd*	North/South Street: *Stallings Rd*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*353*	*75*	*50*	*539*	*0*
Peak-Hour Factor, PHF	*1.00*	*0.90*	*0.90*	*0.90*	*0.90*	*1.00*
Hourly Flow Rate, HFR	*0*	*392*	*83*	*55*	*598*	*0*
Percent Heavy Vehicles		--	--	*2*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*1*	*1*	*0*
Configuration		*T*	*R*	*L*	*T*	
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*126*	*0*	*55*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*140*	*0*	*61*	*0*	*0*	*0*
Percent Heavy Vehicles	*2*		*2*			
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*		*LR*				
v (vph)		*55*		*201*				
C (m) (vph)		*1087*		*279*				
v/c		*0.05*		*0.72*				
95% queue length		*0.16*		*5.08*				
Control Delay		*8.5*		*45.2*				
LOS		*A*		*E*				
Approach Delay	--	--	*45.2*					
Approach LOS	--	--	*E*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*Stallings Rd & Union West Blvd*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*7/7/2008*	Analysis Year	*2035 Build Toll Alternative 3D*
Analysis Time Period	*PM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *Union West Blvd*	North/South Street: *Stallings Rd*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*539*	*126*	*55*	*353*	*0*
Peak-Hour Factor, PHF	*1.00*	*0.90*	*0.90*	*0.90*	*0.90*	*1.00*
Hourly Flow Rate, HFR	*0*	*598*	*140*	*61*	*392*	*0*
Percent Heavy Vehicles		--	--	*2*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*1*	*1*	*0*
Configuration		*T*	*R*	*L*	*T*	
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*75*	*0*	*50*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*83*	*0*	*55*	*0*	*0*	*0*
Percent Heavy Vehicles	*2*		*2*			
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*		*LR*				
v (vph)		*61*		*138*				
C (m) (vph)		*868*		*278*				
v/c		*0.07*		*0.50*				
95% queue length		*0.23*		*2.58*				
Control Delay		*9.5*		*30.1*				
LOS		*A*		*D*				
Approach Delay	--	--	*30.1*					
Approach LOS	--	--	*D*					

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	482	35	212	330	66	138	80	3454	531	294	4348	241
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1719	3438	1538	1719	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	1719	3438	1538	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			45			55			55	
Link Distance (ft)		1096			1168			1536			3465	
Travel Time (s)		21.4			17.7			19.0			43.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	536	39	236	367	73	153	89	3838	590	327	4831	268
Shared Lane Traffic (%)												
Lane Group Flow (vph)	536	39	236	367	73	153	89	3838	590	327	4831	268
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	1	6	7	5	2	3
Permitted Phases			4			8			6			2
Detector Phase	7	4	5	3	8	1	1	6	7	5	2	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	14.0	7.0	7.0	14.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0	14.0	14.0	21.0	14.0	14.0	21.0	14.0
Total Split (s)	19.0	14.0	22.0	19.0	14.0	14.0	14.0	85.0	19.0	22.0	93.0	19.0
Total Split (%)	13.6%	10.0%	15.7%	13.6%	10.0%	10.0%	10.0%	60.7%	13.6%	15.7%	66.4%	13.6%
Maximum Green (s)	12.0	7.0	15.0	12.0	7.0	7.0	7.0	78.0	12.0	15.0	86.0	12.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	14.0	9.0	31.0	14.0	9.0	21.2	10.0	80.0	99.0	19.8	89.8	108.8
Actuated g/C Ratio	0.10	0.06	0.22	0.10	0.06	0.15	0.07	0.57	0.71	0.14	0.64	0.78
v/c Ratio	1.56	0.17	0.67	1.07	0.32	0.64	0.72	1.95	0.54	1.35	2.19	0.22
Control Delay	306.6	63.9	60.6	126.6	66.6	68.1	95.1	453.7	12.0	223.6	557.0	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	306.6	63.9	60.6	126.6	66.6	68.1	95.1	453.7	12.0	223.6	557.0	5.0
LOS	F	E	E	F	E	E	F	F	B	F	F	A
Approach Delay		223.4			104.1			388.9			509.6	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 2.19			
Intersection Signal Delay: 419.9		Intersection LOS: F	
Intersection Capacity Utilization 158.9%		ICU Level of Service H	
Analysis Period (min) 15			

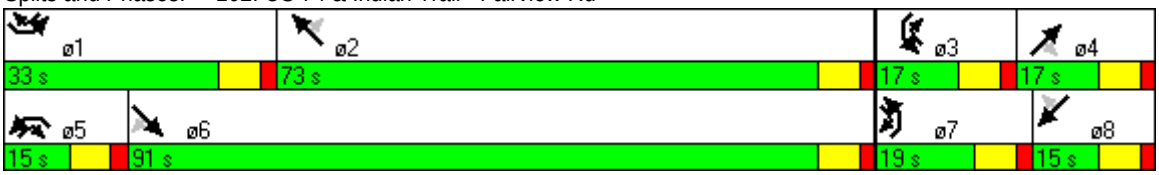
Splits and Phases: 101: Stallings Road & US 74

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	333	1697	407	99	2071	134	394	141	79	196	267	610
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3335	3438	1538	1719	3438	1538	3335	3438	1538	3335	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3438	1538	1719	3438	1538	3335	3438	1538	3335	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			35			35	
Link Distance (ft)		2103			2380			902			1112	
Travel Time (s)		26.1			29.5			17.6			21.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	370	1886	452	110	2301	149	438	157	88	218	297	678
Shared Lane Traffic (%)												
Lane Group Flow (vph)	370	1886	452	110	2301	149	438	157	88	218	297	678
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	7.0	14.0	7.0	7.0	14.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.5	21.0	14.0	14.0	21.0	14.0	14.0	14.0	14.0	14.0	14.0	14.5
Total Split (s)	33.0	91.0	19.0	15.0	73.0	17.0	19.0	17.0	15.0	17.0	15.0	33.0
Total Split (%)	23.6%	65.0%	13.6%	10.7%	52.1%	12.1%	13.6%	12.1%	10.7%	12.1%	10.7%	23.6%
Maximum Green (s)	26.0	84.0	12.0	8.0	66.0	10.0	12.0	10.0	8.0	10.0	8.0	26.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	28.0	86.0	105.0	10.0	68.0	85.0	14.0	12.0	27.0	12.0	10.0	43.0
Actuated g/C Ratio	0.20	0.61	0.75	0.07	0.49	0.61	0.10	0.09	0.19	0.09	0.07	0.31
v/c Ratio	0.55	0.89	0.39	0.89	1.38	0.16	1.31	0.53	0.30	0.76	1.21	1.44
Control Delay	54.1	29.9	7.4	120.3	204.8	12.5	207.4	68.4	51.6	80.1	177.9	244.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.1	29.9	7.4	120.3	204.8	12.5	207.4	68.4	51.6	80.1	177.9	244.4
LOS	D	C	A	F	F	B	F	E	D	F	F	F
Approach Delay		29.5			190.0			155.4			197.8	
Approach LOS		C			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 170			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.44			
Intersection Signal Delay: 127.1		Intersection LOS: F	
Intersection Capacity Utilization 118.8%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 102: US 74 & Indian Trail - Fairview Rd

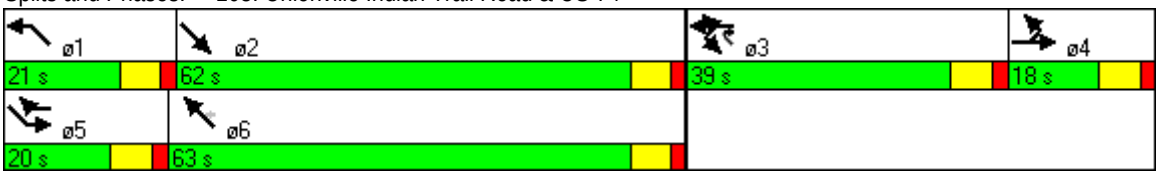


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	37	151	142	449	364	687	400	1352	51	243	1646	318
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Frt		0.935				0.850		0.995				0.850
Flt Protected		0.994		0.950	0.994		0.950			0.950		
Satd. Flow (prot)	0	3257	0	1665	1742	1568	3335	3421	0	1719	3438	1538
Flt Permitted		0.994		0.950	0.994		0.950			0.950		
Satd. Flow (perm)	0	3257	0	1665	1742	1568	3335	3421	0	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			45			55			55	
Link Distance (ft)		795			1304			1032			1062	
Travel Time (s)		15.5			19.8			12.8			13.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	41	168	158	499	404	763	444	1502	57	270	1829	353
Shared Lane Traffic (%)				11%								
Lane Group Flow (vph)	0	367	0	444	459	763	444	1559	0	270	1829	353
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	1	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	1	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pt+ov	Prot			Prot		pm+ov
Protected Phases	4	4		3	3	3 5	5	2		1	6	3
Permitted Phases												6
Detector Phase	4	4		3	3	3 5	5	2		1	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	14.0		7.0	14.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	21.0		14.0	21.0	14.0
Total Split (s)	18.0	18.0	0.0	39.0	39.0	59.0	20.0	62.0	0.0	21.0	63.0	39.0
Total Split (%)	12.9%	12.9%	0.0%	27.9%	27.9%	42.1%	14.3%	44.3%	0.0%	15.0%	45.0%	27.9%
Maximum Green (s)	11.0	11.0		32.0	32.0		13.0	55.0		14.0	56.0	32.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	None
Act Effct Green (s)		13.0		34.0	34.0	49.0	15.0	57.0		16.0	58.0	97.0
Actuated g/C Ratio		0.09		0.24	0.24	0.35	0.11	0.41		0.11	0.41	0.69
v/c Ratio		1.22		1.10	1.09	1.39	1.24	1.12		1.38	1.28	0.33
Control Delay		174.8		122.8	117.6	213.8	180.8	102.6		243.0	168.6	9.6
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay		174.8		122.8	117.6	213.8	180.8	102.6		243.0	168.6	9.6
LOS		F		F	F	F	F	F		F	F	A
Approach Delay		174.8			163.1			119.9			153.9	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.39			
Intersection Signal Delay: 147.0		Intersection LOS: F	
Intersection Capacity Utilization 110.3%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 103: Unionville Indian Trail Road & US 74



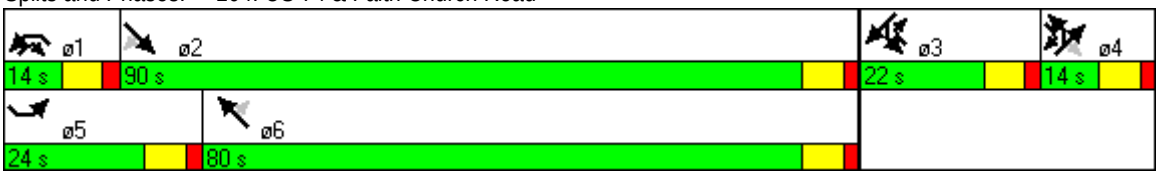
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	256	1623	24	39	2012	320	40	14	53	201	7	199
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.855	
Flt Protected	0.950			0.950				0.965		0.950		
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	0	1682	1482	1770	1593	0
Flt Permitted	0.950			0.950				0.965		0.950		
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	0	1682	1482	1770	1593	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			15			35	
Link Distance (ft)		1177			2588			625			368	
Travel Time (s)		14.6			32.1			28.4			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	9%	9%	9%	2%	2%	2%
Adj. Flow (vph)	284	1803	27	43	2236	356	44	16	59	223	8	221
Shared Lane Traffic (%)												
Lane Group Flow (vph)	284	1803	27	43	2236	356	0	60	59	223	229	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	5	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	5	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Split		pm+ov	Split		
Protected Phases	5	2	4	1	6	3	4	4	1	3	3	
Permitted Phases			2			6			4			
Detector Phase	5	2	4	1	6	3	4	4	1	3	3	
Switch Phase												
Minimum Initial (s)	7.0	14.0	7.0	7.0	14.0	7.0	7.0	7.0	7.0	7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	21.0	14.0	14.0	21.0	14.0	14.0	14.0	14.0	14.0	14.0	
Total Split (s)	24.0	90.0	14.0	14.0	80.0	22.0	14.0	14.0	14.0	22.0	22.0	0.0
Total Split (%)	17.1%	64.3%	10.0%	10.0%	57.1%	15.7%	10.0%	10.0%	10.0%	15.7%	15.7%	0.0%
Maximum Green (s)	17.0	83.0	7.0	7.0	73.0	15.0	7.0	7.0	7.0	15.0	15.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	
Act Effct Green (s)	21.8	90.6	97.8	9.0	75.0	97.0		9.0	20.2	17.0	17.0	
Actuated g/C Ratio	0.16	0.65	0.70	0.06	0.54	0.69		0.06	0.14	0.12	0.12	
v/c Ratio	1.06	0.81	0.03	0.39	1.21	0.33		0.56	0.28	1.04	1.19	
Control Delay	127.5	24.1	4.0	73.5	132.3	9.6		83.3	55.2	130.0	175.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	127.5	24.1	4.0	73.5	132.3	9.6		83.3	55.2	130.0	175.3	
LOS	F	C	A	E	F	A		F	E	F	F	
Approach Delay		37.8			114.7			69.4			152.9	
Approach LOS		D			F			E			F	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green
Natural Cycle: 180
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.21
Intersection Signal Delay: 86.4 Intersection LOS: F
Intersection Capacity Utilization 105.0% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 104: US 74 & Faith Church Road



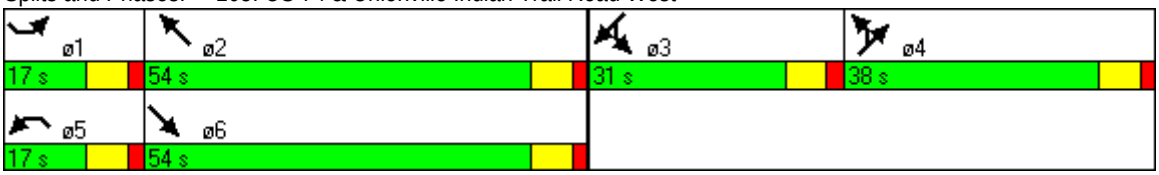
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	194	958	764	191	1288	248	705	95	131	312	173	328
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.933			0.976			0.913			0.902	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3208	0	1719	3356	0	1770	1701	0	1770	1680	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3208	0	1719	3356	0	1770	1701	0	1770	1680	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		606			973			698			813	
Travel Time (s)		7.5			12.1			10.6			12.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	216	1064	849	212	1431	276	783	106	146	347	192	364
Shared Lane Traffic (%)												
Lane Group Flow (vph)	216	1913	0	212	1707	0	783	252	0	347	556	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Split			Split		
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases												
Detector Phase	1	6		5	2		4	4		3	3	
Switch Phase												
Minimum Initial (s)	7.0	14.0		7.0	14.0		7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	21.0		14.0	21.0		14.0	14.0		14.0	14.0	
Total Split (s)	17.0	54.0	0.0	17.0	54.0	0.0	38.0	38.0	0.0	31.0	31.0	0.0
Total Split (%)	12.1%	38.6%	0.0%	12.1%	38.6%	0.0%	27.1%	27.1%	0.0%	22.1%	22.1%	0.0%
Maximum Green (s)	10.0	47.0		10.0	47.0		31.0	31.0		24.0	24.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	12.0	49.0		12.0	49.0		33.0	33.0		26.0	26.0	
Actuated g/C Ratio	0.09	0.35		0.09	0.35		0.24	0.24		0.19	0.19	
v/c Ratio	1.47	1.70		1.44	1.45		1.88	0.63		1.05	1.78	
Control Delay	286.9	350.6		276.4	243.0		434.1	56.0		118.5	397.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	286.9	350.6		276.4	243.0		434.1	56.0		118.5	397.3	
LOS	F	F		F	F		F	E		F	F	
Approach Delay		344.2			246.7			342.0			290.2	
Approach LOS		F			F			F			F	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 180
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.88
Intersection Signal Delay: 304.4 Intersection LOS: F
Intersection Capacity Utilization 146.5% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 105: US 74 & Unionville Indian Trail Road West

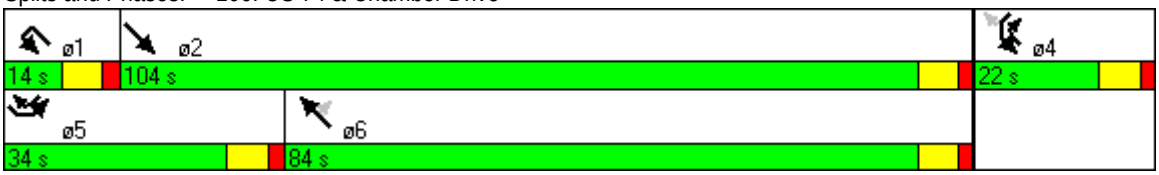


Lane Group	SEL	SET	NWU	NWT	NWR	SWL	SWR
Lane Configurations							
Volume (vph)	130	1213	10	1435	52	125	371
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Frt					0.850		0.850
Flt Protected	0.950		0.950			0.950	
Satd. Flow (prot)	1719	3438	1719	3438	1538	1770	1583
Flt Permitted	0.950		0.950			0.950	
Satd. Flow (perm)	1719	3438	1719	3438	1538	1770	1583
Right Turn on Red					No		No
Satd. Flow (RTOR)							
Link Speed (mph)		55		55		35	
Link Distance (ft)		2407		1378		1258	
Travel Time (s)		29.8		17.1		24.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	2%	2%
Adj. Flow (vph)	144	1348	11	1594	58	139	412
Shared Lane Traffic (%)							
Lane Group Flow (vph)	144	1348	11	1594	58	139	412
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Left	R NA	Left	Right	Left	Right
Median Width(ft)		12		12		12	
Link Offset(ft)		0		0		0	
Crosswalk Width(ft)		0		0		0	
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9		9	15	9
Number of Detectors	1	2	1	2	1	1	1
Detector Template	Left	Thru	Left	Thru	Right	Left	Right
Leading Detector (ft)	20	100	20	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94		94			
Detector 2 Size(ft)		6		6			
Detector 2 Type		Cl+Ex		Cl+Ex			
Detector 2 Channel							
Detector 2 Extend (s)		0.0		0.0			
Turn Type	Prot		Prot		pm+ov		pm+ov
Protected Phases	5	2	1	6	4	4	5
Permitted Phases					6		4
Detector Phase	5	2	1	6	4	4	5
Switch Phase							
Minimum Initial (s)	7.0	14.0	7.0	14.0	7.0	7.0	7.0

Lane Group	SEL	SET	NWU	NWT	NWR	SWL	SWR
Minimum Split (s)	14.0	21.0	14.0	21.0	14.0	14.0	14.0
Total Split (s)	34.0	104.0	14.0	84.0	22.0	22.0	34.0
Total Split (%)	24.3%	74.3%	10.0%	60.0%	15.7%	15.7%	24.3%
Maximum Green (s)	27.0	97.0	7.0	77.0	15.0	15.0	27.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag			Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	C-Max	None	None	None
Act Effct Green (s)	25.8	108.6	9.0	83.3	104.2	15.8	46.7
Actuated g/C Ratio	0.18	0.78	0.06	0.60	0.74	0.11	0.33
v/c Ratio	0.45	0.51	0.10	0.78	0.05	0.70	0.78
Control Delay	55.1	7.5	63.9	25.6	5.4	78.0	52.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.1	7.5	63.9	25.6	5.4	78.0	52.9
LOS	E	A	E	C	A	E	D
Approach Delay		12.1		25.2		59.2	
Approach LOS		B		C		E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay: 25.0		Intersection LOS: C	
Intersection Capacity Utilization 71.0%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 106: US 74 & Chamber Drive

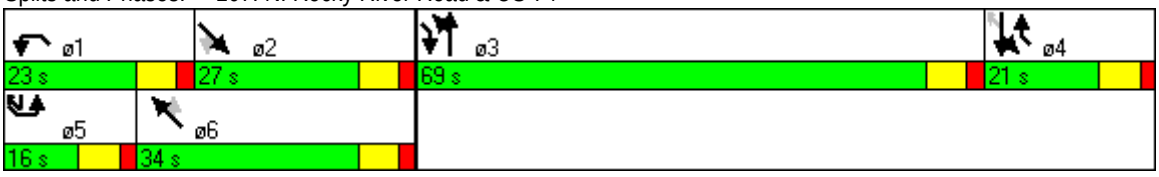


Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	772	111	424	207	97	267	177	538	446	313	687	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.956				0.850			0.850			0.850
Flt Protected		0.971			0.967		0.950			0.950		
Satd. Flow (prot)	0	1729	0	0	1801	1583	1719	3438	1538	1719	3438	1538
Flt Permitted		0.971			0.967		0.950			0.950		
Satd. Flow (perm)	0	1729	0	0	1801	1583	1719	3438	1538	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		1176			418			3021			3350	
Travel Time (s)		17.8			6.3			37.5			41.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	858	123	471	230	108	297	197	598	496	348	763	194
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1452	0	0	338	297	197	598	496	348	763	194
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	3	3		4	4	5	5	2	3	1	6	4
Permitted Phases						4			2			6
Detector Phase	3	3		4	4	5	5	2	3	1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	14.0	7.0	7.0	14.0	7.0

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0	14.0	14.0	21.0	14.0	14.0	21.0	14.0
Total Split (s)	69.0	69.0	0.0	21.0	21.0	16.0	16.0	27.0	69.0	23.0	34.0	21.0
Total Split (%)	49.3%	49.3%	0.0%	15.0%	15.0%	11.4%	11.4%	19.3%	49.3%	16.4%	24.3%	15.0%
Maximum Green (s)	62.0	62.0		14.0	14.0	9.0	9.0	20.0	62.0	16.0	27.0	14.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead		Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)		64.0			16.0	32.0	11.0	22.0	91.0	18.0	29.0	45.0
Actuated g/C Ratio		0.46			0.11	0.23	0.08	0.16	0.65	0.13	0.21	0.32
v/c Ratio		1.84			1.64	0.82	1.46	1.11	0.50	1.57	1.07	0.39
Control Delay		408.1			346.5	70.3	285.8	124.6	14.8	317.8	106.3	27.1
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		408.1			346.5	70.3	285.8	124.6	14.8	317.8	106.3	27.1
LOS		F			F	E	F	F	B	F	F	C
Approach Delay		408.1			217.3			107.0			150.9	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.84			
Intersection Signal Delay: 227.6		Intersection LOS: F	
Intersection Capacity Utilization 125.9%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 107: N. Rocky River Road & US 74

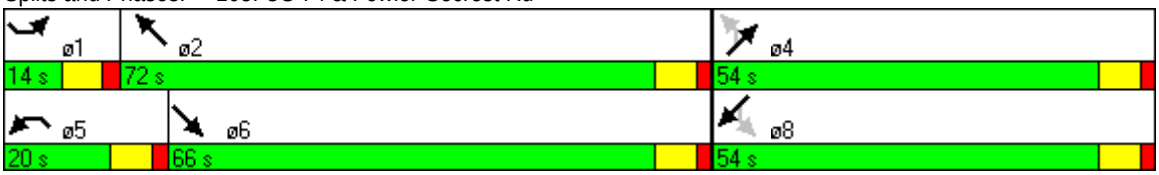


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	54	954	33	83	1191	138	29	66	58	173	120	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.984			0.949			0.970	
Flt Protected	0.950			0.950				0.991			0.978	
Satd. Flow (prot)	1719	3421	0	1719	3383	0	0	1752	0	0	1767	0
Flt Permitted	0.950			0.950				0.870			0.726	
Satd. Flow (perm)	1719	3421	0	1719	3383	0	0	1538	0	0	1312	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		2601			2354			277			1205	
Travel Time (s)		39.4			35.7			5.4			18.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	60	1060	37	92	1323	153	32	73	64	192	133	94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	60	1097	0	92	1476	0	0	169	0	0	419	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		
Detector Phase	1	6		5	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		21.0	21.0	
Total Split (s)	14.0	66.0	0.0	20.0	72.0	0.0	54.0	54.0	0.0	54.0	54.0	0.0
Total Split (%)	10.0%	47.1%	0.0%	14.3%	51.4%	0.0%	38.6%	38.6%	0.0%	38.6%	38.6%	0.0%
Maximum Green (s)	7.0	59.0		13.0	65.0		47.0	47.0		47.0	47.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	9.0	64.1		13.5	71.3			47.5			47.5	
Actuated g/C Ratio	0.06	0.46		0.10	0.51			0.34			0.34	
v/c Ratio	0.54	0.70		0.56	0.86			0.32			0.94	
Control Delay	81.8	34.0		73.2	37.4			35.9			75.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	81.8	34.0		73.2	37.4			35.9			75.2	
LOS	F	C		E	D			D			E	
Approach Delay		36.5			39.5			35.9			75.2	
Approach LOS		D			D			D			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 42.8		Intersection LOS: D	
Intersection Capacity Utilization 89.5%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 108: US 74 & Fowler-Secrest Rd



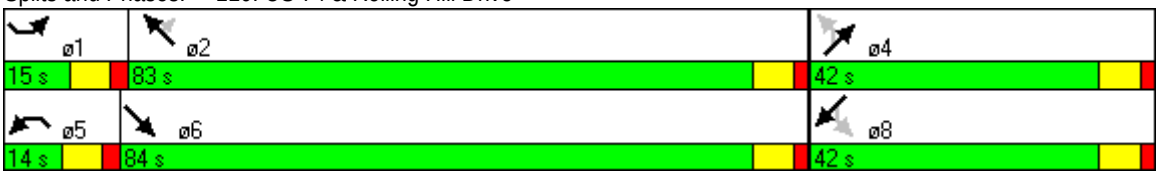
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	47	1101	123	16	1339	7	157	11	16	9	13	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.985				0.850		0.988			0.896	
Flt Protected	0.950			0.950				0.959			0.995	
Satd. Flow (prot)	1719	3387	0	1719	3438	1538	0	1765	0	0	1661	0
Flt Permitted	0.950			0.950				0.624			0.966	
Satd. Flow (perm)	1719	3387	0	1719	3438	1538	0	1148	0	0	1612	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		309			978			474			425	
Travel Time (s)		4.7			14.8			12.9			11.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	52	1223	137	18	1488	8	174	12	18	10	14	82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	52	1360	0	18	1488	8	0	204	0	0	106	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot		Perm	Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases						2	4			8		
Detector Phase	1	6		5	2	2	4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	12.0	7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0		14.0	19.0	19.0	14.0	14.0		14.0	14.0	
Total Split (s)	15.0	84.0	0.0	14.0	83.0	83.0	42.0	42.0	0.0	42.0	42.0	0.0
Total Split (%)	10.7%	60.0%	0.0%	10.0%	59.3%	59.3%	30.0%	30.0%	0.0%	30.0%	30.0%	0.0%
Maximum Green (s)	8.0	77.0		7.0	76.0	76.0	35.0	35.0		35.0	35.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		None	None	
Act Effct Green (s)	10.5	94.1		9.2	87.2	87.2		30.2			30.2	
Actuated g/C Ratio	0.08	0.67		0.07	0.62	0.62		0.22			0.22	
v/c Ratio	0.41	0.60		0.16	0.70	0.01		0.83			0.31	
Control Delay	71.5	16.2		65.2	21.9	13.6		77.6			46.9	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	
Total Delay	71.5	16.2		65.2	21.9	13.6		77.6			46.9	
LOS	E	B		E	C	B		E			D	
Approach Delay		18.3			22.4			77.6			46.9	
Approach LOS		B			C			E			D	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 24.9 Intersection LOS: C
Intersection Capacity Utilization 64.3% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 110: US 74 & Rolling Hill Drive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	125	10	113	72	10	79	84	919	133	150	1144	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.862			0.934			0.981				0.850
Flt Protected	0.950				0.978		0.950			0.950		
Satd. Flow (prot)	1770	1606	0	0	1702	0	1719	3373	0	1719	3438	1538
Flt Permitted	0.585				0.720		0.950			0.950		
Satd. Flow (perm)	1090	1606	0	0	1253	0	1719	3373	0	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		510			371			748			991	
Travel Time (s)		13.9			10.1			11.3			15.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	139	11	126	80	11	88	93	1021	148	167	1271	106
Shared Lane Traffic (%)												
Lane Group Flow (vph)	139	137	0	0	179	0	93	1169	0	167	1271	106
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm			Perm			Prot			Prot		Perm
Protected Phases		3			8		1	6		5	2	
Permitted Phases	3			8								2
Detector Phase	3	3		8	8		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	12.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0		14.0	19.0	19.0
Total Split (s)	39.0	39.0	0.0	39.0	39.0	0.0	20.0	73.0	0.0	28.0	81.0	81.0
Total Split (%)	27.9%	27.9%	0.0%	27.9%	27.9%	0.0%	14.3%	52.1%	0.0%	20.0%	57.9%	57.9%
Maximum Green (s)	32.0	32.0		32.0	32.0		13.0	66.0		21.0	74.0	74.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?								Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	Max		None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	34.0	34.0			34.0		13.5	71.2		19.8	77.5	77.5
Actuated g/C Ratio	0.24	0.24			0.24		0.10	0.51		0.14	0.55	0.55
v/c Ratio	0.52	0.35			0.59		0.56	0.68		0.69	0.67	0.12
Control Delay	54.3	47.0			55.9		73.4	29.0		71.6	24.6	15.9
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	54.3	47.0			55.9		73.4	29.0		71.6	24.6	15.9
LOS	D	D			E		E	C		E	C	B
Approach Delay		50.7			55.9			32.2			29.1	
Approach LOS		D			E			C			C	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 33.6 Intersection LOS: C
Intersection Capacity Utilization 71.5% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 111: Roland Drive & US 74

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	87	988	50	237	1196	96	33	22	129	123	51	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993				0.850		0.872				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3414	0	1719	3438	1538	1770	1624	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3414	0	1719	3438	1538	1770	1624	0	1770	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		822			734			281			279	
Travel Time (s)		12.5			11.1			5.5			7.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	97	1098	56	263	1329	107	37	24	143	137	57	149
Shared Lane Traffic (%)												
Lane Group Flow (vph)	97	1154	0	263	1329	107	37	167	0	137	57	149
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot		pm+ov	Split			Split		pm+ov
Protected Phases	1	6		5	2	8	4	4		8	8	1
Permitted Phases						2						8
Detector Phase	1	6		5	2	8	4	4		8	8	1
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	7.0	7.0	7.0		7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0		14.0	19.0	14.0	14.0	14.0		14.0	14.0	14.0
Total Split (s)	20.0	62.0	0.0	33.0	75.0	20.0	25.0	25.0	0.0	20.0	20.0	20.0
Total Split (%)	14.3%	44.3%	0.0%	23.6%	53.6%	14.3%	17.9%	17.9%	0.0%	14.3%	14.3%	14.3%
Maximum Green (s)	13.0	55.0		26.0	68.0	13.0	18.0	18.0		13.0	13.0	13.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	C-Max		None	C-Max	Max	None	None		Max	Max	Max
Act Effct Green (s)	15.0	59.0		26.0	70.0	86.2	18.8	18.8		16.2	16.2	36.2
Actuated g/C Ratio	0.11	0.42		0.19	0.50	0.62	0.13	0.13		0.12	0.12	0.26
v/c Ratio	0.53	0.80		0.82	0.77	0.11	0.16	0.77		0.67	0.26	0.36
Control Delay	70.3	41.1		75.5	32.4	6.1	54.6	80.8		76.3	60.9	46.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	70.3	41.1		75.5	32.4	6.1	54.6	80.8		76.3	60.9	46.1
LOS	E	D		E	C	A	D	F		E	E	D
Approach Delay		43.4			37.4			76.0			60.6	
Approach LOS		D			D			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 44.1		Intersection LOS: D	
Intersection Capacity Utilization 74.6%		ICU Level of Service D	
Analysis Period (min) 15			

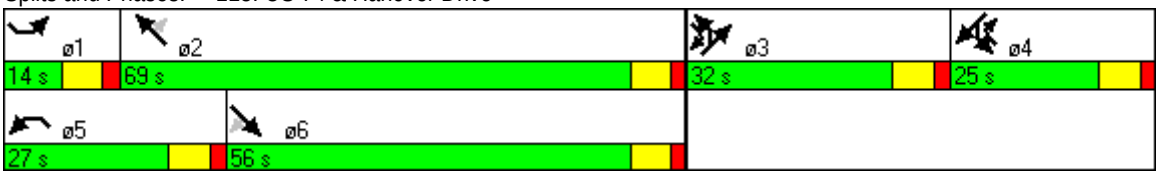
Splits and Phases: 112: US 74 & Williams Road

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	16	1145	98	256	1402	587	90	116	192	463	122	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850			0.850		0.907			0.983	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	1752	1673	0	3400	1813	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	1752	1673	0	3400	1813	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		338			529			376			313	
Travel Time (s)		5.1			8.0			7.3			8.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	18	1272	109	284	1558	652	100	129	213	514	136	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	18	1272	109	284	1558	652	100	342	0	514	153	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Split			Split		
Protected Phases	1	6	3	5	2	4	3	3		4	4	
Permitted Phases			6			2						
Detector Phase	1	6	3	5	2	4	3	3		4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0		14.0	14.0	
Total Split (s)	14.0	56.0	32.0	27.0	69.0	25.0	32.0	32.0	0.0	25.0	25.0	0.0
Total Split (%)	10.0%	40.0%	22.9%	19.3%	49.3%	17.9%	22.9%	22.9%	0.0%	17.9%	17.9%	0.0%
Maximum Green (s)	7.0	49.0	25.0	20.0	62.0	18.0	25.0	25.0		18.0	18.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Act Effct Green (s)	9.0	51.0	83.0	22.0	72.4	95.4	27.0	27.0		20.0	20.0	
Actuated g/C Ratio	0.06	0.36	0.59	0.16	0.52	0.68	0.19	0.19		0.14	0.14	
v/c Ratio	0.16	1.02	0.12	1.05	0.88	0.62	0.30	1.06		1.06	0.59	
Control Delay	65.6	73.3	12.9	124.6	37.5	15.0	51.2	119.6		113.2	66.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	65.6	73.3	12.9	124.6	37.5	15.0	51.2	119.6		113.2	66.4	
LOS	E	E	B	F	D	B	D	F		F	E	
Approach Delay		68.5			41.5			104.1			102.5	
Approach LOS		E			D			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 170			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.06			
Intersection Signal Delay: 62.7		Intersection LOS: E	
Intersection Capacity Utilization 93.6%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 113: US 74 & Hanover Drive

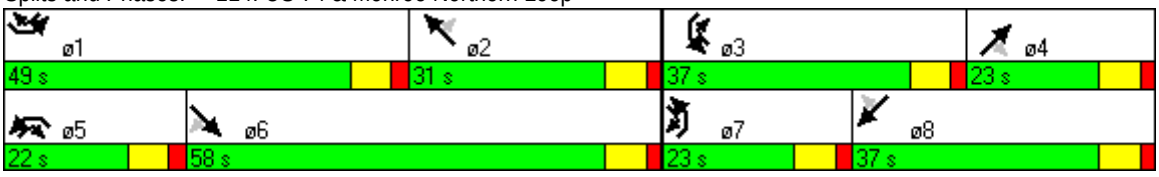


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	745	606	487	229	831	714	396	487	136	679	780	971
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3335	4940	1538	3335	4940	1538	3335	3438	1538	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	4940	1538	3335	4940	1538	3335	3438	1538	3433	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		858			915			405			209	
Travel Time (s)		13.0			13.9			7.9			3.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	2%	2%	2%
Adj. Flow (vph)	828	673	541	254	923	793	440	541	151	754	867	1079
Shared Lane Traffic (%)												
Lane Group Flow (vph)	828	673	541	254	923	793	440	541	151	754	867	1079
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	49.0	58.0	23.0	22.0	31.0	37.0	23.0	23.0	22.0	37.0	37.0	49.0
Total Split (%)	35.0%	41.4%	16.4%	15.7%	22.1%	26.4%	16.4%	16.4%	15.7%	26.4%	26.4%	35.0%
Maximum Green (s)	42.0	51.0	16.0	15.0	24.0	30.0	16.0	16.0	15.0	30.0	30.0	42.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	44.0	53.8	76.8	16.2	26.0	63.0	18.0	18.0	39.2	32.0	32.0	81.0
Actuated g/C Ratio	0.31	0.38	0.55	0.12	0.19	0.45	0.13	0.13	0.28	0.23	0.23	0.58
v/c Ratio	0.79	0.35	0.64	0.66	1.01	1.15	1.03	1.22	0.35	0.96	1.07	1.18
Control Delay	50.3	31.5	26.6	68.0	87.5	117.9	109.0	169.1	42.8	77.0	103.2	120.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.3	31.5	26.6	68.0	87.5	117.9	109.0	169.1	42.8	77.0	103.2	120.4
LOS	D	C	C	E	F	F	F	F	D	E	F	F
Approach Delay		37.8			97.2			128.9			102.7	
Approach LOS		D			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.22			
Intersection Signal Delay: 88.2		Intersection LOS: F	
Intersection Capacity Utilization 100.0%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 114: US 74 & Monroe Northern Loop



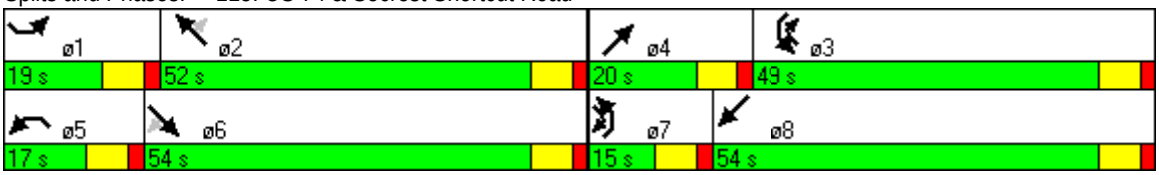
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	151	1201	57	157	1527	478	55	46	119	519	66	209
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.892			0.886	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	3335	4940	1538	1770	1662	0	1770	1650	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	3335	4940	1538	1770	1662	0	1770	1650	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		413			1354			238			233	
Travel Time (s)		6.3			20.5			6.5			4.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	168	1334	63	174	1697	531	61	51	132	577	73	232
Shared Lane Traffic (%)												
Lane Group Flow (vph)	168	1334	63	174	1697	531	61	183	0	577	305	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot			Prot		
Protected Phases	1	6	7	5	2	3	7	4		3	8	
Permitted Phases			6			2						
Detector Phase	1	6	7	5	2	3	7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	

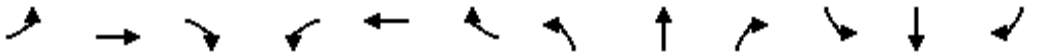
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0		14.0	14.0	
Total Split (s)	19.0	54.0	15.0	17.0	52.0	49.0	15.0	20.0	0.0	49.0	54.0	0.0
Total Split (%)	13.6%	38.6%	10.7%	12.1%	37.1%	35.0%	10.7%	14.3%	0.0%	35.0%	38.6%	0.0%
Maximum Green (s)	12.0	47.0	8.0	10.0	45.0	42.0	8.0	13.0		42.0	47.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Act Effct Green (s)	14.0	49.2	64.0	11.8	47.0	91.0	9.8	15.0		44.0	49.2	
Actuated g/C Ratio	0.10	0.35	0.46	0.08	0.34	0.65	0.07	0.11		0.31	0.35	
v/c Ratio	0.98	0.77	0.09	0.62	1.02	0.53	0.49	1.03		1.04	0.53	
Control Delay	124.8	44.0	22.1	72.0	73.8	8.8	76.7	134.9		94.7	40.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	124.8	44.0	22.1	72.0	73.8	8.8	76.7	134.9		94.7	40.2	
LOS	F	D	C	E	E	A	E	F		F	D	
Approach Delay		51.8			59.3			120.3			75.9	
Approach LOS		D			E			F			E	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.04
Intersection Signal Delay: 62.8 Intersection LOS: E
Intersection Capacity Utilization 93.0% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 115: US 74 & Secrest Shortcut Road





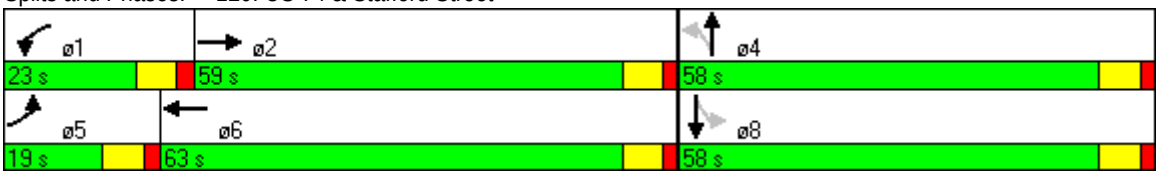
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	185	1636	151	225	2046	138	253	136	302	155	114	259
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.987			0.991			0.897			0.896	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4876	0	1719	4896	0	1770	1671	0	1770	1669	0
Flt Permitted	0.950			0.950			0.313			0.236		
Satd. Flow (perm)	1719	4876	0	1719	4896	0	583	1671	0	440	1669	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		443			590			549			636	
Travel Time (s)		6.7			8.9			15.0			12.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	206	1818	168	250	2273	153	281	151	336	172	127	288
Shared Lane Traffic (%)												
Lane Group Flow (vph)	206	1986	0	250	2426	0	281	487	0	172	415	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

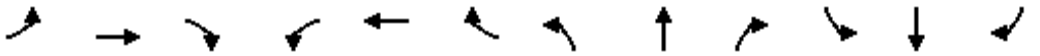
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	19.0	59.0	0.0	23.0	63.0	0.0	58.0	58.0	0.0	58.0	58.0	0.0
Total Split (%)	13.6%	42.1%	0.0%	16.4%	45.0%	0.0%	41.4%	41.4%	0.0%	41.4%	41.4%	0.0%
Maximum Green (s)	12.0	52.0		16.0	56.0		51.0	51.0		51.0	51.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	14.0	54.0		18.0	58.0		53.0	53.0		53.0	53.0	
Actuated g/C Ratio	0.10	0.39		0.13	0.41		0.38	0.38		0.38	0.38	
v/c Ratio	1.20	1.06		1.13	1.20		1.27	0.77		1.03	0.66	
Control Delay	183.6	78.8		153.7	130.3		189.6	47.8		120.9	42.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	183.6	78.8		153.7	130.3		189.6	47.8		120.9	42.0	
LOS	F	E		F	F		F	D		F	D	
Approach Delay		88.6			132.5			99.7			65.1	
Approach LOS		F			F			F			E	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 160
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.27
Intersection Signal Delay: 106.6 Intersection LOS: F
Intersection Capacity Utilization 105.4% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 120: US 74 & Stafford Street





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	78	1783	159	195	2182	53	117	10	117	107	10	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.988			0.996			0.862			0.857	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4881	0	1719	4920	0	1770	1606	0	1770	1596	0
Flt Permitted	0.950			0.950			0.372			0.561		
Satd. Flow (perm)	1719	4881	0	1719	4920	0	693	1606	0	1045	1596	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			20	
Link Distance (ft)		493			536			238			211	
Travel Time (s)		7.5			8.1			6.5			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	87	1981	177	217	2424	59	130	11	130	119	11	217
Shared Lane Traffic (%)												
Lane Group Flow (vph)	87	2158	0	217	2483	0	130	141	0	119	228	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	15.0	75.0	0.0	28.0	88.0	0.0	37.0	37.0	0.0	37.0	37.0	0.0
Total Split (%)	10.7%	53.6%	0.0%	20.0%	62.9%	0.0%	26.4%	26.4%	0.0%	26.4%	26.4%	0.0%
Maximum Green (s)	8.0	68.0		21.0	81.0		30.0	30.0		30.0	30.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	10.6	74.8		21.8	86.1		28.3	28.3		28.3	28.3	
Actuated g/C Ratio	0.08	0.53		0.16	0.62		0.20	0.20		0.20	0.20	
v/c Ratio	0.67	0.83		0.81	0.82		0.93	0.43		0.56	0.71	
Control Delay	87.4	31.8		79.8	24.7		112.7	52.2		60.1	63.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	87.4	31.8		79.8	24.7		112.7	52.2		60.1	63.7	
LOS	F	C		E	C		F	D		E	E	
Approach Delay		34.0			29.1			81.2			62.5	
Approach LOS		C			C			F			E	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 35.7 Intersection LOS: D
Intersection Capacity Utilization 84.9% ICU Level of Service E
Analysis Period (min) 15

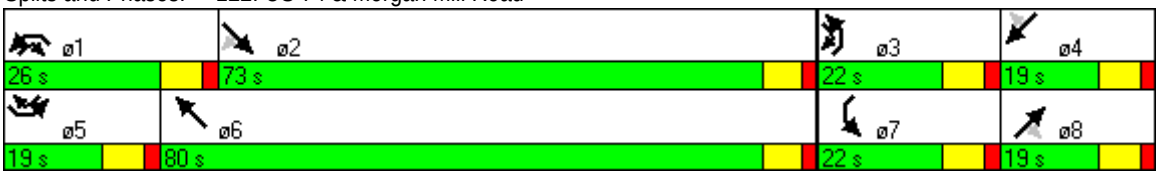
Splits and Phases: 121: US 74 & Boyte Street

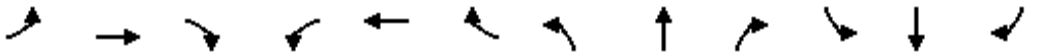
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	136	1684	180	142	2093	144	170	101	107	150	140	177
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.990				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	1719	4891	0	1687	1776	1509	1687	1776	1509
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	1719	4891	0	1687	1776	1509	1687	1776	1509
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		515			499			502			475	
Travel Time (s)		7.8			7.6			9.8			9.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	7%	7%	7%	7%	7%	7%
Adj. Flow (vph)	151	1871	200	158	2326	160	189	112	119	167	156	197
Shared Lane Traffic (%)												
Lane Group Flow (vph)	151	1871	200	158	2486	0	189	112	119	167	156	197
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot			Prot		pm+ov	Prot		pm+ov
Protected Phases	5	2	3	1	6		3	8	1	7	4	5
Permitted Phases			2						8			4
Detector Phase	5	2	3	1	6		3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0		7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0		14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	19.0	73.0	22.0	26.0	80.0	0.0	22.0	19.0	26.0	22.0	19.0	19.0
Total Split (%)	13.6%	52.1%	15.7%	18.6%	57.1%	0.0%	15.7%	13.6%	18.6%	15.7%	13.6%	13.6%
Maximum Green (s)	12.0	66.0	15.0	19.0	73.0		15.0	12.0	19.0	15.0	12.0	12.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max		None	None	None	None	None	None
Act Effct Green (s)	14.0	70.4	92.4	18.6	75.0		17.0	14.3	37.9	16.7	14.0	33.0
Actuated g/C Ratio	0.10	0.50	0.66	0.13	0.54		0.12	0.10	0.27	0.12	0.10	0.24
v/c Ratio	0.88	0.75	0.20	0.69	0.95		0.92	0.62	0.29	0.83	0.88	0.55
Control Delay	104.3	30.7	10.3	73.6	40.1		105.7	75.7	42.1	91.4	103.1	53.9
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	104.3	30.7	10.3	73.6	40.1		105.7	75.7	42.1	91.4	103.1	53.9
LOS	F	C	B	E	D		F	E	D	F	F	D
Approach Delay		33.8			42.1			79.7			80.7	
Approach LOS		C			D			E			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.95			
Intersection Signal Delay: 45.1		Intersection LOS: D	
Intersection Capacity Utilization 84.6%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 122: US 74 & Morgan Mill Road





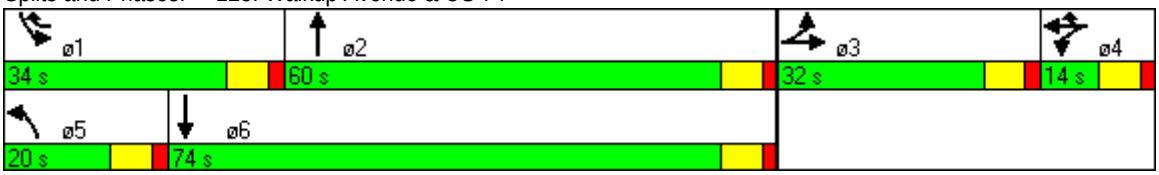
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	89	188	92	31	135	348	91	1913	43	382	1514	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.966				0.850		0.997			0.993	
Flt Protected		0.988		0.950			0.950			0.950		
Satd. Flow (prot)	0	1778	0	1770	1863	1583	1719	4925	0	1719	4905	0
Flt Permitted		0.988		0.950			0.950			0.950		
Satd. Flow (perm)	0	1778	0	1770	1863	1583	1719	4925	0	1719	4905	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		443			502			602			356	
Travel Time (s)		12.1			9.8			9.1			5.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	99	209	102	34	150	387	101	2126	48	424	1682	77
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	410	0	34	150	387	101	2174	0	424	1759	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pt+ov	Prot			Prot		
Protected Phases	3	3		4	4	4 1	5	2		1	6	
Permitted Phases												
Detector Phase	3	3		4	4	4 1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0		14.0	19.0	
Total Split (s)	32.0	32.0	0.0	14.0	14.0	48.0	20.0	60.0	0.0	34.0	74.0	0.0
Total Split (%)	22.9%	22.9%	0.0%	10.0%	10.0%	34.3%	14.3%	42.9%	0.0%	24.3%	52.9%	0.0%
Maximum Green (s)	25.0	25.0		7.0	7.0		13.0	53.0		27.0	67.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lead		Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)		27.0		9.0	9.0	43.0	13.7	55.0		29.0	70.3	
Actuated g/C Ratio		0.19		0.06	0.06	0.31	0.10	0.39		0.21	0.50	
v/c Ratio		1.20		0.30	1.25	0.80	0.60	1.12		1.19	0.71	
Control Delay		160.5		69.7	215.0	58.0	75.3	102.5		157.5	29.4	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		160.5		69.7	215.0	58.0	75.3	102.5		157.5	29.4	
LOS		F		E	F	E	E	F		F	C	
Approach Delay		160.5			99.9			101.3			54.2	
Approach LOS		F			F			F			D	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 170
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.25
Intersection Signal Delay: 86.7 Intersection LOS: F
Intersection Capacity Utilization 103.3% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 123: Walkup Avenue & US 74

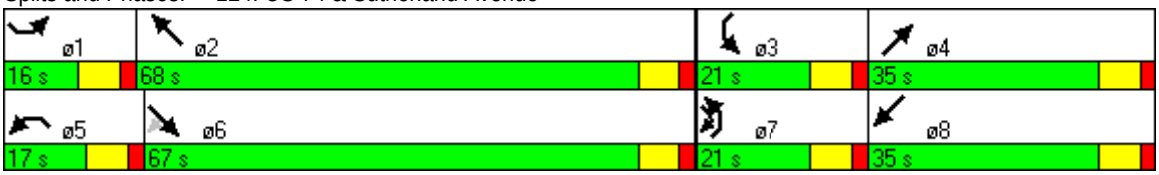


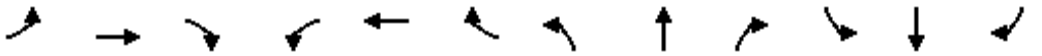
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	115	1370	211	66	1713	208	169	235	43	139	244	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.984			0.977			0.958	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	1719	4861	0	1752	1802	0	1752	1767	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	1719	4861	0	1752	1802	0	1752	1767	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		425			487			426			331	
Travel Time (s)		6.4			7.4			11.6			6.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	128	1522	234	73	1903	231	188	261	48	154	271	107
Shared Lane Traffic (%)												
Lane Group Flow (vph)	128	1522	234	73	2134	0	188	309	0	154	378	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot			Prot			Prot		
Protected Phases	1	6	7	5	2		7	4		3	8	
Permitted Phases			6									
Detector Phase	1	6	7	5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	16.0	67.0	21.0	17.0	68.0	0.0	21.0	35.0	0.0	21.0	35.0	0.0
Total Split (%)	11.4%	47.9%	15.0%	12.1%	48.6%	0.0%	15.0%	25.0%	0.0%	15.0%	25.0%	0.0%
Maximum Green (s)	9.0	60.0	14.0	10.0	61.0		14.0	28.0		14.0	28.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes			Yes			Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max		None	None		None	None	
Act Effct Green (s)	11.0	65.5	86.5	11.3	63.0		16.0	30.4		15.6	30.0	
Actuated g/C Ratio	0.08	0.47	0.62	0.08	0.45		0.11	0.22		0.11	0.21	
v/c Ratio	0.95	0.66	0.25	0.53	0.98		0.94	0.79		0.79	1.00	
Control Delay	127.9	31.2	13.7	75.7	52.1		110.6	67.4		87.7	100.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	127.9	31.2	13.7	75.7	52.1		110.6	67.4		87.7	100.1	
LOS	F	C	B	E	D		F	E		F	F	
Approach Delay		35.6			52.9			83.7			96.5	
Approach LOS		D			D			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.00			
Intersection Signal Delay: 54.0		Intersection LOS: D	
Intersection Capacity Utilization 88.8%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 124: US 74 & Sutherland Avenue





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	2	36	24	23	52	114	56	1797	38	151	1457	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.940			0.897				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1751	0	1770	1671	0	1719	4940	1538	1719	4940	1538
Flt Permitted	0.394			0.713			0.950			0.950		
Satd. Flow (perm)	734	1751	0	1328	1671	0	1719	4940	1538	1719	4940	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		163			218			356			257	
Travel Time (s)		5.6			4.2			5.4			3.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	2	40	27	26	58	127	62	1997	42	168	1619	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	67	0	26	185	0	62	1997	42	168	1619	4
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm			Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	12.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	19.0
Total Split (s)	32.0	32.0	0.0	32.0	32.0	0.0	15.0	78.0	78.0	30.0	93.0	93.0
Total Split (%)	22.9%	22.9%	0.0%	22.9%	22.9%	0.0%	10.7%	55.7%	55.7%	21.4%	66.4%	66.4%
Maximum Green (s)	25.0	25.0		25.0	25.0		8.0	71.0	71.0	23.0	86.0	86.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	22.1	22.1		22.1	22.1		10.7	82.5	82.5	20.4	95.0	95.0
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.08	0.59	0.59	0.15	0.68	0.68
v/c Ratio	0.02	0.24		0.12	0.70		0.47	0.69	0.05	0.67	0.48	0.00
Control Delay	47.0	52.4		49.9	69.8		74.2	22.6	14.9	69.6	12.5	9.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.0	52.4		49.9	69.8		74.2	22.6	14.9	69.6	12.5	9.8
LOS	D	D		D	E		E	C	B	E	B	A
Approach Delay		52.2			67.4			24.0			17.8	
Approach LOS		D			E			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay: 24.0		Intersection LOS: C	
Intersection Capacity Utilization 65.3%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 125: Dove Street & US 74

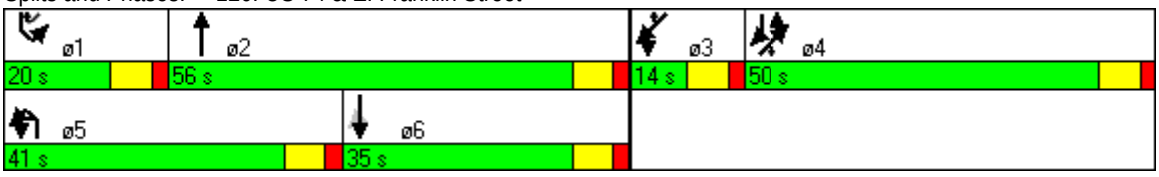
Lane Group	NBU	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT
Lane Configurations												
Volume (vph)	35	984	1422	127	128	1082	255	355	84	1043	129	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.86	0.97	0.86	0.86	1.00	0.91	1.00	1.00	1.00	0.88	1.00	1.00
Frt			0.988				0.850			0.850		
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	3335	6150	0	1719	4940	1538	1752	1845	2760	1752	1845
Flt Permitted		0.950			0.950			0.950			0.950	
Satd. Flow (perm)	0	3335	6150	0	1719	4940	1538	1752	1845	2760	1752	1845
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			45			35			20
Link Distance (ft)			341			436			391			335
Travel Time (s)			5.2			6.6			7.6			11.4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%
Adj. Flow (vph)	39	1093	1580	141	142	1202	283	394	93	1159	143	89
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1132	1721	0	142	1202	283	394	93	1159	143	89
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			24			24			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1	1	2		1	2	1	1	2	1	1	2
Detector Template	Left	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru
Leading Detector (ft)	20	20	100		20	100	20	20	100	20	20	100
Trailing Detector (ft)	0	0	0		0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0		0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	6		20	6	20	20	6	20	20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94			94			94			94
Detector 2 Size(ft)			6			6			6			6
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			0.0
Turn Type	Prot	Prot			Prot		pm+ov	Split		Prot	Split	
Protected Phases	5	5	2		1	6	4	4	4	4	3	3
Permitted Phases							6					
Detector Phase	5	5	2		1	6	4	4	4	4	3	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	12.0		7.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SWR
Lane Configurations	
Volume (vph)	171
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1568
Flt Permitted	
Satd. Flow (perm)	1568
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	3%
Adj. Flow (vph)	190
Shared Lane Traffic (%)	
Lane Group Flow (vph)	190
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	pt+ov
Protected Phases	3 1
Permitted Phases	
Detector Phase	3 1
Switch Phase	
Minimum Initial (s)	

Lane Group	NBU	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT
Minimum Split (s)	14.0	14.0	19.0		14.0	19.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	41.0	41.0	56.0	0.0	20.0	35.0	50.0	50.0	50.0	50.0	14.0	14.0
Total Split (%)	29.3%	29.3%	40.0%	0.0%	14.3%	25.0%	35.7%	35.7%	35.7%	35.7%	10.0%	10.0%
Maximum Green (s)	34.0	34.0	49.0		13.0	28.0	43.0	43.0	43.0	43.0	7.0	7.0
Yellow Time (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag		Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max		None	C-Max	None	None	None	None	None	None
Act Effct Green (s)		36.0	51.3		14.7	30.0	75.0	45.0	45.0	45.0	9.0	9.0
Actuated g/C Ratio		0.26	0.37		0.10	0.21	0.54	0.32	0.32	0.32	0.06	0.06
v/c Ratio		1.32	0.76		0.79	1.14	0.34	0.70	0.16	1.31	1.27	0.75
Control Delay		192.8	41.8		90.0	121.6	12.2	49.4	34.9	184.7	222.6	98.8
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		192.8	41.8		90.0	121.6	12.2	49.4	34.9	184.7	222.6	98.8
LOS		F	D		F	F	B	D	C	F	F	F
Approach Delay			101.7			99.8			143.9			117.3
Approach LOS			F			F			F			F

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 160			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.32			
Intersection Signal Delay: 112.8		Intersection LOS: F	
Intersection Capacity Utilization 110.3%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 126: US 74 & E. Franklin Street



Lane Group	SWR
Minimum Split (s)	
Total Split (s)	34.0
Total Split (%)	24.3%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Act Effct Green (s)	23.7
Actuated g/C Ratio	0.17
v/c Ratio	0.72
Control Delay	46.7
Queue Delay	0.0
Total Delay	46.7
LOS	D
Approach Delay	
Approach LOS	

Intersection Summary

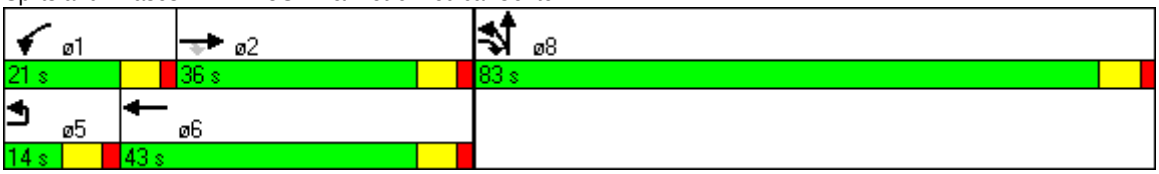
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	10	0	1122	932	218	1294	33	1525	0	332	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.91	0.91	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor					0.90							
Frt				0.850		0.996			0.945			
Flt Protected	0.950				0.950			0.950	0.969			
Satd. Flow (prot)	1719	0	4940	1538	1736	4968	0	1504	1450	0	0	0
Flt Permitted	0.950				0.950			0.950	0.969			
Satd. Flow (perm)	1719	0	4940	1538	1554	4968	0	1504	1450	0	0	0
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			55			45			25
Link Distance (ft)			239			375			459			142
Travel Time (s)			3.6			4.6			7.0			3.9
Confl. Peds. (#/hr)					218							
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	4%	4%	4%	14%	14%	14%	2%	2%
Adj. Flow (vph)	11	0	1247	1036	242	1438	37	1694	0	369	0	0
Shared Lane Traffic (%)								38%				
Lane Group Flow (vph)	11	0	1247	1036	242	1475	0	1050	1013	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			12			12			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1		2	1	1	2		1	2			
Detector Template	Left		Thru	Right	Left	Thru		Left	Thru			
Leading Detector (ft)	20		100	20	20	100		20	100			
Trailing Detector (ft)	0		0	0	0	0		0	0			
Detector 1 Position(ft)	0		0	0	0	0		0	0			
Detector 1 Size(ft)	20		6	20	20	6		20	6			
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 2 Position(ft)			94			94			94			
Detector 2 Size(ft)			6			6			6			
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			
Turn Type	Prot			pm+ov	Prot			Split				
Protected Phases	5		2	8	1	6		8	8			
Permitted Phases				2								
Detector Phase	5		2	8	1	6		8	8			

Lane Group	SBR
Lane Configurations	
Volume (vph)	53
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	0.865
Flt Protected	
Satd. Flow (prot)	1611
Flt Permitted	
Satd. Flow (perm)	1611
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	2%
Adj. Flow (vph)	59
Shared Lane Traffic (%)	
Lane Group Flow (vph)	59
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Detector Phase	

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Switch Phase												
Minimum Initial (s)	7.0		12.0	12.0	7.0	14.0		12.0	12.0			
Minimum Split (s)	14.0		19.0	19.0	14.0	21.0		19.0	19.0			
Total Split (s)	14.0	0.0	36.0	83.0	21.0	43.0	0.0	83.0	83.0	0.0	0.0	0.0
Total Split (%)	10.0%	0.0%	25.7%	59.3%	15.0%	30.7%	0.0%	59.3%	59.3%	0.0%	0.0%	0.0%
Maximum Green (s)	7.0		29.0	76.0	14.0	36.0		76.0	76.0			
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0		5.0	5.0			
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0		2.0	2.0			
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	2.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	2.0	2.0
Lead/Lag	Lead		Lag		Lead	Lag						
Lead-Lag Optimize?			Yes			Yes						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0		3.0	3.0			
Recall Mode	None		C-Max	None	None	C-Max		None	None			
Act Effct Green (s)	9.0		31.0	114.0	16.0	46.4		78.0	78.0			
Actuated g/C Ratio	0.06		0.22	0.81	0.11	0.33		0.56	0.56			
v/c Ratio	0.10		1.14	0.83	1.22	0.90		1.25	1.25			
Control Delay	63.9		122.6	14.8	186.7	52.7		153.1	153.7			
Queue Delay	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Total Delay	63.9		122.6	14.8	186.7	52.7		153.1	153.7			
LOS	E		F	B	F	D		F	F			
Approach Delay			73.6			71.6			153.4			
Approach LOS			E			E			F			

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 170			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.25			
Intersection Signal Delay: 99.2		Intersection LOS: F	
Intersection Capacity Utilization 98.6%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 127: US 74 & Metro Medical Center



Lane Group	SBR
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	0.0
Total Split (%)	0.0%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	2.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Act Effct Green (s)	140.0
Actuated g/C Ratio	1.00
v/c Ratio	0.04
Control Delay	0.0
Queue Delay	0.0
Total Delay	0.0
LOS	A
Approach Delay	
Approach LOS	

Intersection Summary

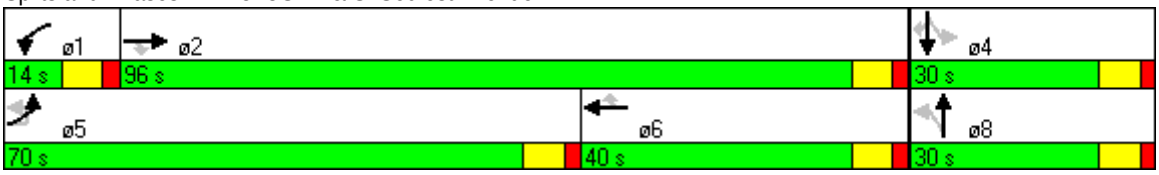
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	27	300	1062	36	9	1335	249	47	238	9	109	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850			0.850		0.996			
Flt Protected		0.950			0.950				0.992			0.974
Satd. Flow (prot)	0	1736	3471	1553	1736	3471	1553	0	1840	0	0	1814
Flt Permitted		0.062			0.950				0.508			0.335
Satd. Flow (perm)	0	113	3471	1553	1736	3471	1553	0	942	0	0	624
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			55			55			35			35
Link Distance (ft)			411			374			242			283
Travel Time (s)			5.1			4.6			4.7			5.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%
Adj. Flow (vph)	30	333	1180	40	10	1483	277	52	264	10	121	110
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	363	1180	40	10	1483	277	0	326	0	0	231
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			12			12			0			0
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1	1	2	1	1	2	1	1	2		1	2
Detector Template	Left	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru
Leading Detector (ft)	20	20	100	20	20	100	20	20	100		20	100
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0		0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0		0	0
Detector 1 Size(ft)	20	20	6	20	20	6	20	20	6		20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)			94			94			94			94
Detector 2 Size(ft)			6			6			6			6
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			0.0
Turn Type	custom	Prot		Perm	Prot		Perm	Perm			Perm	
Protected Phases		5	2		1	6			8			4
Permitted Phases	5			2			6	8			4	
Detector Phase	5	5	2	2	1	6	6	8	8		4	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	14.0	14.0	7.0	14.0	14.0	7.0	7.0		7.0	7.0

Lane Group	SBR
Lane Configurations	
Volume (vph)	165
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	2%
Adj. Flow (vph)	183
Shared Lane Traffic (%)	
Lane Group Flow (vph)	183
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Detector Phase	4
Switch Phase	
Minimum Initial (s)	7.0

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Minimum Split (s)	14.0	14.0	21.0	21.0	14.0	21.0	21.0	14.0	14.0		14.0	14.0
Total Split (s)	70.0	70.0	96.0	96.0	14.0	40.0	40.0	30.0	30.0	0.0	30.0	30.0
Total Split (%)	50.0%	50.0%	68.6%	68.6%	10.0%	28.6%	28.6%	21.4%	21.4%	0.0%	21.4%	21.4%
Maximum Green (s)	63.0	63.0	89.0	89.0	7.0	33.0	33.0	23.0	23.0		23.0	23.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Time Before Reduce (s)	0.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0	0.0		0.0	0.0
Time To Reduce (s)	0.0	0.0	50.0	50.0	0.0	50.0	50.0	0.0	0.0		0.0	0.0
Recall Mode	None	None	C-Min	C-Min	None	C-Min	C-Min	None	None		None	None
Act Effct Green (s)		65.0	102.2	102.2	9.0	35.0	35.0		25.0			25.0
Actuated g/C Ratio		0.46	0.73	0.73	0.06	0.25	0.25		0.18			0.18
v/c Ratio		6.98	0.47	0.04	0.09	1.71	0.71		1.94			2.08
Control Delay		2739.3	9.0	6.4	63.7	356.3	59.5		474.5			544.2
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0
Total Delay		2739.3	9.0	6.4	63.7	356.3	59.5		474.5			544.2
LOS		F	A	A	E	F	E		F			F
Approach Delay			635.0			308.2			474.5			332.4
Approach LOS			F			F			F			F

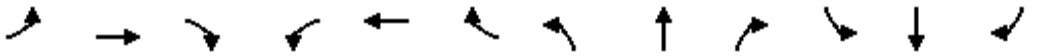
Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 6.98			
Intersection Signal Delay: 450.3		Intersection LOS: F	
Intersection Capacity Utilization 97.6%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 128: US 74 & S. Secrest Avenue



Lane Group	SBR
Minimum Split (s)	14.0
Total Split (s)	30.0
Total Split (%)	21.4%
Maximum Green (s)	23.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Minimum Gap (s)	3.0
Time Before Reduce (s)	0.0
Time To Reduce (s)	0.0
Recall Mode	None
Act Effct Green (s)	25.0
Actuated g/C Ratio	0.18
v/c Ratio	0.65
Control Delay	65.1
Queue Delay	0.0
Total Delay	65.1
LOS	E
Approach Delay	
Approach LOS	

Intersection Summary

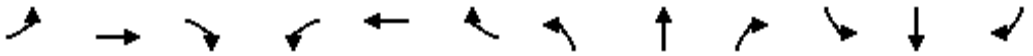


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	109	1120	32	6	1389	101	20	18	3	59	20	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.990			0.991				0.850
Flt Protected	0.950			0.950				0.976			0.964	
Satd. Flow (prot)	1736	3457	0	1736	3436	0	0	1802	0	0	1796	1583
Flt Permitted	0.950			0.950				0.767			0.790	
Satd. Flow (perm)	1736	3457	0	1736	3436	0	0	1416	0	0	1472	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			20			25	
Link Distance (ft)		245			259			179			276	
Travel Time (s)		4.8			5.0			6.1			7.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	121	1244	36	7	1543	112	22	20	3	66	22	88
Shared Lane Traffic (%)												
Lane Group Flow (vph)	121	1280	0	7	1655	0	0	45	0	0	88	88
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		pm+ov
Protected Phases	5	2		1	6			8			4	5
Permitted Phases							8			4		4
Detector Phase	5	2		1	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	17.0		14.0	17.0		14.0	14.0		14.0	14.0	14.0
Total Split (s)	24.0	106.0	0.0	14.0	96.0	0.0	20.0	20.0	0.0	20.0	20.0	24.0
Total Split (%)	17.1%	75.7%	0.0%	10.0%	68.6%	0.0%	14.3%	14.3%	0.0%	14.3%	14.3%	17.1%
Maximum Green (s)	17.0	99.0		7.0	89.0		13.0	13.0		13.0	13.0	17.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None
Act Effct Green (s)	16.3	112.8		9.0	94.3			14.4			14.4	35.7
Actuated g/C Ratio	0.12	0.81		0.06	0.67			0.10			0.10	0.26
v/c Ratio	0.60	0.46		0.06	0.71			0.31			0.58	0.22
Control Delay	71.0	5.5		63.0	17.4			63.2			75.1	41.2
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Delay	71.0	5.5		63.0	17.4			63.2			75.1	41.2
LOS	E	A		E	B			E			E	D
Approach Delay		11.1			17.6			63.2			58.2	
Approach LOS		B			B			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 17.6		Intersection LOS: B	
Intersection Capacity Utilization 69.1%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 129: US 74 & Bivens Street

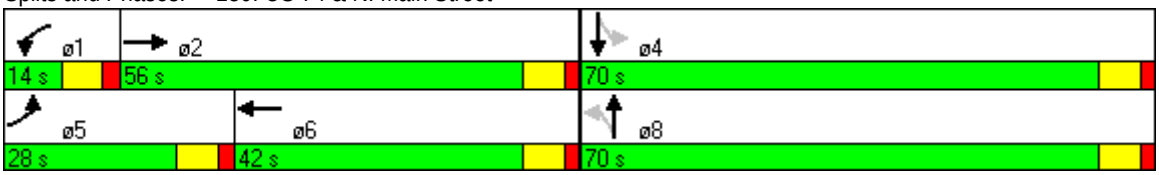


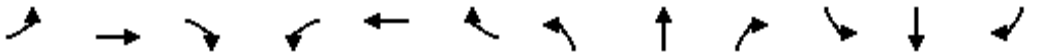
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	376	806	43	52	1029	102	54	374	51	77	284	361
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992			0.987			0.986			0.916	
Flt Protected	0.950			0.950				0.994		0.950		
Satd. Flow (prot)	1736	3443	0	1736	3426	0	0	1826	0	1770	1706	0
Flt Permitted	0.950			0.950				0.406		0.368		
Satd. Flow (perm)	1736	3443	0	1736	3426	0	0	746	0	685	1706	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		282			333			173			197	
Travel Time (s)		5.5			6.5			3.4			3.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	418	896	48	58	1143	113	60	416	57	86	316	401
Shared Lane Traffic (%)												
Lane Group Flow (vph)	418	944	0	58	1256	0	0	533	0	86	717	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	17.0		14.0	17.0		14.0	14.0		14.0	14.0	
Total Split (s)	28.0	56.0	0.0	14.0	42.0	0.0	70.0	70.0	0.0	70.0	70.0	0.0
Total Split (%)	20.0%	40.0%	0.0%	10.0%	30.0%	0.0%	50.0%	50.0%	0.0%	50.0%	50.0%	0.0%
Maximum Green (s)	21.0	49.0		7.0	35.0		63.0	63.0		63.0	63.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	None		None	None		None	None	
Act Effct Green (s)	23.0	53.8		9.0	37.0			65.0		65.0	65.0	
Actuated g/C Ratio	0.16	0.38		0.06	0.26			0.46		0.46	0.46	
v/c Ratio	1.47	0.71		0.52	1.39			1.54		0.27	0.91	
Control Delay	268.5	41.0		80.2	220.2			286.7		25.9	51.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	268.5	41.0		80.2	220.2			286.7		25.9	51.2	
LOS	F	D		F	F			F		C	D	
Approach Delay		110.8			214.0			286.7			48.5	
Approach LOS		F			F			F			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT, Start of Green			
Natural Cycle: 170			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.54			
Intersection Signal Delay: 155.5		Intersection LOS: F	
Intersection Capacity Utilization 132.0%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 130: US 74 & N. Main Street





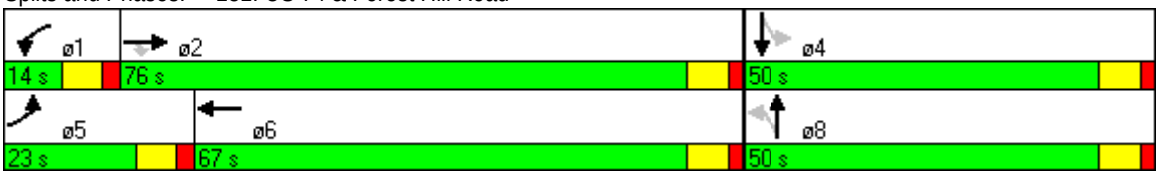
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	93	733	112	33	904	10	121	26	29	11	30	118
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.998			0.978			0.900	
Flt Protected	0.950			0.950				0.967			0.997	
Satd. Flow (prot)	1736	3471	1553	1736	3464	0	0	1679	0	0	1639	0
Flt Permitted	0.950			0.950				0.551			0.973	
Satd. Flow (perm)	1736	3471	1553	1736	3464	0	0	957	0	0	1600	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			35	
Link Distance (ft)		576			646			376			353	
Travel Time (s)		7.1			8.0			4.7			6.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	7%	7%	7%	4%	4%	4%
Adj. Flow (vph)	103	814	124	37	1004	11	134	29	32	12	33	131
Shared Lane Traffic (%)												
Lane Group Flow (vph)	103	814	124	37	1015	0	0	195	0	0	176	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		Perm	Prot			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8			4		
Detector Phase	5	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	14.0	14.0	7.0	14.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	21.0	21.0	14.0	21.0		14.0	14.0		14.0	14.0	
Total Split (s)	23.0	76.0	76.0	14.0	67.0	0.0	50.0	50.0	0.0	50.0	50.0	0.0
Total Split (%)	16.4%	54.3%	54.3%	10.0%	47.9%	0.0%	35.7%	35.7%	0.0%	35.7%	35.7%	0.0%
Maximum Green (s)	16.0	69.0	69.0	7.0	60.0		43.0	43.0		43.0	43.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	
Act Effct Green (s)	15.6	84.1	84.1	10.7	76.4			33.0			33.0	
Actuated g/C Ratio	0.11	0.60	0.60	0.08	0.55			0.24			0.24	
v/c Ratio	0.53	0.39	0.13	0.28	0.54			0.87			0.47	
Control Delay	68.1	17.5	15.8	65.7	23.9			83.5			48.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Delay	68.1	17.5	15.8	65.7	23.9			83.5			48.5	
LOS	E	B	B	E	C			F			D	
Approach Delay		22.3			25.3			83.5			48.5	
Approach LOS		C			C			F			D	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 30.3 Intersection LOS: C
Intersection Capacity Utilization 67.1% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 131: US 74 & Forest Hill Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	531	66	294	241	35	80	138	4348	482	212	3454	330
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1719	3438	1538	1719	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	1719	3438	1538	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			45			55			55	
Link Distance (ft)		1096			1168			1536			3465	
Travel Time (s)		21.4			17.7			19.0			43.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	590	73	327	268	39	89	153	4831	536	236	3838	367
Shared Lane Traffic (%)												
Lane Group Flow (vph)	590	73	327	268	39	89	153	4831	536	236	3838	367
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	1	6	7	5	2	3
Permitted Phases			4			8			6			2
Detector Phase	7	4	5	3	8	1	1	6	7	5	2	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	14.0	7.0	7.0	14.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0	14.0	14.0	21.0	14.0	14.0	21.0	14.0
Total Split (s)	21.0	14.0	18.0	21.0	14.0	15.0	15.0	87.0	21.0	18.0	90.0	21.0
Total Split (%)	15.0%	10.0%	12.9%	15.0%	10.0%	10.7%	10.7%	62.1%	15.0%	12.9%	64.3%	15.0%
Maximum Green (s)	14.0	7.0	11.0	14.0	7.0	8.0	8.0	80.0	14.0	11.0	83.0	14.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	16.0	9.0	27.0	16.0	9.0	24.0	12.8	82.0	103.0	15.8	85.0	106.0
Actuated g/C Ratio	0.11	0.06	0.19	0.11	0.06	0.17	0.09	0.59	0.74	0.11	0.61	0.76
v/c Ratio	1.51	0.32	1.07	0.68	0.17	0.33	0.97	2.40	0.47	1.22	1.84	0.32
Control Delay	281.0	66.6	124.5	69.2	63.9	54.8	127.0	650.6	9.2	184.0	402.4	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	281.0	66.6	124.5	69.2	63.9	54.8	127.0	650.6	9.2	184.0	402.4	6.2
LOS	F	E	F	E	E	D	F	F	A	F	F	A
Approach Delay		213.5			65.5			573.8			358.1	
Approach LOS		F			E			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 2.40			
Intersection Signal Delay: 440.2		Intersection LOS: F	
Intersection Capacity Utilization 166.3%		ICU Level of Service H	
Analysis Period (min) 15			

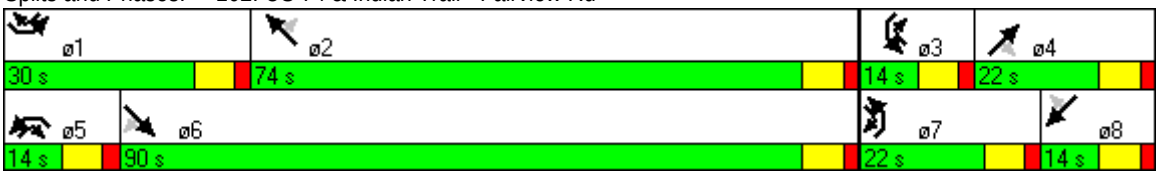
Splits and Phases: 101: Stallings Road & US 74

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	613	2071	394	79	1697	193	407	267	99	133	141	335
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3335	3438	1538	1719	3438	1538	3335	3438	1538	3335	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3438	1538	1719	3438	1538	3335	3438	1538	3335	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			35			35	
Link Distance (ft)		2103			2380			902			1112	
Travel Time (s)		26.1			29.5			17.6			21.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	681	2301	438	88	1886	214	452	297	110	148	157	372
Shared Lane Traffic (%)												
Lane Group Flow (vph)	681	2301	438	88	1886	214	452	297	110	148	157	372
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	7.0	14.0	7.0	7.0	14.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	21.0	14.0	14.0	21.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	30.0	90.0	22.0	14.0	74.0	14.0	22.0	22.0	14.0	14.0	14.0	30.0
Total Split (%)	21.4%	64.3%	15.7%	10.0%	52.9%	10.0%	15.7%	15.7%	10.0%	10.0%	10.0%	21.4%
Maximum Green (s)	23.0	83.0	15.0	7.0	67.0	7.0	15.0	15.0	7.0	7.0	7.0	23.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	25.0	85.0	107.0	9.0	69.0	83.0	17.0	17.0	31.0	9.0	9.0	39.0
Actuated g/C Ratio	0.18	0.61	0.76	0.06	0.49	0.59	0.12	0.12	0.22	0.06	0.06	0.28
v/c Ratio	1.14	1.10	0.37	0.79	1.11	0.23	1.12	0.71	0.32	0.69	0.71	0.87
Control Delay	133.3	81.7	6.5	106.9	93.9	14.3	134.7	69.5	48.8	81.2	82.0	69.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	133.3	81.7	6.5	106.9	93.9	14.3	134.7	69.5	48.8	81.2	82.0	69.3
LOS	F	F	A	F	F	B	F	E	D	F	F	E
Approach Delay		82.3			86.7			101.2			74.8	
Approach LOS		F			F			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.14			
Intersection Signal Delay: 85.2		Intersection LOS: F	
Intersection Capacity Utilization 98.5%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 102: US 74 & Indian Trail - Fairview Rd

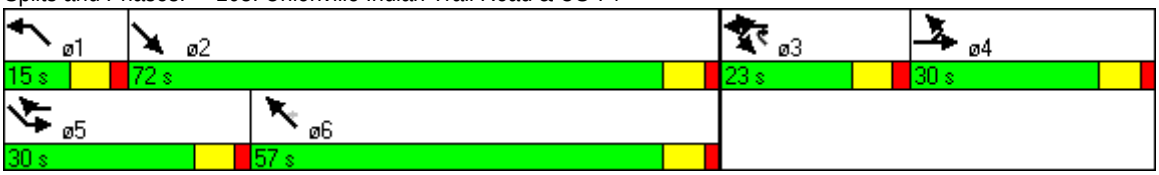


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	51	364	243	318	151	400	687	1646	37	142	1352	449
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Frt		0.945				0.850		0.997				0.850
Flt Protected		0.996		0.950	0.982		0.950			0.950		
Satd. Flow (prot)	0	3299	0	1665	1721	1568	3335	3428	0	1719	3438	1538
Flt Permitted		0.996		0.950	0.982		0.950			0.950		
Satd. Flow (perm)	0	3299	0	1665	1721	1568	3335	3428	0	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			45			55			55	
Link Distance (ft)		795			1304			1032			1062	
Travel Time (s)		15.5			19.8			12.8			13.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	57	404	270	353	168	444	763	1829	41	158	1502	499
Shared Lane Traffic (%)				27%								
Lane Group Flow (vph)	0	731	0	258	263	444	763	1870	0	158	1502	499
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	1	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	1	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pt+ov	Prot			Prot		pm+ov
Protected Phases	4	4		3	3	3 5	5	2		1	6	3
Permitted Phases												6
Detector Phase	4	4		3	3	3 5	5	2		1	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	14.0		7.0	14.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	21.0		14.0	21.0	14.0
Total Split (s)	30.0	30.0	0.0	23.0	23.0	53.0	30.0	72.0	0.0	15.0	57.0	23.0
Total Split (%)	21.4%	21.4%	0.0%	16.4%	16.4%	37.9%	21.4%	51.4%	0.0%	10.7%	40.7%	16.4%
Maximum Green (s)	23.0	23.0		16.0	16.0		23.0	65.0		8.0	50.0	16.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	None
Act Effct Green (s)		25.0		18.0	18.0	43.0	25.0	67.0		10.0	52.0	75.0
Actuated g/C Ratio		0.18		0.13	0.13	0.31	0.18	0.48		0.07	0.37	0.54
v/c Ratio		1.24		1.21	1.19	0.92	1.28	1.14		1.28	1.18	0.61
Control Delay		169.1		178.3	172.2	57.2	184.0	105.3		225.5	127.2	26.3
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay		169.1		178.3	172.2	57.2	184.0	105.3		225.5	127.2	26.3
LOS		F		F	F	E	F	F		F	F	C
Approach Delay		169.1			120.9			128.1			111.1	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 170			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.28			
Intersection Signal Delay: 126.0		Intersection LOS: F	
Intersection Capacity Utilization 105.7%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 103: Unionville Indian Trail Road & US 74

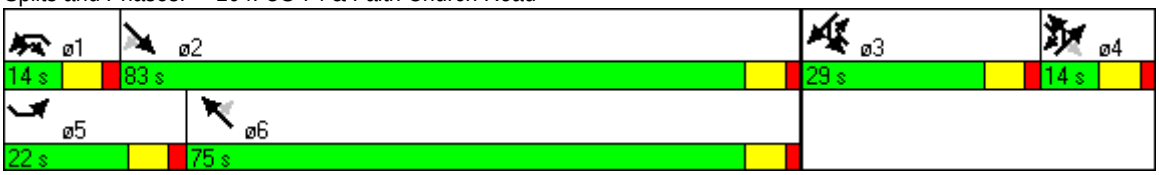


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	199	2012	40	53	1623	201	24	7	39	320	14	256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.858	
Flt Protected	0.950			0.950				0.963		0.950		
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	0	1679	1482	1770	1598	0
Flt Permitted	0.950			0.950				0.963		0.950		
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	0	1679	1482	1770	1598	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			15			35	
Link Distance (ft)		1177			2588			625			368	
Travel Time (s)		14.6			32.1			28.4			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	9%	9%	9%	2%	2%	2%
Adj. Flow (vph)	221	2236	44	59	1803	223	27	8	43	356	16	284
Shared Lane Traffic (%)												
Lane Group Flow (vph)	221	2236	44	59	1803	223	0	35	43	356	300	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	5	100	20	20	100	20	0	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	5	6	20	20	6	20	0	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Split		pm+ov	Split		
Protected Phases	5	2	4	1	6	3	4	4	1	3	3	
Permitted Phases			2			6			4			
Detector Phase	5	2	4	1	6	3	4	4	1	3	3	
Switch Phase												
Minimum Initial (s)	7.0	14.0	7.0	7.0	14.0	7.0	7.0	7.0	7.0	7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	21.0	14.0	14.0	21.0	14.0	14.0	14.0	14.0	14.0	14.0	
Total Split (s)	22.0	83.0	14.0	14.0	75.0	29.0	14.0	14.0	14.0	29.0	29.0	0.0
Total Split (%)	15.7%	59.3%	10.0%	10.0%	53.6%	20.7%	10.0%	10.0%	10.0%	20.7%	20.7%	0.0%
Maximum Green (s)	15.0	76.0	7.0	7.0	68.0	22.0	7.0	7.0	7.0	22.0	22.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	
Act Effct Green (s)	19.4	83.6	90.8	9.0	70.4	99.4		9.0	20.2	24.0	24.0	
Actuated g/C Ratio	0.14	0.60	0.65	0.06	0.50	0.71		0.06	0.14	0.17	0.17	
v/c Ratio	0.92	1.09	0.04	0.53	1.04	0.20		0.32	0.20	1.17	1.09	
Control Delay	101.4	77.8	5.7	81.2	68.2	7.5		71.1	53.2	157.2	134.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	101.4	77.8	5.7	81.2	68.2	7.5		71.1	53.2	157.2	134.8	
LOS	F	E	A	F	E	A		E	D	F	F	
Approach Delay		78.6			62.0			61.2			147.0	
Approach LOS		E			E			E			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.17			
Intersection Signal Delay: 80.3		Intersection LOS: F	
Intersection Capacity Utilization 98.3%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 104: US 74 & Faith Church Road



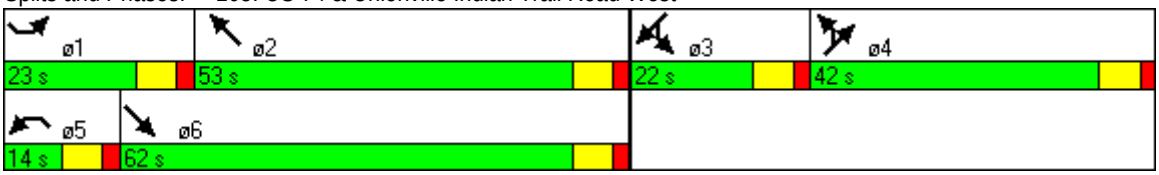
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	328	1288	705	131	958	312	764	173	191	248	95	194
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.947			0.963			0.921			0.899	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3256	0	1719	3311	0	1770	1716	0	1770	1675	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3256	0	1719	3311	0	1770	1716	0	1770	1675	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		606			973			698			813	
Travel Time (s)		7.5			12.1			10.6			12.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	364	1431	783	146	1064	347	849	192	212	276	106	216
Shared Lane Traffic (%)												
Lane Group Flow (vph)	364	2214	0	146	1411	0	849	404	0	276	322	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	5	100		20	100		5	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	5	6		20	6		5	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Split			Split		
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases												
Detector Phase	1	6		5	2		4	4		3	3	
Switch Phase												
Minimum Initial (s)	7.0	14.0		7.0	14.0		7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	21.0		14.0	21.0		14.0	14.0		14.0	14.0	
Total Split (s)	23.0	62.0	0.0	14.0	53.0	0.0	42.0	42.0	0.0	22.0	22.0	0.0
Total Split (%)	16.4%	44.3%	0.0%	10.0%	37.9%	0.0%	30.0%	30.0%	0.0%	15.7%	15.7%	0.0%
Maximum Green (s)	16.0	55.0		7.0	46.0		35.0	35.0		15.0	15.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	18.0	57.0		9.0	48.0		37.0	37.0		17.0	17.0	
Actuated g/C Ratio	0.13	0.41		0.06	0.34		0.26	0.26		0.12	0.12	
v/c Ratio	1.65	1.67		1.32	1.24		1.81	0.89		1.28	1.59	
Control Delay	347.4	334.0		240.3	156.2		405.2	72.1		205.7	324.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	347.4	334.0		240.3	156.2		405.2	72.1		205.7	324.3	
LOS	F	F		F	F		F	E		F	F	
Approach Delay		335.9			164.1			297.8			269.6	
Approach LOS		F			F			F			F	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 180
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.81
Intersection Signal Delay: 276.6 Intersection LOS: F
Intersection Capacity Utilization 141.3% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 105: US 74 & Unionville Indian Trail Road West

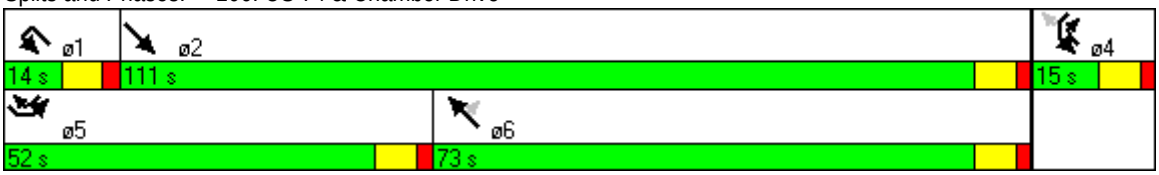


Lane Group	SEL	SET	NWU	NWT	NWR	SWL	SWR
Lane Configurations							
Volume (vph)	371	1435	10	1213	125	52	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Frt					0.850		0.850
Flt Protected	0.950		0.950			0.950	
Satd. Flow (prot)	1719	3438	1719	3438	1538	1770	1583
Flt Permitted	0.950		0.950			0.950	
Satd. Flow (perm)	1719	3438	1719	3438	1538	1770	1583
Right Turn on Red					No		No
Satd. Flow (RTOR)							
Link Speed (mph)		55		55		35	
Link Distance (ft)		2407		1378		1258	
Travel Time (s)		29.8		17.1		24.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	2%	2%
Adj. Flow (vph)	412	1594	11	1348	139	58	144
Shared Lane Traffic (%)							
Lane Group Flow (vph)	412	1594	11	1348	139	58	144
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Left	R NA	Left	Right	Left	Right
Median Width(ft)		12		12		12	
Link Offset(ft)		0		0		0	
Crosswalk Width(ft)		0		0		0	
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9		9	15	9
Number of Detectors	1	2	1	2	1	1	1
Detector Template	Left	Thru	Left	Thru	Right	Left	Right
Leading Detector (ft)	20	100	20	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94		94			
Detector 2 Size(ft)		6		6			
Detector 2 Type		Cl+Ex		Cl+Ex			
Detector 2 Channel							
Detector 2 Extend (s)		0.0		0.0			
Turn Type	Prot		Prot		pm+ov		pm+ov
Protected Phases	5	2	1	6	4	4	5
Permitted Phases					6		4
Detector Phase	5	2	1	6	4	4	5
Switch Phase							
Minimum Initial (s)	7.0	14.0	7.0	14.0	7.0	7.0	7.0

Lane Group	SEL	SET	NWU	NWT	NWR	SWL	SWR
Minimum Split (s)	14.0	21.0	14.0	21.0	14.0	14.0	14.0
Total Split (s)	52.0	111.0	14.0	73.0	15.0	15.0	52.0
Total Split (%)	37.1%	79.3%	10.0%	52.1%	10.7%	10.7%	37.1%
Maximum Green (s)	45.0	104.0	7.0	66.0	8.0	8.0	45.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag			Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	C-Max	None	None	None
Act Effct Green (s)	40.0	114.6	9.0	75.2	90.0	9.8	54.8
Actuated g/C Ratio	0.29	0.82	0.06	0.54	0.64	0.07	0.39
v/c Ratio	0.84	0.57	0.10	0.73	0.14	0.47	0.23
Control Delay	62.1	6.0	63.9	28.8	11.3	75.4	28.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.1	6.0	63.9	28.8	11.3	75.4	28.3
LOS	E	A	E	C	B	E	C
Approach Delay		17.5		27.4		41.8	
Approach LOS		B		C		D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 22.9		Intersection LOS: C	
Intersection Capacity Utilization 72.4%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 106: US 74 & Chamber Drive

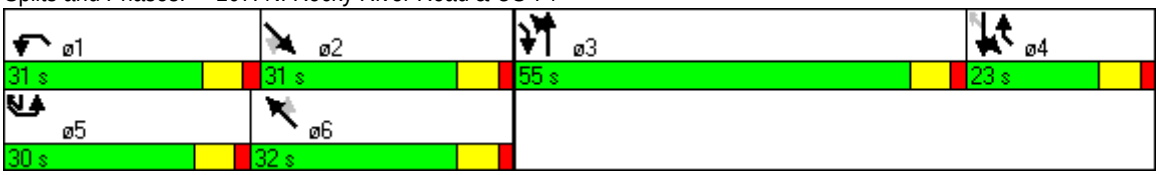


Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	446	97	313	175	111	177	267	687	772	424	538	207
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.951				0.850			0.850			0.850
Flt Protected		0.975			0.970		0.950			0.950		
Satd. Flow (prot)	0	1727	0	0	1807	1583	1719	3438	1538	1719	3438	1538
Flt Permitted		0.975			0.970		0.950			0.950		
Satd. Flow (perm)	0	1727	0	0	1807	1583	1719	3438	1538	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		1176			418			3021			3350	
Travel Time (s)		17.8			6.3			37.5			41.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	496	108	348	194	123	197	297	763	858	471	598	230
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	952	0	0	317	197	297	763	858	471	598	230
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	3	3		4	4	5	5	2	3	1	6	4
Permitted Phases						4			2			6
Detector Phase	3	3		4	4	5	5	2	3	1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	14.0	7.0	7.0	14.0	7.0

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0	14.0	14.0	21.0	14.0	14.0	21.0	14.0
Total Split (s)	55.0	55.0	0.0	23.0	23.0	30.0	30.0	31.0	55.0	31.0	32.0	23.0
Total Split (%)	39.3%	39.3%	0.0%	16.4%	16.4%	21.4%	21.4%	22.1%	39.3%	22.1%	22.9%	16.4%
Maximum Green (s)	48.0	48.0		16.0	16.0	23.0	23.0	24.0	48.0	24.0	25.0	16.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead		Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)		50.0			18.0	48.0	25.0	26.0	81.0	26.0	27.0	45.0
Actuated g/C Ratio		0.36			0.13	0.34	0.18	0.19	0.58	0.19	0.19	0.32
v/c Ratio		1.54			1.37	0.36	0.97	1.20	0.96	1.48	0.90	0.47
Control Delay		284.9			234.3	36.9	100.4	150.9	51.3	269.9	73.0	23.7
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		284.9			234.3	36.9	100.4	150.9	51.3	269.9	73.0	23.7
LOS		F			F	D	F	F	D	F	E	C
Approach Delay		284.9			158.6			98.5			135.7	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 170			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.54			
Intersection Signal Delay: 153.3		Intersection LOS: F	
Intersection Capacity Utilization 110.6%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 107: N. Rocky River Road & US 74

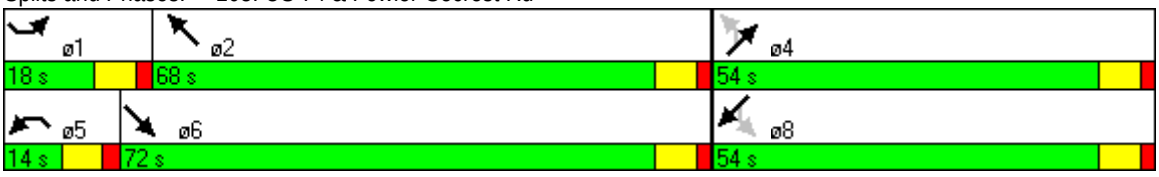


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	86	1191	29	58	954	173	33	120	83	138	66	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.977			0.953			0.972	
Flt Protected	0.950			0.950				0.993			0.974	
Satd. Flow (prot)	1719	3424	0	1719	3359	0	0	1763	0	0	1764	0
Flt Permitted	0.950			0.950				0.916			0.570	
Satd. Flow (perm)	1719	3424	0	1719	3359	0	0	1626	0	0	1032	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		2601			2354			277			1205	
Travel Time (s)		39.4			35.7			5.4			18.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	96	1323	32	64	1060	192	37	133	92	153	73	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	96	1355	0	64	1252	0	0	262	0	0	286	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		
Detector Phase	1	6		5	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	18.0	72.0	0.0	14.0	68.0	0.0	54.0	54.0	0.0	54.0	54.0	0.0
Total Split (%)	12.9%	51.4%	0.0%	10.0%	48.6%	0.0%	38.6%	38.6%	0.0%	38.6%	38.6%	0.0%
Maximum Green (s)	11.0	65.0		7.0	61.0		47.0	47.0		47.0	47.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	12.8	75.2		10.1	69.7			42.5			42.5	
Actuated g/C Ratio	0.09	0.54		0.07	0.50			0.30			0.30	
v/c Ratio	0.61	0.74		0.51	0.75			0.53			0.91	
Control Delay	77.9	30.2		77.7	33.1			43.7			79.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	77.9	30.2		77.7	33.1			43.7			79.4	
LOS	E	C		E	C			D			E	
Approach Delay		33.3			35.3			43.7			79.4	
Approach LOS		C			D			D			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay: 38.9		Intersection LOS: D	
Intersection Capacity Utilization 84.0%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 108: US 74 & Fowler-Secrest Rd



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	74	1339	157	16	1100	9	124	13	15	7	10	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00											
Frt		0.984				0.850		0.986			0.901	
Flt Protected	0.950			0.950				0.961			0.994	
Satd. Flow (prot)	1719	3383	0	1719	3266	1538	0	1765	0	0	1668	0
Flt Permitted	0.950			0.950				0.700			0.965	
Satd. Flow (perm)	1717	3383	0	1719	3266	1538	0	1286	0	0	1620	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		309			978			474			425	
Travel Time (s)		4.7			14.8			12.9			11.6	
Confl. Peds. (#/hr)	1											
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Parking (#/hr)					0							
Adj. Flow (vph)	82	1488	174	18	1222	10	138	14	17	8	11	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	82	1662	0	18	1222	10	0	169	0	0	71	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.07	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot		Perm	Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases						2	4			8		

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector Phase	1	6		5	2	2	4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	12.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	19.0		14.0	19.0	19.0	14.0	14.0		14.0	14.0	
Total Split (s)	18.0	92.0	0.0	14.0	88.0	88.0	34.0	34.0	0.0	34.0	34.0	0.0
Total Split (%)	12.9%	65.7%	0.0%	10.0%	62.9%	62.9%	24.3%	24.3%	0.0%	24.3%	24.3%	0.0%
Maximum Green (s)	11.0	85.0		7.0	81.0	81.0	27.0	27.0		27.0	27.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		None	None	
Act Effct Green (s)	12.3	100.2		9.0	88.5	88.5		24.2			24.2	
Actuated g/C Ratio	0.09	0.72		0.06	0.63	0.63		0.17			0.17	
v/c Ratio	0.54	0.69		0.16	0.59	0.01		0.76			0.25	
Control Delay	74.6	15.2		65.6	17.5	11.6		76.1			50.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	
Total Delay	74.6	15.2		65.6	17.5	11.6		76.1			50.8	
LOS	E	B		E	B	B		E			D	
Approach Delay		18.0			18.2			76.1			50.8	
Approach LOS		B			B			E			D	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 21.8 Intersection LOS: C
Intersection Capacity Utilization 75.5% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 110: US 74 & Rolling Hill Drive

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	133	10	150	95	10	84	79	1144	125	113	919	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.859			0.940			0.985				0.850
Flt Protected	0.950				0.975		0.950			0.950		
Satd. Flow (prot)	1770	1600	0	0	1707	0	1719	3387	0	1719	3438	1538
Flt Permitted	0.589				0.628		0.950			0.950		
Satd. Flow (perm)	1097	1600	0	0	1100	0	1719	3387	0	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		510			371			748			991	
Travel Time (s)		13.9			10.1			11.3			15.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	148	11	167	106	11	93	88	1271	139	126	1021	80
Shared Lane Traffic (%)												
Lane Group Flow (vph)	148	178	0	0	210	0	88	1410	0	126	1021	80
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm			Perm			Prot			Prot		Perm
Protected Phases		3			8		1	6		5	2	
Permitted Phases	3			8								2
Detector Phase	3	3		8	8		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	12.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0		14.0	19.0	19.0
Total Split (s)	43.0	43.0	0.0	43.0	43.0	0.0	19.0	76.0	0.0	21.0	78.0	78.0
Total Split (%)	30.7%	30.7%	0.0%	30.7%	30.7%	0.0%	13.6%	54.3%	0.0%	15.0%	55.7%	55.7%
Maximum Green (s)	36.0	36.0		36.0	36.0		12.0	69.0		14.0	71.0	71.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?								Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	Max		None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	38.0	38.0			38.0		12.8	72.0		15.0	74.2	74.2
Actuated g/C Ratio	0.27	0.27			0.27		0.09	0.51		0.11	0.53	0.53
v/c Ratio	0.50	0.41			0.70		0.56	0.81		0.68	0.56	0.10
Control Delay	49.8	45.3			60.1		74.5	33.2		79.3	23.7	17.2
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	49.8	45.3			60.1		74.5	33.2		79.3	23.7	17.2
LOS	D	D			E		E	C		E	C	B
Approach Delay		47.3			60.1			35.6			29.0	
Approach LOS		D			E			D			C	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 35.9 Intersection LOS: D
Intersection Capacity Utilization 79.3% ICU Level of Service D
Analysis Period (min) 15

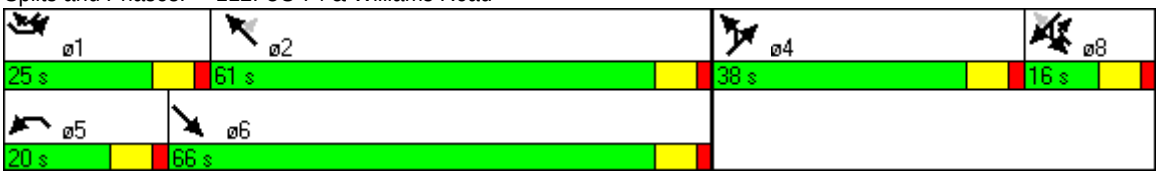
Splits and Phases: 111: Roland Drive & US 74

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	134	1196	33	129	988	123	50	51	237	96	22	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996				0.850		0.877				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3424	0	1719	3438	1538	1770	1634	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3424	0	1719	3438	1538	1770	1634	0	1770	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		822			734			281			279	
Travel Time (s)		12.5			11.1			5.5			7.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	149	1329	37	143	1098	137	56	57	263	107	24	96
Shared Lane Traffic (%)												
Lane Group Flow (vph)	149	1366	0	143	1098	137	56	320	0	107	24	96
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot		pm+ov	Split			Split		pm+ov
Protected Phases	1	6		5	2	8	4	4		8	8	1
Permitted Phases						2						8
Detector Phase	1	6		5	2	8	4	4		8	8	1
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	7.0	7.0	7.0		7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0		14.0	19.0	14.0	14.0	14.0		14.0	14.0	14.0
Total Split (s)	25.0	66.0	0.0	20.0	61.0	16.0	38.0	38.0	0.0	16.0	16.0	25.0
Total Split (%)	17.9%	47.1%	0.0%	14.3%	43.6%	11.4%	27.1%	27.1%	0.0%	11.4%	11.4%	17.9%
Maximum Green (s)	18.0	59.0		13.0	54.0	9.0	31.0	31.0		9.0	9.0	18.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	C-Max		None	C-Max	Max	None	None		Max	Max	Max
Act Effct Green (s)	20.0	61.3		14.7	56.0	68.8	31.2	31.2		12.8	12.8	37.8
Actuated g/C Ratio	0.14	0.44		0.10	0.40	0.49	0.22	0.22		0.09	0.09	0.27
v/c Ratio	0.61	0.91		0.79	0.80	0.18	0.14	0.88		0.66	0.14	0.22
Control Delay	67.7	47.1		90.4	42.4	11.2	43.8	77.0		82.1	62.4	42.4
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	67.7	47.1		90.4	42.4	11.2	43.8	77.0		82.1	62.4	42.4
LOS	E	D		F	D	B	D	E		F	E	D
Approach Delay		49.1			44.3			72.1			63.2	
Approach LOS		D			D			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay: 50.6		Intersection LOS: D	
Intersection Capacity Utilization 81.0%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 112: US 74 & Williams Road



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	15	1402	90	192	1145	463	98	122	256	587	116	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850			0.850		0.899			0.982	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	1752	1658	0	3400	1811	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	1752	1658	0	3400	1811	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		338			529			376			313	
Travel Time (s)		5.1			8.0			7.3			8.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	17	1558	100	213	1272	514	109	136	284	652	129	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	1558	100	213	1272	514	109	420	0	652	147	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Split			Split		
Protected Phases	1	6	3	5	2	4	3	3		4	4	
Permitted Phases			6			2						
Detector Phase	1	6	3	5	2	4	3	3		4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0		14.0	14.0	
Total Split (s)	14.0	60.0	34.0	19.0	65.0	27.0	34.0	34.0	0.0	27.0	27.0	0.0
Total Split (%)	10.0%	42.9%	24.3%	13.6%	46.4%	19.3%	24.3%	24.3%	0.0%	19.3%	19.3%	0.0%
Maximum Green (s)	7.0	53.0	27.0	12.0	58.0	20.0	27.0	27.0		20.0	20.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Act Effct Green (s)	9.0	55.0	89.0	14.0	68.4	93.4	29.0	29.0		22.0	22.0	
Actuated g/C Ratio	0.06	0.39	0.64	0.10	0.49	0.67	0.21	0.21		0.16	0.16	
v/c Ratio	0.15	1.15	0.10	1.24	0.76	0.50	0.30	1.22		1.22	0.52	
Control Delay	65.3	116.7	10.3	197.0	33.9	11.9	49.6	170.1		163.8	61.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	65.3	116.7	10.3	197.0	33.9	11.9	49.6	170.1		163.8	61.3	
LOS	E	F	B	F	C	B	D	F		F	E	
Approach Delay		109.8			45.6			145.3			145.0	
Approach LOS		F			D			F			F	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 160
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.24
Intersection Signal Delay: 93.5 Intersection LOS: F
Intersection Capacity Utilization 104.9% ICU Level of Service G
Analysis Period (min) 15

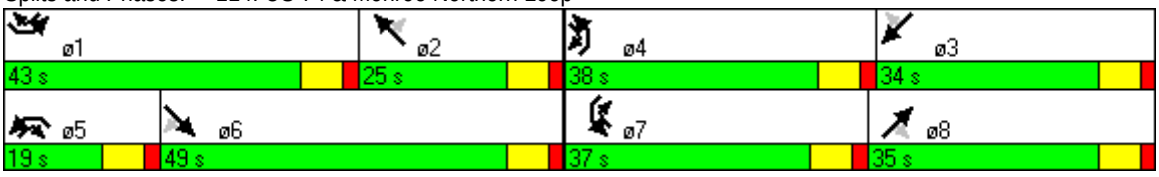
Splits and Phases: 113: US 74 & Hanover Drive

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	971	831	396	136	606	679	487	780	229	714	487	745
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3335	4940	1538	3335	4940	1538	3335	3438	1538	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	4940	1538	3335	4940	1538	3335	3438	1538	3433	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		858			915			405			209	
Travel Time (s)		13.0			13.9			7.9			3.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	2%	2%	2%
Adj. Flow (vph)	1079	923	440	151	673	754	541	867	254	793	541	828
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1079	923	440	151	673	754	541	867	254	793	541	828
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	1	6	4	5	2	7	4	8	5	7	3	1
Permitted Phases			6			2			8			3
Detector Phase	1	6	4	5	2	7	4	8	5	7	3	1
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	43.0	49.0	38.0	19.0	25.0	37.0	38.0	35.0	19.0	37.0	34.0	43.0
Total Split (%)	30.7%	35.0%	27.1%	13.6%	17.9%	26.4%	27.1%	25.0%	13.6%	26.4%	24.3%	30.7%
Maximum Green (s)	36.0	42.0	31.0	12.0	18.0	30.0	31.0	28.0	12.0	30.0	27.0	36.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	38.0	45.1	79.8	12.9	20.0	57.0	29.7	30.0	47.9	32.0	32.3	75.3
Actuated g/C Ratio	0.27	0.32	0.57	0.09	0.14	0.41	0.21	0.21	0.34	0.23	0.23	0.54
v/c Ratio	1.19	0.58	0.50	0.49	0.95	1.20	0.77	1.18	0.48	1.01	0.66	0.97
Control Delay	141.4	41.5	20.3	65.9	83.4	143.6	59.4	140.5	39.8	87.8	54.1	56.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	141.4	41.5	20.3	65.9	83.4	143.6	59.4	140.5	39.8	87.8	54.1	56.9
LOS	F	D	C	E	F	F	E	F	D	F	D	E
Approach Delay		81.8			110.5			98.7			67.5	
Approach LOS		F			F			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.20			
Intersection Signal Delay: 87.2		Intersection LOS: F	
Intersection Capacity Utilization 103.8%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 114: US 74 & Monroe Northern Loop



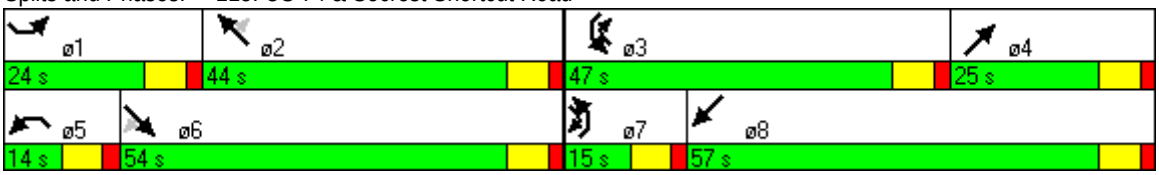
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	209	1527	55	119	1201	519	57	66	157	478	46	151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.894			0.885	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	3335	4940	1538	1770	1665	0	1770	1649	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	3335	4940	1538	1770	1665	0	1770	1649	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		413			1354			238			233	
Travel Time (s)		6.3			20.5			6.5			4.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	232	1697	61	132	1334	577	63	73	174	531	51	168
Shared Lane Traffic (%)												
Lane Group Flow (vph)	232	1697	61	132	1334	577	63	247	0	531	219	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot			Prot		
Protected Phases	1	6	7	5	2	3	7	4		3	8	
Permitted Phases			6			2						
Detector Phase	1	6	7	5	2	3	7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	

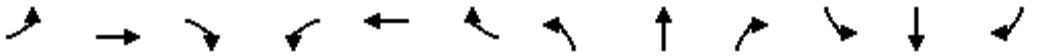
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0		14.0	14.0	
Total Split (s)	24.0	54.0	15.0	14.0	44.0	47.0	15.0	25.0	0.0	47.0	57.0	0.0
Total Split (%)	17.1%	38.6%	10.7%	10.0%	31.4%	33.6%	10.7%	17.9%	0.0%	33.6%	40.7%	0.0%
Maximum Green (s)	17.0	47.0	8.0	7.0	37.0	40.0	8.0	18.0		40.0	50.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Act Effct Green (s)	19.0	49.0	63.8	9.0	39.0	86.0	9.8	20.0		42.0	52.2	
Actuated g/C Ratio	0.14	0.35	0.46	0.06	0.28	0.61	0.07	0.14		0.30	0.37	
v/c Ratio	1.00	0.98	0.09	0.62	0.97	0.61	0.51	1.04		1.00	0.36	
Control Delay	117.6	62.6	22.0	76.8	67.7	20.2	77.6	125.7		87.8	33.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	117.6	62.6	22.0	76.8	67.7	20.2	77.6	125.7		87.8	33.9	
LOS	F	E	C	E	E	C	E	F		F	C	
Approach Delay		67.8			54.9			115.9			72.0	
Approach LOS		E			D			F			E	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.04
Intersection Signal Delay: 66.2 Intersection LOS: E
Intersection Capacity Utilization 91.6% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 115: US 74 & Secrest Shortcut Road



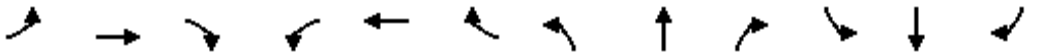


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	259	2046	253	302	1636	155	151	114	225	138	136	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00											
Frt		0.983			0.987			0.901			0.913	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4856	0	1719	4876	0	1770	1678	0	1770	1701	0
Flt Permitted	0.950			0.950			0.267			0.238		
Satd. Flow (perm)	1719	4856	0	1719	4876	0	497	1678	0	443	1701	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		443			590			549			636	
Travel Time (s)		6.7			8.9			15.0			12.4	
Confl. Peds. (#/hr)	1											
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	288	2273	281	336	1818	172	168	127	250	153	151	206
Shared Lane Traffic (%)												
Lane Group Flow (vph)	288	2554	0	336	1990	0	168	377	0	153	357	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Detector Phase	5	2		1	6		4	4		8	8	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	29.0	68.0	0.0	28.0	67.0	0.0	44.0	44.0	0.0	44.0	44.0	0.0
Total Split (%)	20.7%	48.6%	0.0%	20.0%	47.9%	0.0%	31.4%	31.4%	0.0%	31.4%	31.4%	0.0%
Maximum Green (s)	22.0	61.0		21.0	60.0		37.0	37.0		37.0	37.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	24.0	63.0		23.0	62.0		39.0	39.0		39.0	39.0	
Actuated g/C Ratio	0.17	0.45		0.16	0.44		0.28	0.28		0.28	0.28	
v/c Ratio	0.98	1.17		1.19	0.92		1.22	0.81		1.24	0.75	
Control Delay	104.0	116.9		164.8	45.0		189.3	61.6		202.7	57.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	104.0	116.9		164.8	45.0		189.3	61.6		202.7	57.5	
LOS	F	F		F	D		F	E		F	E	
Approach Delay		115.6			62.3			101.0			101.1	
Approach LOS		F			E			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.24			
Intersection Signal Delay: 93.2		Intersection LOS: F	
Intersection Capacity Utilization 106.0%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 120: US 74 & Stafford Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	195	2182	117	117	1783	107	159	10	195	53	10	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992			0.992			0.857			0.867	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4900	0	1719	4900	0	1770	1596	0	1770	1615	0
Flt Permitted	0.950			0.950			0.648			0.327		
Satd. Flow (perm)	1719	4900	0	1719	4900	0	1207	1596	0	609	1615	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			20	
Link Distance (ft)		493			536			238			211	
Travel Time (s)		7.5			8.1			6.5			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	217	2424	130	130	1981	119	177	11	217	59	11	87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	217	2554	0	130	2100	0	177	228	0	59	98	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	29.0	88.0	0.0	20.0	79.0	0.0	32.0	32.0	0.0	32.0	32.0	0.0
Total Split (%)	20.7%	62.9%	0.0%	14.3%	56.4%	0.0%	22.9%	22.9%	0.0%	22.9%	22.9%	0.0%
Maximum Green (s)	22.0	81.0		13.0	72.0		25.0	25.0		25.0	25.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	22.3	85.5		14.6	77.8		24.9	24.9		24.9	24.9	
Actuated g/C Ratio	0.16	0.61		0.10	0.56		0.18	0.18		0.18	0.18	
v/c Ratio	0.79	0.85		0.73	0.77		0.82	0.80		0.55	0.34	
Control Delay	77.1	26.5		83.3	27.4		84.1	76.1		71.4	53.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	77.1	26.5		83.3	27.4		84.1	76.1		71.4	53.2	
LOS	E	C		F	C		F	E		E	D	
Approach Delay		30.4			30.7			79.6			60.1	
Approach LOS		C			C			E			E	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 34.9 Intersection LOS: C
Intersection Capacity Utilization 86.3% ICU Level of Service E
Analysis Period (min) 15

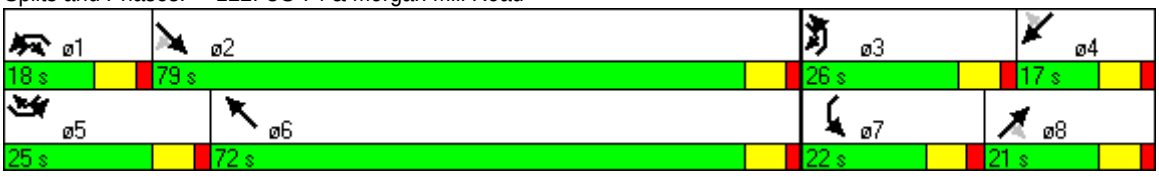
Splits and Phases: 121: US 74 & Boyte Street

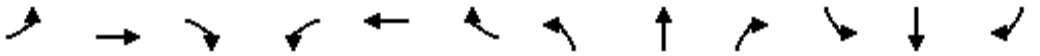
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	177	2093	170	107	1684	150	180	140	142	144	101	136
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.988				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	1719	4881	0	1687	1776	1509	1687	1776	1509
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	1719	4881	0	1687	1776	1509	1687	1776	1509
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		515			499			502			475	
Travel Time (s)		7.8			7.6			9.8			9.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	7%	7%	7%	7%	7%	7%
Adj. Flow (vph)	197	2326	189	119	1871	167	200	156	158	160	112	151
Shared Lane Traffic (%)												
Lane Group Flow (vph)	197	2326	189	119	2038	0	200	156	158	160	112	151
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot			Prot		pm+ov	Prot		pm+ov
Protected Phases	5	2	3	1	6		3	8	1	7	4	5
Permitted Phases			2						8			4
Detector Phase	5	2	3	1	6		3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0		7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0		14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	25.0	79.0	26.0	18.0	72.0	0.0	26.0	21.0	18.0	22.0	17.0	25.0
Total Split (%)	17.9%	56.4%	18.6%	12.9%	51.4%	0.0%	18.6%	15.0%	12.9%	15.7%	12.1%	17.9%
Maximum Green (s)	18.0	72.0	19.0	11.0	65.0		19.0	14.0	11.0	15.0	10.0	18.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max		None	None	None	None	None	None
Act Effct Green (s)	19.4	75.1	100.3	12.8	68.5		20.2	15.6	33.4	16.5	11.9	36.3
Actuated g/C Ratio	0.14	0.54	0.72	0.09	0.49		0.14	0.11	0.24	0.12	0.08	0.26
v/c Ratio	0.83	0.88	0.17	0.76	0.85		0.82	0.79	0.44	0.80	0.74	0.39
Control Delay	85.7	33.6	6.9	90.5	36.2		84.0	87.3	49.7	88.2	90.5	45.9
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	85.7	33.6	6.9	90.5	36.2		84.0	87.3	49.7	88.2	90.5	45.9
LOS	F	C	A	F	D		F	F	D	F	F	D
Approach Delay		35.5			39.2			74.4			73.7	
Approach LOS		D			D			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 43.1		Intersection LOS: D	
Intersection Capacity Utilization 78.8%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 122: US 74 & Morgan Mill Road



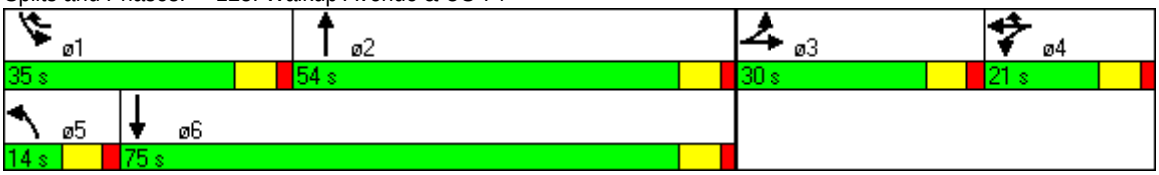


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	70	135	91	43	188	382	92	1514	31	348	1913	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.959				0.850		0.997			0.993	
Flt Protected		0.988		0.950			0.950			0.950		
Satd. Flow (prot)	0	1765	0	1770	1863	1583	1719	4925	0	1719	4905	0
Flt Permitted		0.988		0.950			0.950			0.950		
Satd. Flow (perm)	0	1765	0	1770	1863	1583	1719	4925	0	1719	4905	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		443			502			602			356	
Travel Time (s)		12.1			9.8			9.1			5.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	78	150	101	48	209	424	102	1682	34	387	2126	99
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	329	0	48	209	424	102	1716	0	387	2225	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pt+ov	Prot			Prot		
Protected Phases	3	3		4	4	4 1	5	2		1	6	
Permitted Phases												
Detector Phase	3	3		4	4	4 1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0		14.0	19.0	
Total Split (s)	30.0	30.0	0.0	21.0	21.0	56.0	14.0	54.0	0.0	35.0	75.0	0.0
Total Split (%)	21.4%	21.4%	0.0%	15.0%	15.0%	40.0%	10.0%	38.6%	0.0%	25.0%	53.6%	0.0%
Maximum Green (s)	23.0	23.0		14.0	14.0		7.0	47.0		28.0	68.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lead		Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)		25.0		16.0	16.0	51.0	9.0	49.0		30.0	70.0	
Actuated g/C Ratio		0.18		0.11	0.11	0.36	0.06	0.35		0.21	0.50	
v/c Ratio		1.04		0.24	0.98	0.73	0.92	1.00		1.05	0.91	
Control Delay		117.4		59.8	118.1	47.6	129.9	65.8		113.2	38.6	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		117.4		59.8	118.1	47.6	129.9	65.8		113.2	38.6	
LOS		F		E	F	D	F	E		F	D	
Approach Delay		117.4			70.1			69.4			49.7	
Approach LOS		F			E			E			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 140			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.05			
Intersection Signal Delay: 62.9		Intersection LOS: E	
Intersection Capacity Utilization 92.3%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 123: Walkup Avenue & US 74



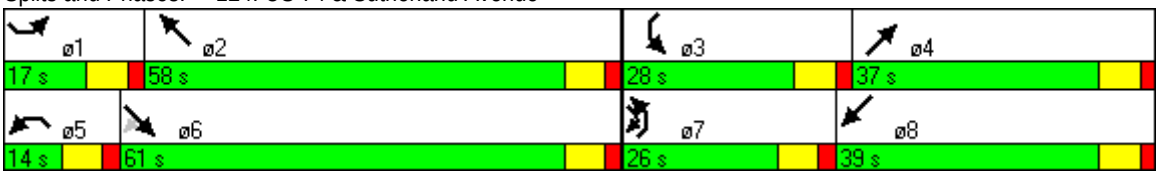
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	96	1713	169	43	1370	139	211	244	66	208	235	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.986			0.968			0.951	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	1719	4871	0	1752	1786	0	1752	1754	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	1719	4871	0	1752	1786	0	1752	1754	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		425			487			426			331	
Travel Time (s)		6.4			7.4			11.6			6.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	107	1903	188	48	1522	154	234	271	73	231	261	128
Shared Lane Traffic (%)												
Lane Group Flow (vph)	107	1903	188	48	1676	0	234	344	0	231	389	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot			Prot			Prot		
Protected Phases	1	6	7	5	2		7	4		3	8	
Permitted Phases			6									
Detector Phase	1	6	7	5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0		7.0	7.0		7.0	7.0	

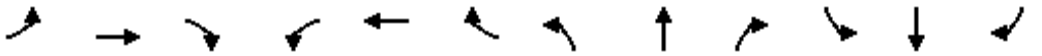
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	17.0	61.0	26.0	14.0	58.0	0.0	26.0	37.0	0.0	28.0	39.0	0.0
Total Split (%)	12.1%	43.6%	18.6%	10.0%	41.4%	0.0%	18.6%	26.4%	0.0%	20.0%	27.9%	0.0%
Maximum Green (s)	10.0	54.0	19.0	7.0	51.0		19.0	30.0		21.0	32.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes			Yes			Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max		None	None		None	None	
Act Effct Green (s)	11.8	59.6	85.4	9.0	54.0		20.8	32.1		22.1	33.4	
Actuated g/C Ratio	0.08	0.43	0.61	0.06	0.39		0.15	0.23		0.16	0.24	
v/c Ratio	0.74	0.90	0.20	0.43	0.89		0.90	0.84		0.83	0.93	
Control Delay	90.8	45.6	13.7	75.6	47.7		92.8	70.5		81.7	81.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	90.8	45.6	13.7	75.6	47.7		92.8	70.5		81.7	81.7	
LOS	F	D	B	E	D		F	E		F	F	
Approach Delay		45.1			48.5			79.5			81.7	
Approach LOS		D			D			E			F	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 54.6 Intersection LOS: D
Intersection Capacity Utilization 86.7% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 124: US 74 & Sutherland Avenue





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	52	56	37	36	152	24	1456	22	115	1799	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.922			0.879				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1717	0	1770	1637	0	1719	4940	1538	1719	4940	1538
Flt Permitted	0.375			0.593			0.950			0.950		
Satd. Flow (perm)	699	1717	0	1105	1637	0	1719	4940	1538	1719	4940	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		163			218			356			257	
Travel Time (s)		5.6			4.2			5.4			3.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	4	58	62	41	40	169	27	1618	24	128	1999	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	120	0	41	209	0	27	1618	24	128	1999	2
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm			Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	12.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	19.0
Total Split (s)	38.0	38.0	0.0	38.0	38.0	0.0	14.0	75.0	75.0	27.0	88.0	88.0
Total Split (%)	27.1%	27.1%	0.0%	27.1%	27.1%	0.0%	10.0%	53.6%	53.6%	19.3%	62.9%	62.9%
Maximum Green (s)	31.0	31.0		31.0	31.0		7.0	68.0	68.0	20.0	81.0	81.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	25.1	25.1		25.1	25.1		9.5	82.5	82.5	17.4	96.0	96.0
Actuated g/C Ratio	0.18	0.18		0.18	0.18		0.07	0.59	0.59	0.12	0.69	0.69
v/c Ratio	0.03	0.39		0.21	0.71		0.23	0.56	0.03	0.60	0.59	0.00
Control Delay	44.2	53.2		49.2	67.1		66.8	19.8	15.4	69.1	14.3	11.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.2	53.2		49.2	67.1		66.8	19.8	15.4	69.1	14.3	11.0
LOS	D	D		D	E		E	B	B	E	B	B
Approach Delay		52.9			64.1			20.5			17.6	
Approach LOS		D			E			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 22.6		Intersection LOS: C	
Intersection Capacity Utilization 64.4%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 125: Dove Street & US 74

Lane Group	NBU	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT
Lane Configurations												
Volume (vph)	25	1043	1082	129	171	1422	355	255	80	984	127	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.86	0.97	0.86	0.86	1.00	0.91	1.00	1.00	1.00	0.88	1.00	1.00
Frt			0.984				0.850			0.850		
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	3335	6125	0	1719	4940	1538	1752	1845	2760	1752	1845
Flt Permitted		0.950			0.950			0.950			0.950	
Satd. Flow (perm)	0	3335	6125	0	1719	4940	1538	1752	1845	2760	1752	1845
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			45			35			20
Link Distance (ft)			341			436			391			335
Travel Time (s)			5.2			6.6			7.6			11.4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%
Adj. Flow (vph)	28	1159	1202	143	190	1580	394	283	89	1093	141	93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1187	1345	0	190	1580	394	283	89	1093	141	93
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			24			24			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1	1	2		1	2	1	1	2	1	1	2
Detector Template	Left	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru
Leading Detector (ft)	20	20	100		20	100	20	20	100	20	20	100
Trailing Detector (ft)	0	0	0		0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0		0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	6		20	6	20	20	6	20	20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94			94			94			94
Detector 2 Size(ft)			6			6			6			6
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			0.0
Turn Type	Prot	Prot			Prot		pm+ov	Split		Prot	Split	
Protected Phases	5	5	2		1	6	4	4	4	4	3	3
Permitted Phases							6					
Detector Phase	5	5	2		1	6	4	4	4	4	3	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	12.0		7.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SWR
Lane Configurations	
Volume (vph)	128
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1568
Flt Permitted	
Satd. Flow (perm)	1568
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	3%
Adj. Flow (vph)	142
Shared Lane Traffic (%)	
Lane Group Flow (vph)	142
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	pt+ov
Protected Phases	3 1
Permitted Phases	
Detector Phase	3 1
Switch Phase	
Minimum Initial (s)	

Lane Group	NBU	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT
Minimum Split (s)	14.0	14.0	19.0		14.0	19.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	40.0	40.0	52.0	0.0	30.0	42.0	44.0	44.0	44.0	44.0	14.0	14.0
Total Split (%)	28.6%	28.6%	37.1%	0.0%	21.4%	30.0%	31.4%	31.4%	31.4%	31.4%	10.0%	10.0%
Maximum Green (s)	33.0	33.0	45.0		23.0	35.0	37.0	37.0	37.0	37.0	7.0	7.0
Yellow Time (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag		Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max		None	C-Max	None	None	None	None	None	None
Act Effct Green (s)		35.0	50.4		21.6	37.0	76.0	39.0	39.0	39.0	9.0	9.0
Actuated g/C Ratio		0.25	0.36		0.15	0.26	0.54	0.28	0.28	0.28	0.06	0.06
v/c Ratio		1.42	0.61		0.72	1.21	0.47	0.58	0.17	1.42	1.25	0.78
Control Delay		235.9	38.6		71.4	145.6	13.6	49.1	39.4	234.7	216.7	103.2
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		235.9	38.6		71.4	145.6	13.6	49.1	39.4	234.7	216.7	103.2
LOS		F	D		E	F	B	D	D	F	F	F
Approach Delay			131.1			115.0			187.0			117.1
Approach LOS			F			F			F			F

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 170			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.42			
Intersection Signal Delay: 137.5		Intersection LOS: F	
Intersection Capacity Utilization 116.1%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 126: US 74 & E. Franklin Street

Lane Group	SWR
Minimum Split (s)	
Total Split (s)	44.0
Total Split (%)	31.4%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Act Effct Green (s)	30.6
Actuated g/C Ratio	0.22
v/c Ratio	0.42
Control Delay	27.4
Queue Delay	0.0
Total Delay	27.4
LOS	C
Approach Delay	
Approach LOS	

Intersection Summary

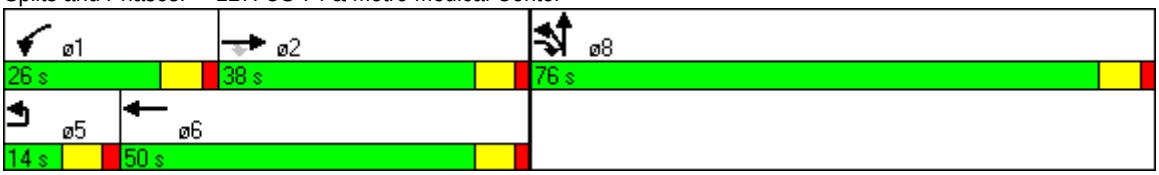
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	10	0	1318	1544	313	1104	53	907	0	243	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.91	0.91	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.993			0.935			
Flt Protected	0.950				0.950			0.950	0.972			
Satd. Flow (prot)	1719	0	4940	1538	1736	4953	0	1504	1439	0	0	0
Flt Permitted	0.950				0.950			0.950	0.972			
Satd. Flow (perm)	1719	0	4940	1538	1736	4953	0	1504	1439	0	0	0
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			55			45			25
Link Distance (ft)			239			375			459			145
Travel Time (s)			3.6			4.6			7.0			4.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	4%	4%	4%	14%	14%	14%	2%	2%
Adj. Flow (vph)	11	0	1464	1716	348	1227	59	1008	0	270	0	0
Shared Lane Traffic (%)								35%				
Lane Group Flow (vph)	11	0	1464	1716	348	1286	0	655	623	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			12			12			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1		2	1	1	2		1	2			
Detector Template	Left		Thru	Right	Left	Thru		Left	Thru			
Leading Detector (ft)	20		100	20	20	100		20	100			
Trailing Detector (ft)	0		0	0	0	0		0	0			
Detector 1 Position(ft)	0		0	0	0	0		0	0			
Detector 1 Size(ft)	20		6	20	20	6		20	6			
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 2 Position(ft)			94			94			94			
Detector 2 Size(ft)			6			6			6			
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			
Turn Type	Prot			pm+ov	Prot			Split				
Protected Phases	5		2	8	1	6		8	8			
Permitted Phases				2								
Detector Phase	5		2	8	1	6		8	8			
Switch Phase												
Minimum Initial (s)	7.0		12.0	12.0	7.0	14.0		12.0	12.0			

Lane Group	SBR
Lane Configurations	
Volume (vph)	33
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.865
Flt Protected	
Satd. Flow (prot)	1611
Flt Permitted	
Satd. Flow (perm)	1611
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	2%
Adj. Flow (vph)	37
Shared Lane Traffic (%)	
Lane Group Flow (vph)	37
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Detector Phase	
Switch Phase	
Minimum Initial (s)	

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Minimum Split (s)	14.0		19.0	19.0	14.0	21.0		19.0	19.0			
Total Split (s)	14.0	0.0	38.0	76.0	26.0	50.0	0.0	76.0	76.0	0.0	0.0	0.0
Total Split (%)	10.0%	0.0%	27.1%	54.3%	18.6%	35.7%	0.0%	54.3%	54.3%	0.0%	0.0%	0.0%
Maximum Green (s)	7.0		31.0	69.0	19.0	43.0		69.0	69.0			
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0		5.0	5.0			
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0		2.0	2.0			
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	2.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	2.0	2.0
Lead/Lag	Lead		Lag		Lead	Lag						
Lead-Lag Optimize?			Yes			Yes						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0		3.0	3.0			
Recall Mode	None		C-Max	None	None	C-Max		None	None			
Act Effct Green (s)	9.0		33.0	109.0	21.0	53.4		71.0	71.0			
Actuated g/C Ratio	0.06		0.24	0.78	0.15	0.38		0.51	0.51			
v/c Ratio	0.10		1.26	1.43	1.34	0.68		0.86	0.85			
Control Delay	63.9		166.7	220.2	220.4	39.5		43.1	43.1			
Queue Delay	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Total Delay	63.9		166.7	220.2	220.4	39.5		43.1	43.1			
LOS	E		F	F	F	D		D	D			
Approach Delay			195.1			78.0			43.1			
Approach LOS			F			E			D			

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.43			
Intersection Signal Delay: 131.1		Intersection LOS: F	
Intersection Capacity Utilization 121.3%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 127: US 74 & Metro Medical Center



Lane Group	SBR
Minimum Split (s)	
Total Split (s)	0.0
Total Split (%)	0.0%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	2.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Act Effct Green (s)	140.0
Actuated g/C Ratio	1.00
v/c Ratio	0.02
Control Delay	0.0
Queue Delay	0.0
Total Delay	0.0
LOS	A
Approach Delay	
Approach LOS	

Intersection Summary

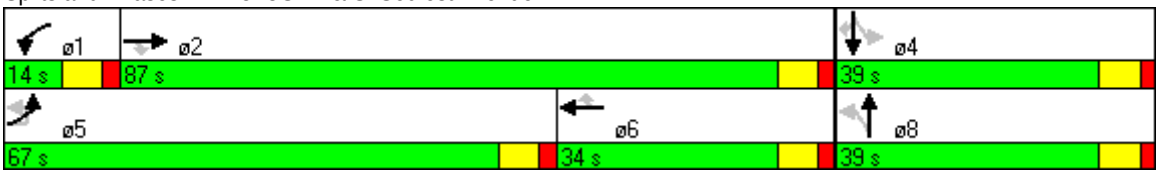
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	43	165	1335	47	9	1062	109	36	99	9	249	238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850			0.850		0.992			
Flt Protected		0.950			0.950				0.988			0.975
Satd. Flow (prot)	0	1736	3471	1553	1736	3471	1553	0	1826	0	0	1816
Flt Permitted		0.065			0.950				0.155			0.680
Satd. Flow (perm)	0	119	3471	1553	1736	3471	1553	0	286	0	0	1267
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			55			55			35			35
Link Distance (ft)			411			374			242			283
Travel Time (s)			5.1			4.6			4.7			5.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%
Adj. Flow (vph)	48	183	1483	52	10	1180	121	40	110	10	277	264
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	231	1483	52	10	1180	121	0	160	0	0	541
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			12			12			0			0
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1	1	2	1	1	2	1	1	2		1	2
Detector Template	Left	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru
Leading Detector (ft)	20	20	100	20	20	100	20	20	100		20	100
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0		0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0		0	0
Detector 1 Size(ft)	20	20	6	20	20	6	20	20	6		20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)			94			94			94			94
Detector 2 Size(ft)			6			6			6			6
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			0.0
Turn Type	custom	Prot		Perm	Prot		Perm	Perm			Perm	
Protected Phases		5	2		1	6			8			4
Permitted Phases	5			2			6	8			4	
Detector Phase	5	5	2	2	1	6	6	8	8		4	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	14.0	14.0	7.0	14.0	14.0	7.0	7.0		7.0	7.0

Lane Group	SBR
Lane Configurations	
Volume (vph)	300
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	2%
Adj. Flow (vph)	333
Shared Lane Traffic (%)	
Lane Group Flow (vph)	333
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Detector Phase	4
Switch Phase	
Minimum Initial (s)	7.0

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Minimum Split (s)	14.0	14.0	21.0	21.0	14.0	21.0	21.0	14.0	14.0		14.0	14.0
Total Split (s)	67.0	67.0	87.0	87.0	14.0	34.0	34.0	39.0	39.0	0.0	39.0	39.0
Total Split (%)	47.9%	47.9%	62.1%	62.1%	10.0%	24.3%	24.3%	27.9%	27.9%	0.0%	27.9%	27.9%
Maximum Green (s)	60.0	60.0	80.0	80.0	7.0	27.0	27.0	32.0	32.0		32.0	32.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Time Before Reduce (s)	0.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0	0.0		0.0	0.0
Time To Reduce (s)	0.0	0.0	50.0	50.0	0.0	50.0	50.0	0.0	0.0		0.0	0.0
Recall Mode	None	None	C-Min	C-Min	None	C-Min	C-Min	None	None		None	None
Act Effct Green (s)		62.0	93.2	93.2	9.0	29.0	29.0		34.0			34.0
Actuated g/C Ratio		0.44	0.67	0.67	0.06	0.21	0.21		0.24			0.24
v/c Ratio		4.36	0.64	0.05	0.09	1.64	0.38		2.32			1.76
Control Delay		1566.9	16.0	9.4	63.7	329.7	51.7		660.8			385.4
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0
Total Delay		1566.9	16.0	9.4	63.7	329.7	51.7		660.8			385.4
LOS		F	B	A	E	F	D		F			F
Approach Delay			218.7			302.0			660.8			266.6
Approach LOS			F			F			F			F

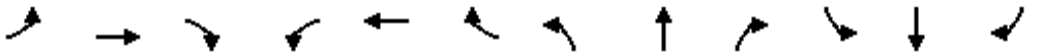
Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 4.36			
Intersection Signal Delay: 272.7		Intersection LOS: F	
Intersection Capacity Utilization 92.7%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 128: US 74 & S. Secrest Avenue



Lane Group	SBR
Minimum Split (s)	14.0
Total Split (s)	39.0
Total Split (%)	27.9%
Maximum Green (s)	32.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Minimum Gap (s)	3.0
Time Before Reduce (s)	0.0
Time To Reduce (s)	0.0
Recall Mode	None
Act Effct Green (s)	34.0
Actuated g/C Ratio	0.24
v/c Ratio	0.87
Control Delay	73.6
Queue Delay	0.0
Total Delay	73.6
LOS	E
Approach Delay	
Approach LOS	

Intersection Summary

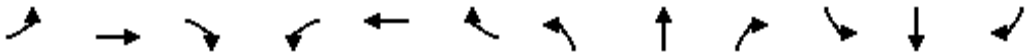


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	79	1389	20	3	1120	58	32	20	6	101	18	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.993			0.985				0.850
Flt Protected	0.950			0.950				0.973			0.959	
Satd. Flow (prot)	1736	3464	0	1736	3447	0	0	1785	0	0	1786	1583
Flt Permitted	0.950			0.950				0.669			0.722	
Satd. Flow (perm)	1736	3464	0	1736	3447	0	0	1227	0	0	1345	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			20			25	
Link Distance (ft)		242			246			170			270	
Travel Time (s)		4.7			4.8			5.8			7.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	88	1543	22	3	1244	64	36	22	7	112	20	122
Shared Lane Traffic (%)												
Lane Group Flow (vph)	88	1565	0	3	1308	0	0	65	0	0	132	122
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		pm+ov
Protected Phases	5	2		1	6			8			4	5
Permitted Phases							8			4		4
Detector Phase	5	2		1	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	17.0		14.0	17.0		14.0	14.0		14.0	14.0	14.0
Total Split (s)	20.0	95.0	0.0	14.0	89.0	0.0	31.0	31.0	0.0	31.0	31.0	20.0
Total Split (%)	14.3%	67.9%	0.0%	10.0%	63.6%	0.0%	22.1%	22.1%	0.0%	22.1%	22.1%	14.3%
Maximum Green (s)	13.0	88.0		7.0	82.0		24.0	24.0		24.0	24.0	13.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None
Act Effct Green (s)	13.6	106.3		9.0	90.5			20.9			20.9	39.5
Actuated g/C Ratio	0.10	0.76		0.06	0.65			0.15			0.15	0.28
v/c Ratio	0.52	0.60		0.03	0.59			0.36			0.66	0.27
Control Delay	70.8	10.2		62.0	16.6			57.1			70.7	38.8
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Delay	70.8	10.2		62.0	16.6			57.1			70.7	38.8
LOS	E	B		E	B			E			E	D
Approach Delay		13.4			16.7			57.1			55.4	
Approach LOS		B			B			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 18.8		Intersection LOS: B	
Intersection Capacity Utilization 67.2%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 129: US 74 & Bivens Street

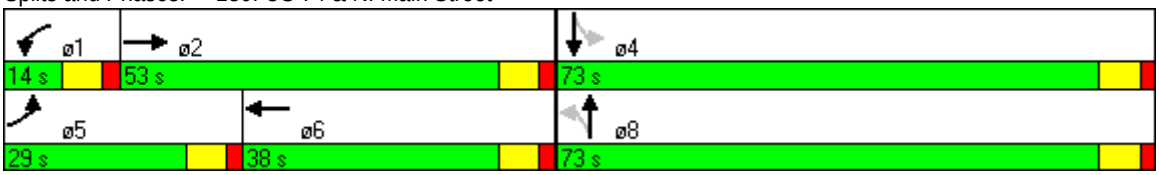


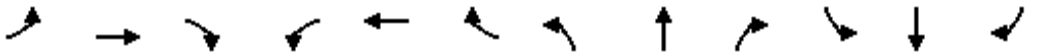
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	361	1029	54	51	806	77	43	284	52	102	374	376
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993			0.987			0.981			0.925	
Flt Protected	0.950			0.950				0.994		0.950		
Satd. Flow (prot)	1736	3447	0	1736	3426	0	0	1816	0	1770	1723	0
Flt Permitted	0.950			0.950				0.326		0.440		
Satd. Flow (perm)	1736	3447	0	1736	3426	0	0	596	0	820	1723	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		282			333			173			197	
Travel Time (s)		5.5			6.5			3.4			3.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	401	1143	60	57	896	86	48	316	58	113	416	418
Shared Lane Traffic (%)												
Lane Group Flow (vph)	401	1203	0	57	982	0	0	422	0	113	834	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	17.0		14.0	17.0		14.0	14.0		14.0	14.0	
Total Split (s)	29.0	53.0	0.0	14.0	38.0	0.0	73.0	73.0	0.0	73.0	73.0	0.0
Total Split (%)	20.7%	37.9%	0.0%	10.0%	27.1%	0.0%	52.1%	52.1%	0.0%	52.1%	52.1%	0.0%
Maximum Green (s)	22.0	46.0		7.0	31.0		66.0	66.0		66.0	66.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	None		None	None		None	None	
Act Effct Green (s)	24.0	50.8		9.0	33.0			68.0		68.0	68.0	
Actuated g/C Ratio	0.17	0.36		0.06	0.24			0.49		0.49	0.49	
v/c Ratio	1.35	0.96		0.51	1.22			1.46		0.28	1.00	
Control Delay	219.7	61.8		79.7	153.1			255.1		23.9	66.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	219.7	61.8		79.7	153.1			255.1		23.9	66.2	
LOS	F	E		E	F			F		C	E	
Approach Delay		101.3			149.1			255.1			61.1	
Approach LOS		F			F			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT, Start of Green			
Natural Cycle: 170			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.46			
Intersection Signal Delay: 120.4		Intersection LOS: F	
Intersection Capacity Utilization 112.1%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 130: US 74 & N. Main Street



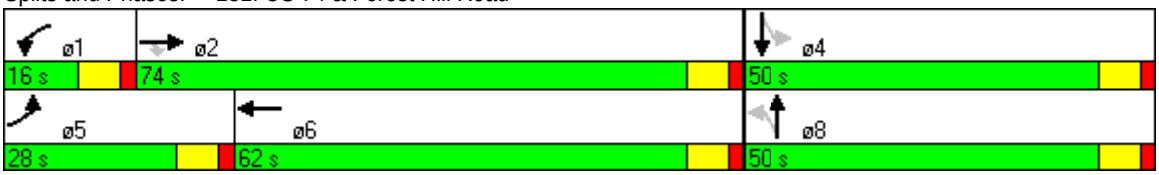


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	118	904	121	29	733	11	112	30	33	10	26	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.998			0.974			0.903	
Flt Protected	0.950			0.950				0.969			0.996	
Satd. Flow (prot)	1736	3471	1553	1736	3464	0	0	1676	0	0	1643	0
Flt Permitted	0.950			0.950				0.612			0.971	
Satd. Flow (perm)	1736	3471	1553	1736	3464	0	0	1058	0	0	1602	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			35	
Link Distance (ft)		576			646			376			353	
Travel Time (s)		7.1			8.0			4.7			6.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	7%	7%	7%	4%	4%	4%
Adj. Flow (vph)	131	1004	134	32	814	12	124	33	37	11	29	103
Shared Lane Traffic (%)												
Lane Group Flow (vph)	131	1004	134	32	826	0	0	194	0	0	143	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		Perm	Prot			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8			4		
Detector Phase	5	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	14.0	14.0	7.0	14.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	21.0	21.0	14.0	21.0		14.0	14.0		14.0	14.0	
Total Split (s)	28.0	74.0	74.0	16.0	62.0	0.0	50.0	50.0	0.0	50.0	50.0	0.0
Total Split (%)	20.0%	52.9%	52.9%	11.4%	44.3%	0.0%	35.7%	35.7%	0.0%	35.7%	35.7%	0.0%
Maximum Green (s)	21.0	67.0	67.0	9.0	55.0		43.0	43.0		43.0	43.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	
Act Effct Green (s)	17.8	89.5	89.5	10.4	76.5			30.7			30.7	
Actuated g/C Ratio	0.13	0.64	0.64	0.07	0.55			0.22			0.22	
v/c Ratio	0.59	0.45	0.14	0.25	0.44			0.84			0.41	
Control Delay	68.1	16.2	13.7	65.2	21.8			79.5			48.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Delay	68.1	16.2	13.7	65.2	21.8			79.5			48.6	
LOS	E	B	B	E	C			E			D	
Approach Delay		21.3			23.4			79.5			48.6	
Approach LOS		C			C			E			D	

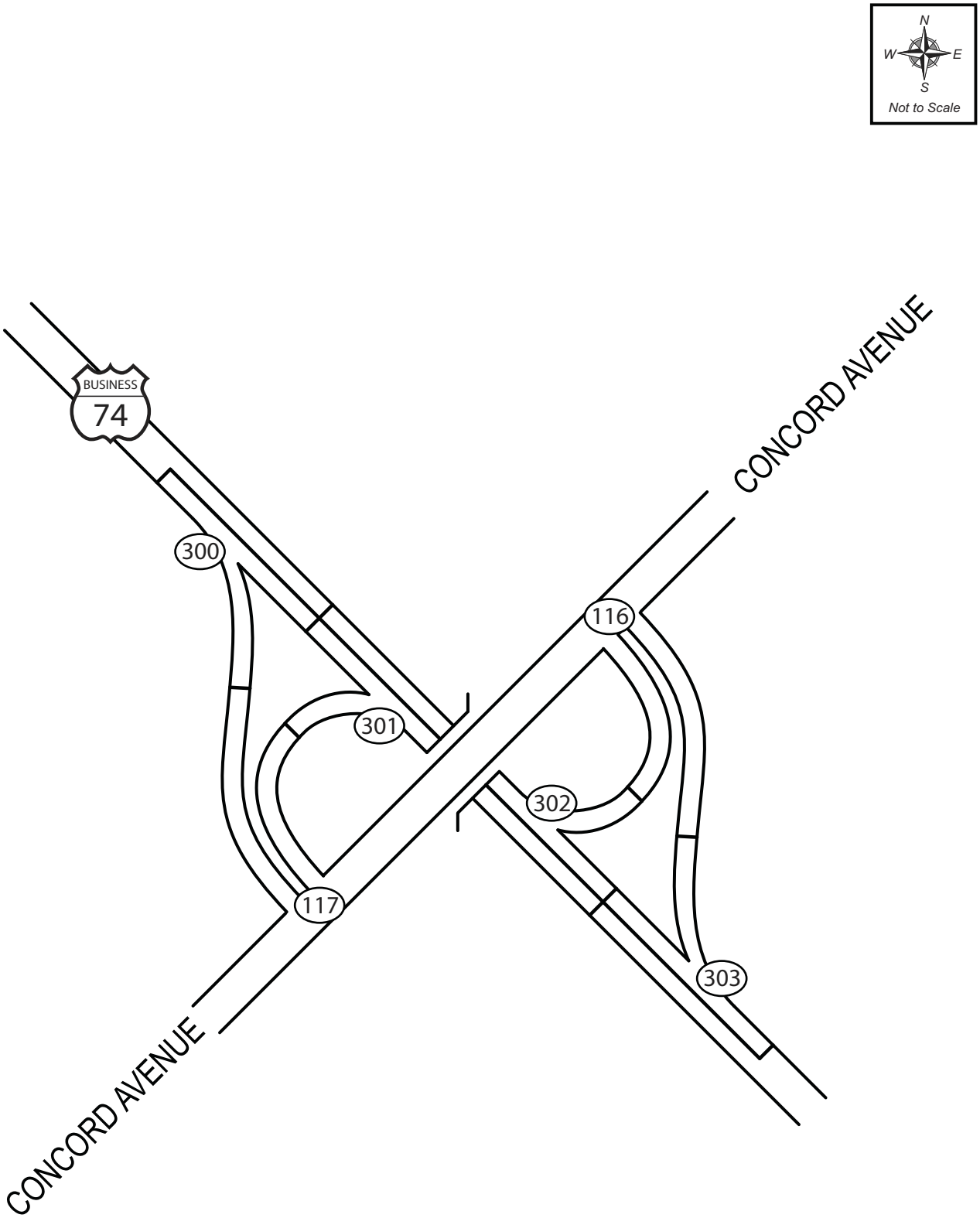
Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 28.2		Intersection LOS: C	
Intersection Capacity Utilization 59.8%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 131: US 74 & Forest Hill Road



E-12-3

Business US 74 / Concord Ave I/C



NORTH CAROLINA Turnpike Authority

MONROE CONNECTOR / BYPASS

TIP Project Numbers R-3329 & R-2559

Mecklenburg and Union Counties

Business US 74 Corridor
Concord Avenue
Key Sheet

Appendix E

KeySheetUS74CorridorConcordAve.ai

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*WB US 74 Ramp at Concord Ave*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 3D*
Analysis Time Period	*AM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *WB US 74 Ramp*	North/South Street: *Concord Ave.*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*371*	*114*	*106*	*431*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*412*	*126*	*117*	*478*	*0*
Percent Heavy Vehicles		--	--	*4*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*183*	*0*	*67*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*203*	*0*	*74*	*0*	*0*	*0*
Percent Heavy Vehicles	*5*		*5*			
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (vph)		*117*		*277*				
C (m) (vph)		*1020*		*222*				
v/c		*0.11*		*1.25*				
95% queue length		*0.39*		*14.19*				
Control Delay		*9.0*		*187.5*				
LOS		*A*		*F*				
Approach Delay	--	--	*187.5*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*WB US 74 Ramp at Concord Ave*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 3D*
Analysis Time Period	*PM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *WB US 74 Ramp*	North/South Street: *Concord Ave.*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*469*	*117*	*86*	*352*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*521*	*130*	*95*	*391*	*0*
Percent Heavy Vehicles		--	--	*4*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*145*	*0*	*68*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*161*	*0*	*75*	*0*	*0*	*0*
Percent Heavy Vehicles	*5*		*5*			
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (vph)		*95*		*236*				
C (m) (vph)		*926*		*236*				
v/c		*0.10*		*1.00*				
95% queue length		*0.34*		*9.41*				
Control Delay		*9.3*		*103.1*				
LOS		*A*		*F*				
Approach Delay	--	--	*103.1*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*EB US 74 Ramp at Concord Ave*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 3D*
Analysis Time Period	*AM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *EB US 74 Ramp*	North/South Street: *Concord Ave.*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*145*	*399*			*546*	*68*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*161*	*443*	*0*	*0*	*606*	*75*
Percent Heavy Vehicles	*4*	--	--		--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume		*0*		*86*	*0*	*117*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*95*	*0*	*130*
Percent Heavy Vehicles				*5*		*5*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*161*						*225*	
C (m) (vph)	*902*						*214*	
v/c	*0.18*						*1.05*	
95% queue length	*0.65*						*9.90*	
Control Delay	*9.9*						*123.3*	
LOS	*A*						*F*	
Approach Delay	--	--				*123.3*		
Approach LOS	--	--				*F*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*EB US 74 Ramp at Concord Ave*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 3D*
Analysis Time Period	*PM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *EB US 74 Ramp*	North/South Street: *Concord Ave.*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*183*	*480*			*430*	*67*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*203*	*533*	*0*	*0*	*477*	*74*
Percent Heavy Vehicles	*4*	--	--		--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume		*0*		*106*	*0*	*114*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*117*	*0*	*126*
Percent Heavy Vehicles				*5*		*5*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*203*						*243*	
C (m) (vph)	*1009*						*192*	
v/c	*0.20*						*1.27*	
95% queue length	*0.75*						*13.25*	
Control Delay	*9.5*						*202.9*	
LOS	*A*						*F*	
Approach Delay	--	--				*202.9*		
Approach LOS	--	--				*F*		

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Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB off to Concord Ave.
Junction:	300
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1808	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	203	vph
Length of first accel/decel lane	680	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	213	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	1808		203		213		vph
Peak-hour factor, PHF	0.90		0.90		0.90		
Peak 15-min volume, v15	502		56		59		v
Trucks and buses	5		5		4		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		

Heavy vehicle adjustment, fHV	0.930	0.930	0.943	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2160	242	251	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.695 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1575 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2160	6750	No
v_{12}	1575	4400	No
$v_{FO} = v_F - v_R$	1918	6750	No
v_R	242	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 11.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.385	
Space mean speed in ramp influence area,	S_R = 50.0	mph
Space mean speed in outer lanes,	S_0 = 60.3	mph
Space mean speed for all vehicles,	S = 52.4	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB off to Concord Ave.
Junction:	300
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2200	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	220	vph
Length of first accel/decel lane	680	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	250	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2200	220	250	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	611	61	69	v
Trucks and buses	5	5	4	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.943	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2628	263	294	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.682 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1876 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2628	6750	No
v_{12}	1876	4400	No
$v_{FO} = v_F - v_R$	2365	6750	No
v_R	263	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 14.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.387	
Space mean speed in ramp influence area,	S_R = 50.0	mph
Space mean speed in outer lanes,	S_O = 60.3	mph
Space mean speed for all vehicles,	S = 52.6	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB on from Concord Ave.
Junction:	301
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1605	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	213	vph
Length of first accel/decel lane	100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	203	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1605	213	203	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	446	59	56	v
Trucks and buses	5	4	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1917	251	242	pcph

Estimation of V12 Merge Areas

L_{EQ} = -586.65 (Equation 25-2 or 25-3)

P_{FM} = 0.580 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1112 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2168	6750	No
v_{R12}	1363	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 15.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.331	
Space mean speed in ramp influence area,	S_R = 50.7	mph
Space mean speed in outer lanes,	S_O = 53.9	mph
Space mean speed for all vehicles,	S = 51.8	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB on from Concord Ave.
Junction:	301
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1980	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	250	vph
Length of first accel/decel lane	100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	220	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1980	250	220	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	550	69	61	v
Trucks and buses	5	4	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2365	294	263	pcph

Estimation of V12 Merge Areas

L_{EQ} = -481.57 (Equation 25-2 or 25-3)

P_{FM} = 0.580 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1372 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2659	6750	No
v_{R12}	1666	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 17.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.337	
Space mean speed in ramp influence area,	S_R = 50.6	mph
Space mean speed in outer lanes,	S_O = 53.2	mph
Space mean speed for all vehicles,	S = 51.6	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB on from Concord Ave.
Junction:	302
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1980	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	220	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	250	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1980	220	250	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	550	61	69	v
Trucks and buses	5	4	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2365	259	299	pcph

Estimation of V12 Merge Areas

L_{EQ} = -400.26 (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1386 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2624	6750	No
v_{R12}	1645	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 16.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.326	
Space mean speed in ramp influence area,	S_R = 50.8	mph
Space mean speed in outer lanes,	S_O = 53.3	mph
Space mean speed for all vehicles,	S = 51.7	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB on from Concord Ave.
Junction:	302
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1605	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	203	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	213	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1605	203	213	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	446	56	59	v
Trucks and buses	5	4	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1917	239	254	pcph

Estimation of V12 Merge Areas

L_{EQ} = -500.42 (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1123 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2156	6750	No
v_{R12}	1362	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 14.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.321	
Space mean speed in ramp influence area,	S_R = 50.8	mph
Space mean speed in outer lanes,	S_O = 53.9	mph
Space mean speed for all vehicles,	S = 51.9	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB off to Concord Ave.
Junction:	303
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2230	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	250	vph
Length of first accel/decel lane	680	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	220	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2230	250	220	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	619	69	61	v
Trucks and buses	5	5	4	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.943	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2664	299	259	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.680 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1906 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2664	6750	No
v_{12}	1906	4400	No
$v_{FO} = v_F - v_R$	2365	6750	No
v_R	299	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 14.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.390	
Space mean speed in ramp influence area,	S_R = 49.9	mph
Space mean speed in outer lanes,	S_O = 60.3	mph
Space mean speed for all vehicles,	S = 52.5	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB off to Concord Ave.
Junction:	303
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1818	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	213	vph
Length of first accel/decel lane	680	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	203	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1818	213	203	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	505	59	56	v
Trucks and buses	5	5	4	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.943	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2171	254	239	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.694 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1584 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2171	6750	No
v_{12}	1584	4400	No
$v_{FO} = v_F - v_R$	1917	6750	No
v_R	254	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 11.8 pc/mi/ln

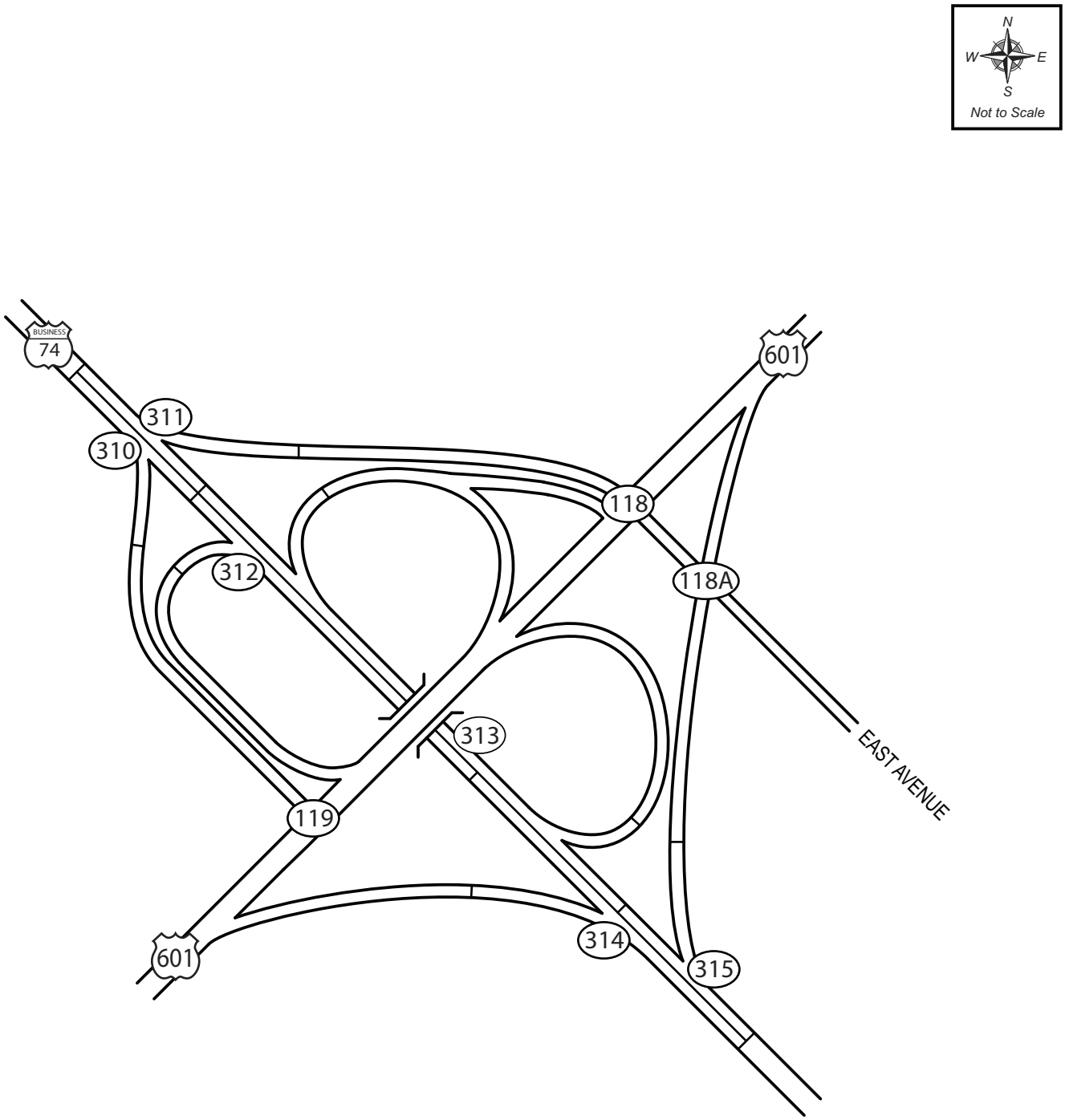
Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.386	
Space mean speed in ramp influence area,	S_R = 50.0	mph
Space mean speed in outer lanes,	S_0 = 60.3	mph
Space mean speed for all vehicles,	S = 52.4	mph

E-12-4

Business US 74 / US 601I/C



NORTH CAROLINA Turnpike Authority

MONROE CONNECTOR / BYPASS

TIP Project Numbers R-3329 & R-2559

Mecklenburg and Union Counties

Business US 74 Corridor
US 601
Key Sheet

Appendix E

KeySheetUS74CorridorUS601.ai

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*East Ave. at US 74 Off Ramp*
Agency/Co.	*PBS&J*	Jurisdiction	*118A*
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 3D*
Analysis Time Period	*AM Peak Hour*		
Project Description	*Monroe Connector/Bypass*		
East/West Street:	*East Ave.*	North/South Street:	*US 74 Off Ramp*
Intersection Orientation:	*North-South*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*10*	*481*	*10*			
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*11*	*534*	*11*	*0*	*0*	*0*
Percent Heavy Vehicles	*5*	--	--		--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration	*LTR*					
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume		*120*	*150*	*10*	*270*	
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*133*	*166*	*11*	*300*	*0*
Percent Heavy Vehicles		*5*	*5*	*8*	*8*	
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*				*TR*	*LT*		
v (vph)	*11*				*299*	*311*		
C (m) (vph)	*1604*				*482*	*401*		
v/c	*0.01*				*0.62*	*0.78*		
95% queue length	*0.02*				*4.15*	*6.55*		
Control Delay	*7.3*				*23.9*	*38.9*		
LOS	*A*				*C*	*E*		
Approach Delay	--	--	*23.9*			*38.9*		
Approach LOS	--	--	*C*			*E*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*East Ave. at US 74 Off Ramp*
Agency/Co.	*PBS&J*	Jurisdiction	*118A*
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 3D*
Analysis Time Period	*PM Peak Hour*		
Project Description	*Monroe Connector/Bypass*		
East/West Street:	*East Ave.*	North/South Street:	*US 74 Off Ramp*
Intersection Orientation:	*North-South*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*10*	*368*	*10*			
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*11*	*408*	*11*	*0*	*0*	*0*
Percent Heavy Vehicles	*5*	--	--		--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration	*LTR*					
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume		*150*	*150*	*10*	*290*	
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*166*	*166*	*11*	*322*	*0*
Percent Heavy Vehicles		*5*	*5*	*8*	*8*	
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*				*TR*	*LT*		
v (vph)	*11*				*332*	*333*		
C (m) (vph)	*1604*				*561*	*476*		
v/c	*0.01*				*0.59*	*0.70*		
95% queue length	*0.02*				*3.84*	*5.37*		
Control Delay	*7.3*				*20.3*	*28.3*		
LOS	*A*				*C*	*D*		
Approach Delay	--	--	*20.3*			*28.3*		
Approach LOS	--	--	*C*			*D*		

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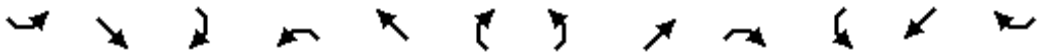
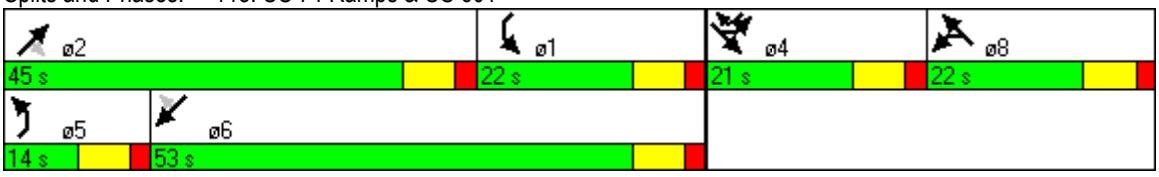


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	10	10	10	120	10	0	10	699	150	120	528	337
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.955							0.850			0.850
Flt Protected		0.984		0.950			0.950			0.950		
Satd. Flow (prot)	0	1700	0	1719	1810	0	1671	3343	1495	1671	3343	1495
Flt Permitted		0.984		0.950			0.950			0.950		
Satd. Flow (perm)	0	1700	0	1719	1810	0	1671	3343	1495	1671	3343	1495
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		412			451			446			441	
Travel Time (s)		8.0			8.8			6.8			6.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	8%	8%	8%	8%	8%	8%
Adj. Flow (vph)	11	11	11	133	11	0	11	777	167	133	587	374
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	33	0	133	11	0	11	777	167	133	587	374
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split			Prot		Perm	Prot		pm+ov
Protected Phases	4	4		8	8		5	2		1	6	4
Permitted Phases									2			6
Detector Phase	4	4		8	8		5	2	2	1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	14.0
Total Split (s)	21.0	21.0	0.0	22.0	22.0	0.0	14.0	45.0	45.0	22.0	53.0	21.0
Total Split (%)	19.1%	19.1%	0.0%	20.0%	20.0%	0.0%	12.7%	40.9%	40.9%	20.0%	48.2%	19.1%
Maximum Green (s)	14.0	14.0		15.0	15.0		7.0	38.0	38.0	15.0	46.0	14.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	None	None
Act Effct Green (s)		10.2		15.5	15.5		9.0	49.4	49.4	14.8	66.5	81.7
Actuated g/C Ratio		0.09		0.14	0.14		0.08	0.45	0.45	0.13	0.60	0.74
v/c Ratio		0.21		0.55	0.04		0.08	0.52	0.25	0.59	0.29	0.34
Control Delay		48.7		52.0	38.9		48.2	24.7	22.2	55.4	12.6	7.3
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		48.7		52.0	38.9		48.2	24.7	22.2	55.4	12.6	7.3
LOS		D		D	D		D	C	C	E	B	A
Approach Delay		48.7			51.0			24.6			16.0	
Approach LOS		D			D			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 2:NET, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 22.4		Intersection LOS: C	
Intersection Capacity Utilization 51.8%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 118: US 74 Ramps & US 601



Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (vph)	347	140	0	692	657	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	3335	1538	0	3343	3343	0
Flt Permitted	0.950					
Satd. Flow (perm)	3335	1538	0	3343	3343	0
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	35			45	45	
Link Distance (ft)	529			486	575	
Travel Time (s)	10.3			7.4	8.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	8%	8%	8%	8%
Adj. Flow (vph)	386	156	0	769	730	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	386	156	0	769	730	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (ft)	20	20		100	100	
Trailing Detector (ft)	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	
Detector 1 Size(ft)	20	20		6	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type		Perm				
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						
Minimum Initial (s)	7.0	7.0		12.0	12.0	

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Minimum Split (s)	14.0	14.0		19.0	19.0	
Total Split (s)	42.0	42.0	0.0	68.0	68.0	0.0
Total Split (%)	38.2%	38.2%	0.0%	61.8%	61.8%	0.0%
Maximum Green (s)	35.0	35.0		61.0	61.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		C-Max	C-Max	
Act Effct Green (s)	37.0	37.0		63.0	63.0	
Actuated g/C Ratio	0.34	0.34		0.57	0.57	
v/c Ratio	0.34	0.30		0.40	0.38	
Control Delay	28.5	29.0		13.8	13.6	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	28.5	29.0		13.8	13.6	
LOS	C	C		B	B	
Approach Delay	28.6			13.8	13.6	
Approach LOS	C			B	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 2:NET and 6:SWT, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.40			
Intersection Signal Delay: 17.7		Intersection LOS: B	
Intersection Capacity Utilization 37.4%		ICU Level of Service A	
Analysis Period (min) 15			

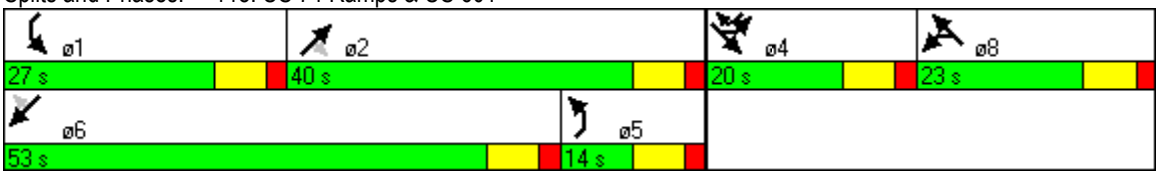
Splits and Phases: 119: EB US 74 Off Ramp & US 601

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	10	10	10	150	10	0	10	589	120	170	717	347
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.955							0.850			0.850
Flt Protected		0.984		0.950			0.950			0.950		
Satd. Flow (prot)	0	1700	0	1719	1810	0	1671	3343	1495	1671	3343	1495
Flt Permitted		0.984		0.950			0.950			0.950		
Satd. Flow (perm)	0	1700	0	1719	1810	0	1671	3343	1495	1671	3343	1495
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		412			451			446			441	
Travel Time (s)		8.0			8.8			6.8			6.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	8%	8%	8%	8%	8%	8%
Adj. Flow (vph)	11	11	11	167	11	0	11	654	133	189	797	386
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	33	0	167	11	0	11	654	133	189	797	386
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split			Prot		Perm	Prot		pm+ov
Protected Phases	4	4		8	8		5	2		1	6	4
Permitted Phases									2			6
Detector Phase	4	4		8	8		5	2	2	1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	14.0
Total Split (s)	20.0	20.0	0.0	23.0	23.0	0.0	14.0	40.0	40.0	27.0	53.0	20.0
Total Split (%)	18.2%	18.2%	0.0%	20.9%	20.9%	0.0%	12.7%	36.4%	36.4%	24.5%	48.2%	18.2%
Maximum Green (s)	13.0	13.0		16.0	16.0		7.0	33.0	33.0	20.0	46.0	13.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lag	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		Max	Max		None	C-Max	C-Max	None	None	None
Act Effct Green (s)		10.6		22.4	22.4		10.0	38.3	38.3	18.7	58.2	72.8
Actuated g/C Ratio		0.10		0.20	0.20		0.09	0.35	0.35	0.17	0.53	0.66
v/c Ratio		0.20		0.48	0.03		0.07	0.56	0.26	0.66	0.45	0.39
Control Delay		47.8		44.7	37.2		45.6	32.1	28.5	53.9	18.4	8.7
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		47.8		44.7	37.2		45.6	32.1	28.5	53.9	18.4	8.7
LOS		D		D	D		D	C	C	D	B	A
Approach Delay		47.8			44.2			31.7			20.5	
Approach LOS		D			D			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 2:NET, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 26.4		Intersection LOS: C	
Intersection Capacity Utilization 53.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 118: US 74 Ramps & US 601

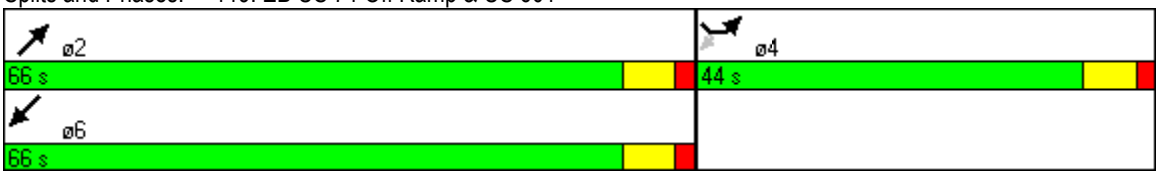


Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (vph)	337	190	0	512	781	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	3335	1538	0	3343	3343	0
Flt Permitted	0.950					
Satd. Flow (perm)	3335	1538	0	3343	3343	0
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	35			45	45	
Link Distance (ft)	529			486	575	
Travel Time (s)	10.3			7.4	8.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	8%	8%	8%	8%
Adj. Flow (vph)	374	211	0	569	868	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	374	211	0	569	868	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (ft)	20	20		100	100	
Trailing Detector (ft)	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	
Detector 1 Size(ft)	20	20		6	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type		Perm				
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						
Minimum Initial (s)	7.0	7.0		12.0	12.0	

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Minimum Split (s)	14.0	14.0		19.0	19.0	
Total Split (s)	44.0	44.0	0.0	66.0	66.0	0.0
Total Split (%)	40.0%	40.0%	0.0%	60.0%	60.0%	0.0%
Maximum Green (s)	37.0	37.0		59.0	59.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		None	None	
Act Effct Green (s)	39.2	39.2		28.6	28.6	
Actuated g/C Ratio	0.50	0.50		0.37	0.37	
v/c Ratio	0.22	0.27		0.46	0.71	
Control Delay	12.2	13.6		19.8	24.3	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	12.2	13.6		19.8	24.3	
LOS	B	B		B	C	
Approach Delay	12.7			19.8	24.3	
Approach LOS	B			B	C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 77.9			
Natural Cycle: 40			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 19.7		Intersection LOS: B	
Intersection Capacity Utilization 41.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 119: EB US 74 Off Ramp & US 601



Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB off to US 601
Junction:	310
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1817	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	487	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	276	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	700	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	1817		487		276	vph
Peak-hour factor, PHF	0.90		0.90		0.90	
Peak 15-min volume, v15	505		135		77	v
Trucks and buses	5		5		8	%
Recreational vehicles	0		0		0	%
Terrain type:	Rolling		Rolling		Rolling	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	2.5		2.5		2.5	
Recreational vehicle PCE, ER	2.0		2.0		2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2170	582	343	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.679 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1660 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2170	6750	No
v_{12}	1660	4400	No
$v_{FO} = v_F - v_R$	1588	6750	No
v_R	582	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 16.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.415

Space mean speed in ramp influence area, S_R = 49.6 mph

Space mean speed in outer lanes, S_0 = 60.3 mph

Space mean speed for all vehicles, S = 51.8 mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB off to US 601
Junction:	310
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2232	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	527	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	365	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	700	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2232	527	365	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	620	146	101	v
Trucks and buses	5	5	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2666	629	454	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.664 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1982 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2666	6750	No
v_{12}	1982	4400	No
$v_{FO} = v_F - v_R$	2037	6750	No
v_R	629	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 19.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.420	
Space mean speed in ramp influence area,	S_R = 49.5	mph
Space mean speed in outer lanes,	S_O = 60.3	mph
Space mean speed for all vehicles,	S = 51.9	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB on from US 601
Junction:	311
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1895	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	40.0	mph
Volume on ramp	357	vph
Length of first accel/decel lane	250	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	405	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1895	357	405	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	526	99	113	v
Trucks and buses	5	8	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2263	444	484	pcph

Estimation of V12 Merge Areas

L_{EQ} = 380.10 (Equation 25-2 or 25-3)

P_{FM} = 0.585 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1323 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2707	6750	No
v_{R12}	1767	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 17.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.324

Space mean speed in ramp influence area, S_R = 50.8 mph

Space mean speed in outer lanes, S_O = 53.4 mph

Space mean speed for all vehicles, S = 51.7 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB on from US 601
Junction:	311
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1470	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	40.0	mph
Volume on ramp	367	vph
Length of first accel/decel lane	250	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	429	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1470	367	429	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	408	102	119	v
Trucks and buses	5	5	4	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.943	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1756	438	505	pcph

Estimation of V12 Merge Areas

L_{EQ} = 270.32 (Equation 25-2 or 25-3)

P_{FM} = 0.585 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1026 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2194	6750	No
v_{R12}	1464	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 15.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.318	
Space mean speed in ramp influence area,	S_R = 50.9	mph
Space mean speed in outer lanes,	S_O = 54.2	mph
Space mean speed for all vehicles,	S = 51.9	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB on from US 601 SB
Junction:	312
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1330	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	276	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	487	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	700	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1330	276	487	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	369	77	135	v
Trucks and buses	5	8	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1589	343	582	pcph

Estimation of V12 Merge Areas

L_{EQ} = -548.35 (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 931 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	1932	6750	No
v_{R12}	1274	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 13.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.320

Space mean speed in ramp influence area, S_R = 50.8 mph

Space mean speed in outer lanes, S_O = 54.4 mph

Space mean speed for all vehicles, S = 52.0 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB on from US 601 SB
Junction:	312
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1705	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	365	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	527	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	700	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1705	365	527	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	474	101	146	v
Trucks and buses	5	8	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2037	454	629	pcph

Estimation of V12 Merge Areas

L_{EQ} = -428.73 (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1193 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2491	6750	No
v_{R12}	1647	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 16.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.326	
Space mean speed in ramp influence area,	S_R = 50.8	mph
Space mean speed in outer lanes,	S_O = 53.8	mph
Space mean speed for all vehicles,	S = 51.7	mph

FREEWAY WEAVING WORKSHEET

General Information

Analyst	
Agency/Company	PBSJ
Date Performed	4/30/08
Analysis Time Period	AM Peak

Site Information

Freeway/Dir of Travel	US 74 WB
Weaving Seg Location	313
Jurisdiction	
Analysis Year	2035 Build Alternative 3D

Inputs

Freeway free-flow speed, SFF (mi/h)	55	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.26
Weaving seg length, L (ft)	550	Weaving ratio, R	0.33
Terrain	Rolling		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	1705	0.90	5	0	2.5	2.0	0.930	1.00	2036
Vo2	0	0.90	0	0	2.5	2.0	1.000	1.00	0
Vw1	405	0.90	5	0	2.5	2.0	0.930	1.00	483
Vw2	190	0.90	8	0	2.5	2.0	0.893	1.00	236
Vw				719	Vnw				2036
V									2755

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.15	0.00		
b (Exhibit 24-6)	2.20	4.00		
c (Exhibit 24-6)	0.97	1.30		
d (Exhibit 24-6)	0.80	0.75		
Weaving intensity factor, Wi	0.91	0.38		
Weaving and non-weaving speeds, Si (mi/h)	38.58	47.58		

Number of lanes required for unconstrained operation, Nw 1.22
Maximum number of lanes, Nw (max) 1.40

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	44.85
Weaving segment density, D (pc/mi/ln)	15.36
Level of service, LOS	B
Capacity of base condition, c_b (pc/h)	5975
Capacity as a 15-minute flow rate, c (veh/h)	5558
Capacity as a full-hour volume, c_h (veh/h)	5002

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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FREEWAY WEAVING WORKSHEET

General Information

Analyst	
Agency/Company	PBSJ
Date Performed	4/30/08
Analysis Time Period	PM Peak

Site Information

Freeway/Dir of Travel	US 74 WB
Weaving Seg Location	313
Jurisdiction	
Analysis Year	2035 Build Alternative 3D

Inputs

Freeway free-flow speed, S_{FF} (mi/h)	55	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.30
Weaving seg length, L (ft)	550	Weaving ratio, R	0.25
Terrain	Rolling		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	1330	0.90	5	0	2.5	2.0	0.930	1.00	1588
Vo2	0	0.90	0	0	2.5	2.0	1.000	1.00	0
Vw1	429	0.90	5	0	2.5	2.0	0.930	1.00	512
Vw2	140	0.90	8	0	2.5	2.0	0.893	1.00	174
Vw				686	Vnw				1588
V									2274

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.15	0.00		
b (Exhibit 24-6)	2.20	4.00		
c (Exhibit 24-6)	0.97	1.30		
d (Exhibit 24-6)	0.80	0.75		
Weaving intensity factor, Wi	0.81	0.34		
Weaving and non-weaving speeds, Si (mi/h)	39.88	48.65		

Number of lanes required for unconstrained operation, Nw 1.30
Maximum number of lanes, Nw (max) 1.40

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	45.62
Weaving segment density, D (pc/mi/ln)	12.46
Level of service, LOS	B
Capacity of base condition, c_b (pc/h)	5768
Capacity as a 15-minute flow rate, c (veh/h)	5366
Capacity as a full-hour volume, c_h (veh/h)	4829

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB on from US 601 NB
Junction:	314
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1606	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	40.0	mph
Volume on ramp	429	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	276	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1606	429	276	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	446	119	77	v
Trucks and buses	5	8	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1918	534	343	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1124 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2452	6750	No
v_{R12}	1658	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 16.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.317

Space mean speed in ramp influence area, S_R = 50.9 mph

Space mean speed in outer lanes, S_O = 53.9 mph

Space mean speed for all vehicles, S = 51.8 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB on from US 601 NB
Junction:	314
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2070	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	40.0	mph
Volume on ramp	405	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	365	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2070	405	365	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	575	113	101	v
Trucks and buses	9	8	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.881	0.893	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2611	504	454	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1530 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3115	6750	No
v_{R12}	2034	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 19.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.327

Space mean speed in ramp influence area, S_R = 50.8 mph

Space mean speed in outer lanes, S_O = 52.9 mph

Space mean speed for all vehicles, S = 51.5 mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB off to US 601
Junction:	315
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2475	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	365	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	190	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	400	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2475	365	190	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	688	101	53	v
Trucks and buses	5	5	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2956	436	236	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.666 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2114 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2956	6750	No
v_{12}	2114	4400	No
$v_{FO} = v_F - v_R$	2520	6750	No
v_R	436	2100	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 19.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.402

Space mean speed in ramp influence area, S_R = 49.8 mph

Space mean speed in outer lanes, S_0 = 60.3 mph

Space mean speed for all vehicles, S = 52.4 mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB off to US 601
Junction:	315
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2035	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	276	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	140	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	400	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2035	276	140	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	565	77	39	v
Trucks and buses	5	5	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2431	330	174	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.684 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1767 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2431	6750	No
v_{12}	1767	4400	No
$v_{FO} = v_F - v_R$	2101	6750	No
v_R	330	2100	No

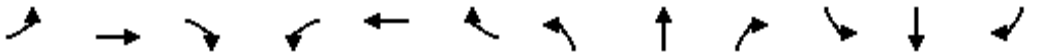
Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 16.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.393	
Space mean speed in ramp influence area,	S_R = 49.9	mph
Space mean speed in outer lanes,	S_O = 60.3	mph
Space mean speed for all vehicles,	S = 52.4	mph



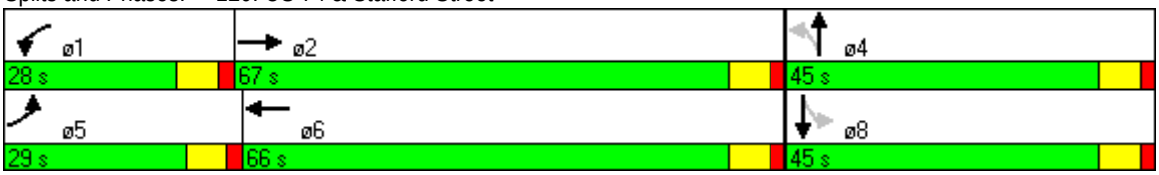
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	259	1883	253	302	1503	155	151	114	226	139	137	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.982			0.986			0.900			0.914	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4851	0	1719	4871	0	1770	1676	0	1770	1703	0
Flt Permitted	0.950			0.950			0.276			0.247		
Satd. Flow (perm)	1719	4851	0	1719	4871	0	514	1676	0	460	1703	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		443			590			549			636	
Travel Time (s)		6.7			8.9			15.0			12.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	288	2092	281	336	1670	172	168	127	251	154	152	206
Shared Lane Traffic (%)												
Lane Group Flow (vph)	288	2373	0	336	1842	0	168	378	0	154	358	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

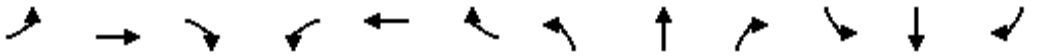
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	29.0	67.0	0.0	28.0	66.0	0.0	45.0	45.0	0.0	45.0	45.0	0.0
Total Split (%)	20.7%	47.9%	0.0%	20.0%	47.1%	0.0%	32.1%	32.1%	0.0%	32.1%	32.1%	0.0%
Maximum Green (s)	22.0	60.0		21.0	59.0		38.0	38.0		38.0	38.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	24.0	62.0		23.0	61.0		40.0	40.0		40.0	40.0	
Actuated g/C Ratio	0.17	0.44		0.16	0.44		0.29	0.29		0.29	0.29	
v/c Ratio	0.98	1.10		1.19	0.87		1.14	0.79		1.18	0.74	
Control Delay	104.0	91.8		164.8	41.4		162.5	59.3		177.2	55.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	104.0	91.8		164.8	41.4		162.5	59.3		177.2	55.6	
LOS	F	F		F	D		F	E		F	E	
Approach Delay		93.1			60.4			91.1			92.1	
Approach LOS		F			E			F			F	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.19
Intersection Signal Delay: 80.7 Intersection LOS: F
Intersection Capacity Utilization 103.0% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 120: US 74 & Stafford Street





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	195	2019	117	117	1650	107	159	10	195	53	10	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992			0.991			0.857			0.867	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4900	0	1719	4896	0	1770	1596	0	1770	1615	0
Flt Permitted	0.950			0.950			0.651			0.337		
Satd. Flow (perm)	1719	4900	0	1719	4896	0	1213	1596	0	628	1615	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			20	
Link Distance (ft)		493			536			238			211	
Travel Time (s)		7.5			8.1			6.5			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	217	2243	130	130	1833	119	177	11	217	59	11	87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	217	2373	0	130	1952	0	177	228	0	59	98	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	33.0	84.0	0.0	22.0	73.0	0.0	34.0	34.0	0.0	34.0	34.0	0.0
Total Split (%)	23.6%	60.0%	0.0%	15.7%	52.1%	0.0%	24.3%	24.3%	0.0%	24.3%	24.3%	0.0%
Maximum Green (s)	26.0	77.0		15.0	66.0		27.0	27.0		27.0	27.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	23.9	83.6		15.8	75.5		25.6	25.6		25.6	25.6	
Actuated g/C Ratio	0.17	0.60		0.11	0.54		0.18	0.18		0.18	0.18	
v/c Ratio	0.74	0.81		0.67	0.74		0.80	0.78		0.51	0.33	
Control Delay	70.0	25.9		76.5	28.2		79.8	72.9		67.1	52.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	70.0	25.9		76.5	28.2		79.8	72.9		67.1	52.0	
LOS	E	C		E	C		E	E		E	D	
Approach Delay		29.6			31.2			75.9			57.7	
Approach LOS		C			C			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 34.6		Intersection LOS: C	
Intersection Capacity Utilization 83.2%		ICU Level of Service E	
Analysis Period (min) 15			

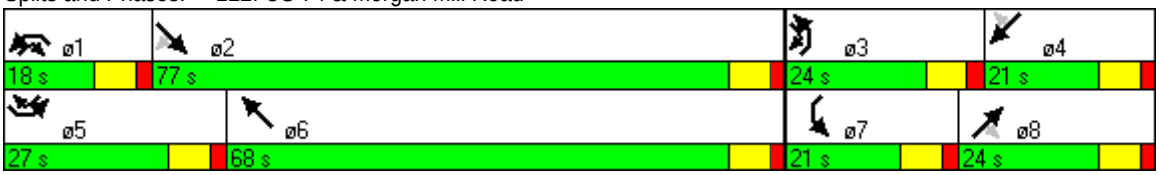
Splits and Phases: 121: US 74 & Boyte Street

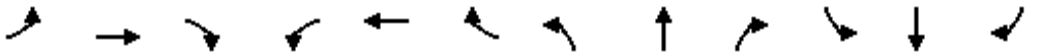
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	193	1948	159	110	1567	172	160	173	138	135	109	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.985				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	1719	4866	0	1687	1776	1509	1687	1776	1509
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	1719	4866	0	1687	1776	1509	1687	1776	1509
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		515			499			502			475	
Travel Time (s)		7.8			7.6			9.8			9.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	7%	7%	7%	7%	7%	7%
Adj. Flow (vph)	214	2164	177	122	1741	191	178	192	153	150	121	136
Shared Lane Traffic (%)												
Lane Group Flow (vph)	214	2164	177	122	1932	0	178	192	153	150	121	136
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot			Prot		pm+ov	Prot		pm+ov
Protected Phases	5	2	3	1	6		3	8	1	7	4	5
Permitted Phases			2						8			4
Detector Phase	5	2	3	1	6		3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0		7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0		14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	27.0	77.0	24.0	18.0	68.0	0.0	24.0	24.0	18.0	21.0	21.0	27.0
Total Split (%)	19.3%	55.0%	17.1%	12.9%	48.6%	0.0%	17.1%	17.1%	12.9%	15.0%	15.0%	19.3%
Maximum Green (s)	20.0	70.0	17.0	11.0	61.0		17.0	17.0	11.0	14.0	14.0	20.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max		None	None	None	None	None	None
Act Effct Green (s)	21.2	73.2	96.5	12.8	64.8		18.3	18.4	36.2	15.6	15.7	41.8
Actuated g/C Ratio	0.15	0.52	0.69	0.09	0.46		0.13	0.13	0.26	0.11	0.11	0.30
v/c Ratio	0.82	0.84	0.17	0.77	0.86		0.81	0.82	0.39	0.80	0.61	0.30
Control Delay	82.3	32.4	8.2	92.3	38.7		85.2	85.9	46.0	89.6	72.9	39.6
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	82.3	32.4	8.2	92.3	38.7		85.2	85.9	46.0	89.6	72.9	39.6
LOS	F	C	A	F	D		F	F	D	F	E	D
Approach Delay		34.9			41.9			74.0			67.9	
Approach LOS		C			D			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 43.6		Intersection LOS: D	
Intersection Capacity Utilization 78.0%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 122: US 74 & Morgan Mill Road



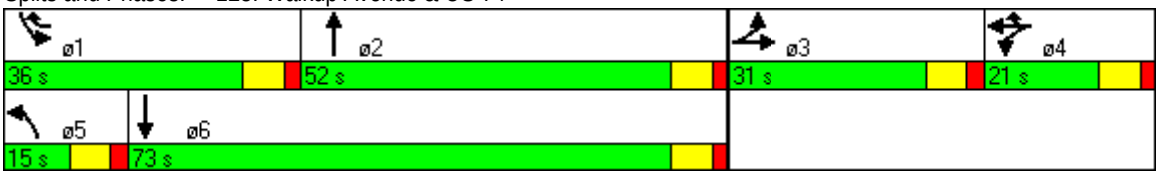


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	69	134	91	43	189	382	92	1403	31	348	1776	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.958				0.850		0.997			0.993	
Flt Protected		0.988		0.950			0.950			0.950		
Satd. Flow (prot)	0	1763	0	1770	1863	1583	1719	4925	0	1719	4905	0
Flt Permitted		0.988		0.950			0.950			0.950		
Satd. Flow (perm)	0	1763	0	1770	1863	1583	1719	4925	0	1719	4905	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		443			502			602			356	
Travel Time (s)		12.1			9.8			9.1			5.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	77	149	101	48	210	424	102	1559	34	387	1973	99
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	327	0	48	210	424	102	1593	0	387	2072	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pt+ov	Prot			Prot		
Protected Phases	3	3		4	4	4 1	5	2		1	6	
Permitted Phases												
Detector Phase	3	3		4	4	4 1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0		14.0	19.0	
Total Split (s)	31.0	31.0	0.0	21.0	21.0	57.0	15.0	52.0	0.0	36.0	73.0	0.0
Total Split (%)	22.1%	22.1%	0.0%	15.0%	15.0%	40.7%	10.7%	37.1%	0.0%	25.7%	52.1%	0.0%
Maximum Green (s)	24.0	24.0		14.0	14.0		8.0	45.0		29.0	66.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lead		Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)		26.0		16.0	16.0	52.0	10.0	47.0		31.0	68.0	
Actuated g/C Ratio		0.19		0.11	0.11	0.37	0.07	0.34		0.22	0.49	
v/c Ratio		1.00		0.24	0.99	0.72	0.83	0.96		1.02	0.87	
Control Delay		106.2		59.8	119.2	46.1	108.7	60.7		103.5	37.1	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		106.2		59.8	119.2	46.1	108.7	60.7		103.5	37.1	
LOS		F		E	F	D	F	E		F	D	
Approach Delay		106.2			69.6			63.5			47.6	
Approach LOS		F			E			E			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 120			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.02			
Intersection Signal Delay: 59.4		Intersection LOS: E	
Intersection Capacity Utilization 90.1%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 123: Walkup Avenue & US 74



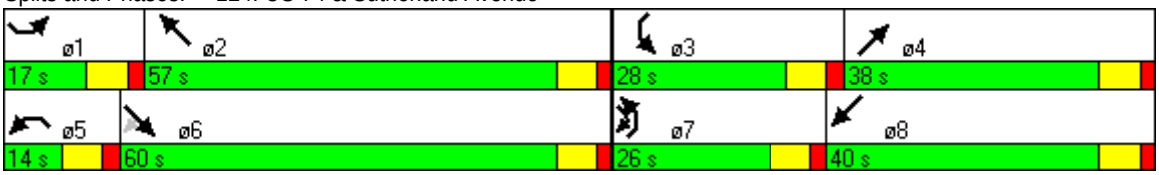
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	96	1576	169	43	1259	139	210	245	66	208	236	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.985			0.968			0.951	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	1719	4866	0	1752	1786	0	1752	1754	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	1719	4866	0	1752	1786	0	1752	1754	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		425			487			426			331	
Travel Time (s)		6.4			7.4			11.6			6.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	107	1751	188	48	1399	154	233	272	73	231	262	128
Shared Lane Traffic (%)												
Lane Group Flow (vph)	107	1751	188	48	1553	0	233	345	0	231	390	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot			Prot			Prot		
Protected Phases	1	6	7	5	2		7	4		3	8	
Permitted Phases			6									
Detector Phase	1	6	7	5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0		7.0	7.0		7.0	7.0	

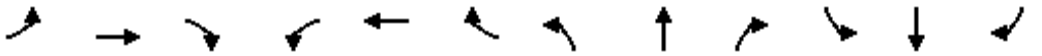
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	17.0	60.0	26.0	14.0	57.0	0.0	26.0	38.0	0.0	28.0	40.0	0.0
Total Split (%)	12.1%	42.9%	18.6%	10.0%	40.7%	0.0%	18.6%	27.1%	0.0%	20.0%	28.6%	0.0%
Maximum Green (s)	10.0	53.0	19.0	7.0	50.0		19.0	31.0		21.0	33.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes			Yes			Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max		None	None		None	None	
Act Effct Green (s)	11.8	58.9	84.7	9.0	53.3		20.8	32.8		22.1	34.1	
Actuated g/C Ratio	0.08	0.42	0.60	0.06	0.38		0.15	0.23		0.16	0.24	
v/c Ratio	0.74	0.84	0.20	0.43	0.84		0.89	0.83		0.83	0.91	
Control Delay	90.8	42.0	14.1	75.6	44.8		92.3	68.1		81.7	77.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	90.8	42.0	14.1	75.6	44.8		92.3	68.1		81.7	77.9	
LOS	F	D	B	E	D		F	E		F	E	
Approach Delay		42.0			45.7			77.9			79.3	
Approach LOS		D			D			E			E	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 52.3 Intersection LOS: D
Intersection Capacity Utilization 84.0% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 124: US 74 & Sutherland Avenue





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	48	61	37	34	150	26	1346	23	116	1662	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.916			0.878				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1706	0	1770	1635	0	1719	4940	1538	1719	4940	1538
Flt Permitted	0.380			0.589			0.950			0.950		
Satd. Flow (perm)	708	1706	0	1097	1635	0	1719	4940	1538	1719	4940	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		163			218			356			257	
Travel Time (s)		5.6			4.2			5.4			3.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	4	53	68	41	38	167	29	1496	26	129	1847	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	121	0	41	205	0	29	1496	26	129	1847	2
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm			Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	12.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	19.0
Total Split (s)	39.0	39.0	0.0	39.0	39.0	0.0	16.0	73.0	73.0	28.0	85.0	85.0
Total Split (%)	27.9%	27.9%	0.0%	27.9%	27.9%	0.0%	11.4%	52.1%	52.1%	20.0%	60.7%	60.7%
Maximum Green (s)	32.0	32.0		32.0	32.0		9.0	66.0	66.0	21.0	78.0	78.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	24.8	24.8		24.8	24.8		10.2	82.5	82.5	17.8	95.6	95.6
Actuated g/C Ratio	0.18	0.18		0.18	0.18		0.07	0.59	0.59	0.13	0.68	0.68
v/c Ratio	0.03	0.40		0.21	0.71		0.23	0.51	0.03	0.59	0.55	0.00
Control Delay	44.5	53.7		49.5	67.1		65.2	19.1	15.6	68.2	14.0	11.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.5	53.7		49.5	67.1		65.2	19.1	15.6	68.2	14.0	11.5
LOS	D	D		D	E		E	B	B	E	B	B
Approach Delay		53.4			64.2			19.9			17.5	
Approach LOS		D			E			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 22.6		Intersection LOS: C	
Intersection Capacity Utilization 61.5%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 125: Dove Street & US 74

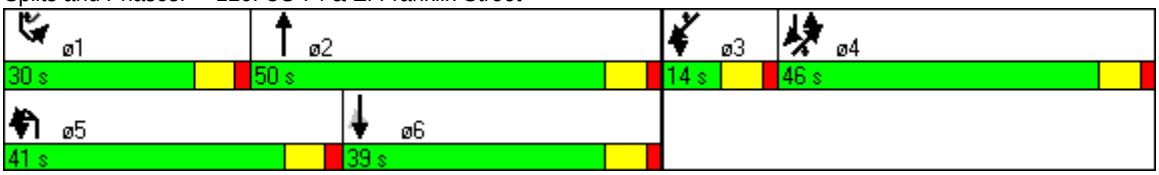
Lane Group	NBU	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT
Lane Configurations												
Volume (vph)	9	1041	977	129	170	1289	354	255	81	987	127	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.86	0.97	0.86	0.86	1.00	0.91	1.00	1.00	1.00	0.88	1.00	1.00
Frt			0.983				0.850			0.850		
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	3335	6119	0	1719	4940	1538	1752	1845	2760	1752	1845
Flt Permitted		0.950			0.950			0.950			0.950	
Satd. Flow (perm)	0	3335	6119	0	1719	4940	1538	1752	1845	2760	1752	1845
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			45			35			20
Link Distance (ft)			341			436			391			335
Travel Time (s)			5.2			6.6			7.6			11.4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%
Adj. Flow (vph)	10	1157	1086	143	189	1432	393	283	90	1097	141	93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1167	1229	0	189	1432	393	283	90	1097	141	93
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			24			24			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1	1	2		1	2	1	1	2	1	1	2
Detector Template	Left	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru
Leading Detector (ft)	20	20	100		20	100	20	20	100	20	20	100
Trailing Detector (ft)	0	0	0		0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0		0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	6		20	6	20	20	6	20	20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94			94			94			94
Detector 2 Size(ft)			6			6			6			6
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			0.0
Turn Type	Prot	Prot			Prot		pm+ov	Split		Prot	Split	
Protected Phases	5	5	2		1	6	4	4	4	4	3	3
Permitted Phases							6					
Detector Phase	5	5	2		1	6	4	4	4	4	3	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	12.0		7.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SWR
Lane Configurations	
Volume (vph)	128
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1568
Flt Permitted	
Satd. Flow (perm)	1568
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	3%
Adj. Flow (vph)	142
Shared Lane Traffic (%)	
Lane Group Flow (vph)	142
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	pt+ov
Protected Phases	3 1
Permitted Phases	
Detector Phase	3 1
Switch Phase	
Minimum Initial (s)	

Lane Group	NBU	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT
Minimum Split (s)	14.0	14.0	19.0		14.0	19.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	41.0	41.0	50.0	0.0	30.0	39.0	46.0	46.0	46.0	46.0	14.0	14.0
Total Split (%)	29.3%	29.3%	35.7%	0.0%	21.4%	27.9%	32.9%	32.9%	32.9%	32.9%	10.0%	10.0%
Maximum Green (s)	34.0	34.0	43.0		23.0	32.0	39.0	39.0	39.0	39.0	7.0	7.0
Yellow Time (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag		Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max		None	C-Max	None	None	None	None	None	None
Act Effct Green (s)		36.0	48.5		21.5	34.0	75.0	41.0	41.0	41.0	9.0	9.0
Actuated g/C Ratio		0.26	0.35		0.15	0.24	0.54	0.29	0.29	0.29	0.06	0.06
v/c Ratio		1.36	0.58		0.72	1.19	0.48	0.55	0.17	1.36	1.25	0.78
Control Delay		209.4	39.3		71.2	140.8	14.1	46.6	37.9	207.5	216.7	103.2
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		209.4	39.3		71.2	140.8	14.1	46.6	37.9	207.5	216.7	103.2
LOS		F	D		E	F	B	D	D	F	F	F
Approach Delay			122.2			109.5			166.1			117.0
Approach LOS			F			F			F			F

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 170			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.36			
Intersection Signal Delay: 128.1		Intersection LOS: F	
Intersection Capacity Utilization 113.1%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 126: US 74 & E. Franklin Street



Lane Group	SWR
Minimum Split (s)	
Total Split (s)	44.0
Total Split (%)	31.4%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Act Effct Green (s)	30.5
Actuated g/C Ratio	0.22
v/c Ratio	0.42
Control Delay	27.1
Queue Delay	0.0
Total Delay	27.1
LOS	C
Approach Delay	
Approach LOS	

Intersection Summary

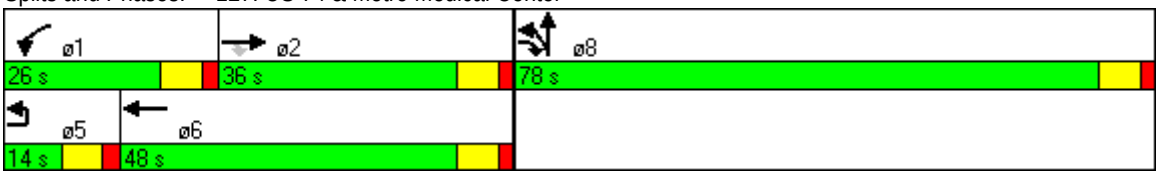
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	10	0	1173	1538	314	980	29	926	0	227	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.91	0.91	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.996			0.939			
Flt Protected	0.950				0.950			0.950	0.971			
Satd. Flow (prot)	1719	0	4940	1538	1736	4968	0	1504	1444	0	0	0
Flt Permitted	0.950				0.950			0.950	0.971			
Satd. Flow (perm)	1719	0	4940	1538	1736	4968	0	1504	1444	0	0	0
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			55			45			25
Link Distance (ft)			239			375			459			142
Travel Time (s)			3.6			4.6			7.0			3.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	4%	4%	4%	14%	14%	14%	2%	2%
Adj. Flow (vph)	11	0	1303	1709	349	1089	32	1029	0	252	0	0
Shared Lane Traffic (%)								36%				
Lane Group Flow (vph)	11	0	1303	1709	349	1121	0	659	622	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			12			12			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1		2	1	1	2		1	2			
Detector Template	Left		Thru	Right	Left	Thru		Left	Thru			
Leading Detector (ft)	20		100	20	20	100		20	100			
Trailing Detector (ft)	0		0	0	0	0		0	0			
Detector 1 Position(ft)	0		0	0	0	0		0	0			
Detector 1 Size(ft)	20		6	20	20	6		20	6			
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 2 Position(ft)			94			94			94			
Detector 2 Size(ft)			6			6			6			
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			
Turn Type	Prot			pm+ov	Prot			Split				
Protected Phases	5		2	8	1	6		8	8			
Permitted Phases				2								
Detector Phase	5		2	8	1	6		8	8			
Switch Phase												
Minimum Initial (s)	7.0		12.0	12.0	7.0	14.0		12.0	12.0			

Lane Group	SBR
Lane Configurations	
Volume (vph)	18
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.865
Flt Protected	
Satd. Flow (prot)	1611
Flt Permitted	
Satd. Flow (perm)	1611
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	2%
Adj. Flow (vph)	20
Shared Lane Traffic (%)	
Lane Group Flow (vph)	20
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Detector Phase	
Switch Phase	
Minimum Initial (s)	

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Minimum Split (s)	14.0		19.0	19.0	14.0	21.0		19.0	19.0			
Total Split (s)	14.0	0.0	36.0	78.0	26.0	48.0	0.0	78.0	78.0	0.0	0.0	0.0
Total Split (%)	10.0%	0.0%	25.7%	55.7%	18.6%	34.3%	0.0%	55.7%	55.7%	0.0%	0.0%	0.0%
Maximum Green (s)	7.0		29.0	71.0	19.0	41.0		71.0	71.0			
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0		5.0	5.0			
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0		2.0	2.0			
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	2.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	2.0	2.0
Lead/Lag	Lead		Lag		Lead	Lag						
Lead-Lag Optimize?			Yes			Yes						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0		3.0	3.0			
Recall Mode	None		C-Max	None	None	C-Max		None	None			
Act Effct Green (s)	9.0		31.0	109.0	21.0	51.4		73.0	73.0			
Actuated g/C Ratio	0.06		0.22	0.78	0.15	0.37		0.52	0.52			
v/c Ratio	0.10		1.19	1.43	1.34	0.61		0.84	0.83			
Control Delay	63.9		141.7	217.6	221.9	39.0		40.1	39.3			
Queue Delay	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Total Delay	63.9		141.7	217.6	221.9	39.0		40.1	39.3			
LOS	E		F	F	F	D		D	D			
Approach Delay			184.3			82.4			39.7			
Approach LOS			F			F			D			

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.43			
Intersection Signal Delay: 125.9		Intersection LOS: F	
Intersection Capacity Utilization 121.0%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 127: US 74 & Metro Medical Center



Lane Group	SBR
Minimum Split (s)	
Total Split (s)	0.0
Total Split (%)	0.0%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	2.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Act Effct Green (s)	140.0
Actuated g/C Ratio	1.00
v/c Ratio	0.01
Control Delay	0.0
Queue Delay	0.0
Total Delay	0.0
LOS	A
Approach Delay	
Approach LOS	

Intersection Summary

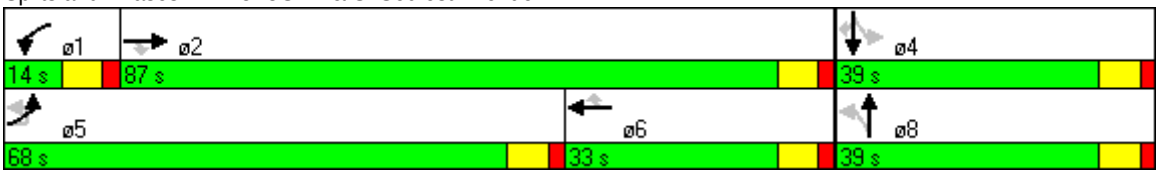
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	20	163	1194	47	9	949	109	35	99	9	247	238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850			0.850		0.992			
Flt Protected		0.950			0.950				0.988			0.975
Satd. Flow (prot)	0	1736	3471	1553	1736	3471	1553	0	1826	0	0	1816
Flt Permitted		0.063			0.950				0.161			0.681
Satd. Flow (perm)	0	115	3471	1553	1736	3471	1553	0	298	0	0	1269
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			55			55			35			35
Link Distance (ft)			411			374			242			283
Travel Time (s)			5.1			4.6			4.7			5.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%
Adj. Flow (vph)	22	181	1327	52	10	1054	121	39	110	10	274	264
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	203	1327	52	10	1054	121	0	159	0	0	538
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			12			12			0			0
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1	1	2	1	1	2	1	1	2		1	2
Detector Template	Left	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru
Leading Detector (ft)	20	20	100	20	20	100	20	20	100		20	100
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0		0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0		0	0
Detector 1 Size(ft)	20	20	6	20	20	6	20	20	6		20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)			94			94			94			94
Detector 2 Size(ft)			6			6			6			6
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			0.0
Turn Type	custom	Prot		Perm	Prot		Perm	Perm			Perm	
Protected Phases		5	2		1	6			8			4
Permitted Phases	5			2			6	8			4	
Detector Phase	5	5	2	2	1	6	6	8	8		4	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	14.0	14.0	7.0	14.0	14.0	7.0	7.0		7.0	7.0

Lane Group	SBR
Lane Configurations	
Volume (vph)	293
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	2%
Adj. Flow (vph)	326
Shared Lane Traffic (%)	
Lane Group Flow (vph)	326
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Detector Phase	4
Switch Phase	
Minimum Initial (s)	7.0

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Minimum Split (s)	14.0	14.0	21.0	21.0	14.0	21.0	21.0	14.0	14.0		14.0	14.0
Total Split (s)	68.0	68.0	87.0	87.0	14.0	33.0	33.0	39.0	39.0	0.0	39.0	39.0
Total Split (%)	48.6%	48.6%	62.1%	62.1%	10.0%	23.6%	23.6%	27.9%	27.9%	0.0%	27.9%	27.9%
Maximum Green (s)	61.0	61.0	80.0	80.0	7.0	26.0	26.0	32.0	32.0		32.0	32.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Time Before Reduce (s)	0.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0	0.0		0.0	0.0
Time To Reduce (s)	0.0	0.0	50.0	50.0	0.0	50.0	50.0	0.0	0.0		0.0	0.0
Recall Mode	None	None	C-Min	C-Min	None	C-Min	C-Min	None	None		None	None
Act Effct Green (s)		63.0	93.2	93.2	9.0	28.0	28.0		34.0			34.0
Actuated g/C Ratio		0.45	0.67	0.67	0.06	0.20	0.20		0.24			0.24
v/c Ratio		3.90	0.57	0.05	0.09	1.52	0.39		2.21			1.75
Control Delay		1365.7	14.6	9.4	63.7	278.5	52.9		611.8			381.2
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0
Total Delay		1365.7	14.6	9.4	63.7	278.5	52.9		611.8			381.2
LOS		F	B	A	E	F	D		F			F
Approach Delay			187.8			253.7			611.8			264.3
Approach LOS			F			F			F			F

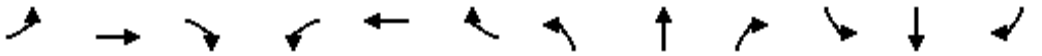
Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 3.90			
Intersection Signal Delay: 243.6		Intersection LOS: F	
Intersection Capacity Utilization 87.9%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 128: US 74 & S. Secrest Avenue



Lane Group	SBR
Minimum Split (s)	14.0
Total Split (s)	39.0
Total Split (%)	27.9%
Maximum Green (s)	32.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Minimum Gap (s)	3.0
Time Before Reduce (s)	0.0
Time To Reduce (s)	0.0
Recall Mode	None
Act Effct Green (s)	34.0
Actuated g/C Ratio	0.24
v/c Ratio	0.85
Control Delay	71.3
Queue Delay	0.0
Total Delay	71.3
LOS	E
Approach Delay	
Approach LOS	

Intersection Summary

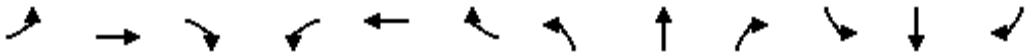


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	79	1248	20	3	1005	59	32	20	6	101	18	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.992			0.985				0.850
Flt Protected	0.950			0.950				0.973			0.959	
Satd. Flow (prot)	1687	3367	0	1687	3347	0	0	1785	0	0	1786	1583
Flt Permitted	0.950			0.950				0.669			0.722	
Satd. Flow (perm)	1687	3367	0	1687	3347	0	0	1227	0	0	1345	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			20			25	
Link Distance (ft)		245			259			179			276	
Travel Time (s)		4.8			5.0			6.1			7.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	88	1387	22	3	1117	66	36	22	7	112	20	121
Shared Lane Traffic (%)												
Lane Group Flow (vph)	88	1409	0	3	1183	0	0	65	0	0	132	121
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		4
Detector Phase	5	2		1	6		8	8		4	4	4
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	17.0		14.0	17.0		14.0	14.0		14.0	14.0	14.0
Total Split (s)	21.0	94.0	0.0	14.0	87.0	0.0	32.0	32.0	0.0	32.0	32.0	32.0
Total Split (%)	15.0%	67.1%	0.0%	10.0%	62.1%	0.0%	22.9%	22.9%	0.0%	22.9%	22.9%	22.9%
Maximum Green (s)	14.0	87.0		7.0	80.0		25.0	25.0		25.0	25.0	25.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None
Act Effct Green (s)	14.6	106.3		9.0	89.5			20.9			20.9	20.9
Actuated g/C Ratio	0.10	0.76		0.06	0.64			0.15			0.15	0.15
v/c Ratio	0.50	0.55		0.03	0.55			0.36			0.66	0.51
Control Delay	68.3	9.5		62.0	16.7			57.1			70.7	61.4
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Delay	68.3	9.5		62.0	16.7			57.1			70.7	61.4
LOS	E	A		E	B			E			E	E
Approach Delay		12.9			16.8			57.1			66.3	
Approach LOS		B			B			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 19.9		Intersection LOS: B	
Intersection Capacity Utilization 63.3%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 129: US 74 & Bivens Street

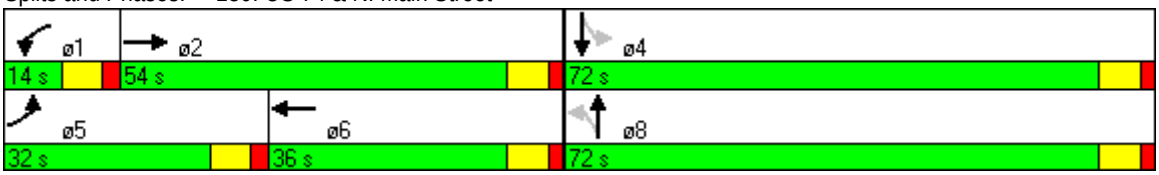


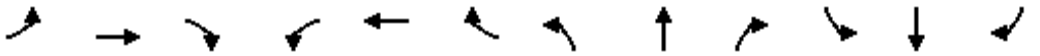
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	362	888	54	51	692	77	42	272	51	102	359	374
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.991			0.985			0.981			0.923	
Flt Protected	0.950			0.950				0.994		0.950		
Satd. Flow (prot)	1719	3407	0	1719	3387	0	0	1816	0	1770	1719	0
Flt Permitted	0.950			0.950				0.340		0.448		
Satd. Flow (perm)	1719	3407	0	1719	3387	0	0	621	0	835	1719	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		282			333			173			197	
Travel Time (s)		5.5			6.5			3.4			3.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	402	987	60	57	769	86	47	302	57	113	399	416
Shared Lane Traffic (%)												
Lane Group Flow (vph)	402	1047	0	57	855	0	0	406	0	113	815	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	17.0		14.0	17.0		14.0	14.0		14.0	14.0	
Total Split (s)	32.0	54.0	0.0	14.0	36.0	0.0	72.0	72.0	0.0	72.0	72.0	0.0
Total Split (%)	22.9%	38.6%	0.0%	10.0%	25.7%	0.0%	51.4%	51.4%	0.0%	51.4%	51.4%	0.0%
Maximum Green (s)	25.0	47.0		7.0	29.0		65.0	65.0		65.0	65.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	None		None	None		None	None	
Act Effct Green (s)	27.0	51.8		9.0	31.0			67.0		67.0	67.0	
Actuated g/C Ratio	0.19	0.37		0.06	0.22			0.48		0.48	0.48	
v/c Ratio	1.21	0.83		0.51	1.14			1.37		0.28	0.99	
Control Delay	166.6	47.7		80.1	126.9			216.5		24.5	65.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	166.6	47.7		80.1	126.9			216.5		24.5	65.4	
LOS	F	D		F	F			F		C	E	
Approach Delay		80.7			124.0			216.5			60.4	
Approach LOS		F			F			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT, Start of Green			
Natural Cycle: 160			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.37			
Intersection Signal Delay: 101.2		Intersection LOS: F	
Intersection Capacity Utilization 107.5%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 130: US 74 & N. Main Street





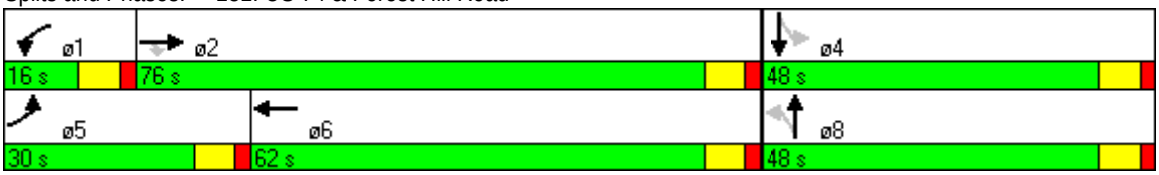
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	142	909	109	25	738	10	101	26	28	10	22	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.998			0.976			0.894	
Flt Protected	0.950			0.950				0.968			0.997	
Satd. Flow (prot)	1736	3471	1553	1736	3464	0	0	1678	0	0	1628	0
Flt Permitted	0.950			0.950				0.560			0.974	
Satd. Flow (perm)	1736	3471	1553	1736	3464	0	0	971	0	0	1591	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			35	
Link Distance (ft)		576			646			376			353	
Travel Time (s)		7.1			8.0			4.7			6.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	7%	7%	7%	4%	4%	4%
Adj. Flow (vph)	158	1010	121	28	820	11	112	29	31	11	24	126
Shared Lane Traffic (%)												
Lane Group Flow (vph)	158	1010	121	28	831	0	0	172	0	0	161	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		Perm	Prot			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8			4		
Detector Phase	5	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	14.0	14.0	7.0	14.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	21.0	21.0	14.0	21.0		14.0	14.0		14.0	14.0	
Total Split (s)	30.0	76.0	76.0	16.0	62.0	0.0	48.0	48.0	0.0	48.0	48.0	0.0
Total Split (%)	21.4%	54.3%	54.3%	11.4%	44.3%	0.0%	34.3%	34.3%	0.0%	34.3%	34.3%	0.0%
Maximum Green (s)	23.0	69.0	69.0	9.0	55.0		41.0	41.0		41.0	41.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	
Act Effct Green (s)	20.0	91.3	91.3	10.2	75.9			29.1			29.1	
Actuated g/C Ratio	0.14	0.65	0.65	0.07	0.54			0.21			0.21	
v/c Ratio	0.64	0.45	0.12	0.22	0.44			0.85			0.49	
Control Delay	67.8	15.2	12.7	65.0	22.3			86.0			52.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Delay	67.8	15.2	12.7	65.0	22.3			86.0			52.3	
LOS	E	B	B	E	C			F			D	
Approach Delay		21.4			23.7			86.0			52.3	
Approach LOS		C			C			F			D	

Intersection Summary

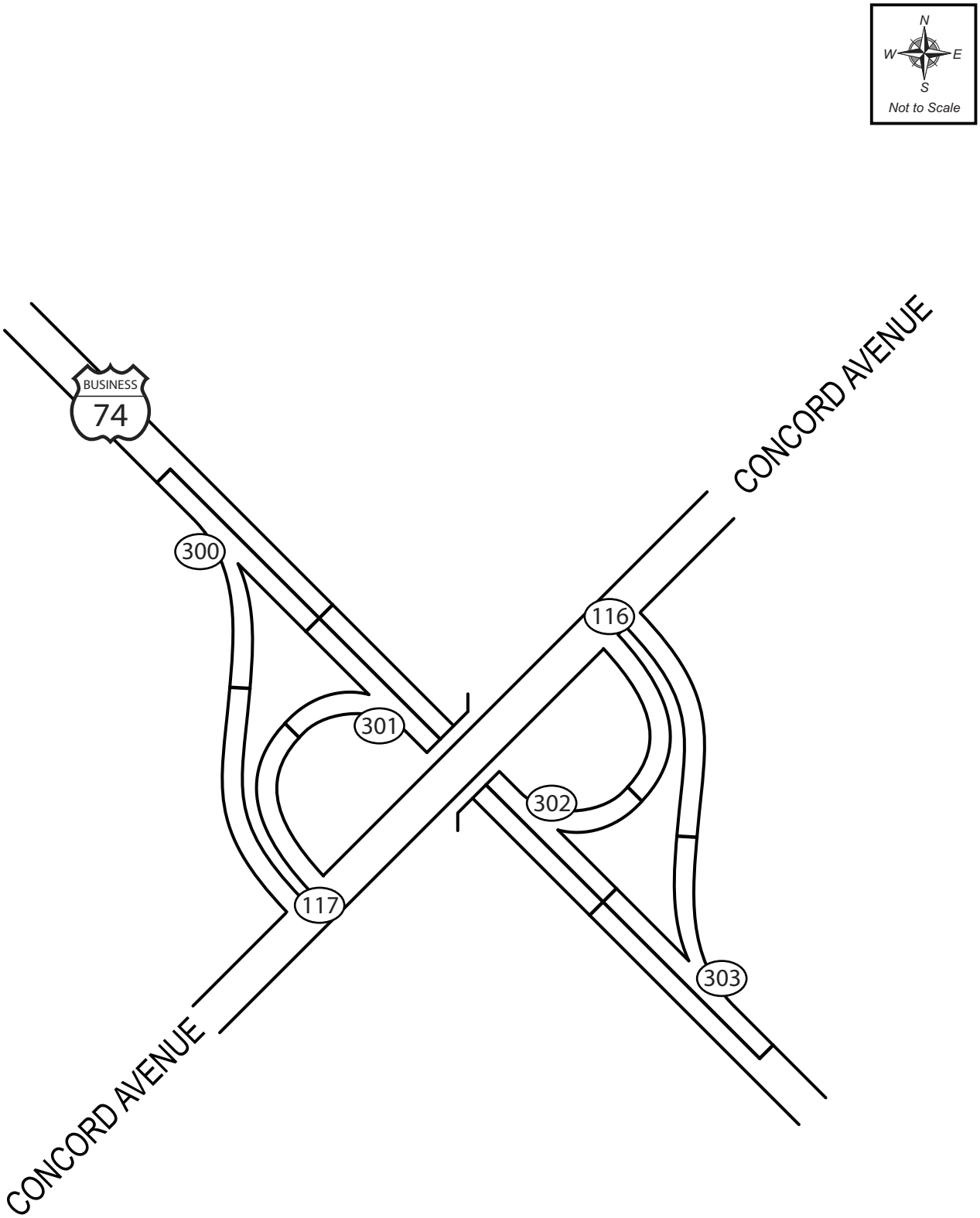
Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 28.7 Intersection LOS: C
Intersection Capacity Utilization 65.0% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 131: US 74 & Forest Hill Road



E-3-2

Business US 74 / Concord Ave I/C



NORTH CAROLINA Turnpike Authority

MONROE CONNECTOR / BYPASS

TIP Project Numbers R-3329 & R-2559

Mecklenburg and Union Counties

Business US 74 Corridor
Concord Avenue
Key Sheet

Appendix E

KeySheetUS74CorridorConcordAve.ai

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*WB US 74 Ramp at Concord Ave*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 1C*
Analysis Time Period	*AM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *WB US 74 Ramp*	North/South Street: *Concord Ave.*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*370*	*114*	*107*	*431*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*411*	*126*	*118*	*478*	*0*
Percent Heavy Vehicles		--	--	*4*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*183*	*0*	*67*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*203*	*0*	*74*	*0*	*0*	*0*
Percent Heavy Vehicles	*5*		*5*			
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (vph)		*118*		*277*				
C (m) (vph)		*1021*		*222*				
v/c		*0.12*		*1.25*				
95% queue length		*0.39*		*14.19*				
Control Delay		*9.0*		*187.5*				
LOS		*A*		*F*				
Approach Delay	--	--	*187.5*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*WB US 74 Ramp at Concord Ave*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 1C*
Analysis Time Period	*PM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *WB US 74 Ramp*	North/South Street: *Concord Ave.*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*470*	*116*	*85*	*352*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*522*	*128*	*94*	*391*	*0*
Percent Heavy Vehicles		--	--	*4*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*145*	*0*	*68*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*161*	*0*	*75*	*0*	*0*	*0*
Percent Heavy Vehicles	*5*		*5*			
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (vph)		*94*		*236*				
C (m) (vph)		*927*		*238*				
v/c		*0.10*		*0.99*				
95% queue length		*0.34*		*9.28*				
Control Delay		*9.3*		*100.4*				
LOS		*A*		*F*				
Approach Delay	--	--	*100.4*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*EB US 74 Ramp at Concord Ave*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 1C*
Analysis Time Period	*AM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *EB US 74 Ramp*	North/South Street: *Concord Ave.*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*145*	*399*			*546*	*68*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*161*	*443*	*0*	*0*	*606*	*75*
Percent Heavy Vehicles	*4*	--	--		--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume		*0*		*85*	*0*	*116*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*94*	*0*	*128*
Percent Heavy Vehicles				*5*		*5*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*161*						*222*	
C (m) (vph)	*902*						*214*	
v/c	*0.18*						*1.04*	
95% queue length	*0.65*						*9.64*	
Control Delay	*9.9*						*119.2*	
LOS	*A*						*F*	
Approach Delay	--	--					*119.2*	
Approach LOS	--	--					*F*	

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*EB US 74 Ramp at Concord Ave*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 1C*
Analysis Time Period	*PM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *EB US 74 Ramp*	North/South Street: *Concord Ave.*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*183*	*479*			*430*	*67*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*203*	*532*	*0*	*0*	*477*	*74*
Percent Heavy Vehicles	*4*	--	--		--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume		*0*		*107*	*0*	*114*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*118*	*0*	*126*
Percent Heavy Vehicles				*5*		*5*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*203*						*244*	
C (m) (vph)	*1009*						*192*	
v/c	*0.20*						*1.27*	
95% queue length	*0.75*						*13.35*	
Control Delay	*9.5*						*204.8*	
LOS	*A*						*F*	
Approach Delay	--	--				*204.8*		
Approach LOS	--	--				*F*		

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Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB off to Concord Ave.
Junction:	300
Jurisdiction:	
Analysis Year:	2035 Build Alternative 1C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1568	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	201	vph
Length of first accel/decel lane	680	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	213	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1568	201	213	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	436	56	59	v
Trucks and buses	5	5	4	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.943	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1873	240	251	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.702 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1387 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	1873	6750	No
v_{12}	1387	4400	No
$v_{FO} = v_F - v_R$	1633	6750	No
v_R	240	2100	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 10.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.385	
Space mean speed in ramp influence area,	S_R = 50.0	mph
Space mean speed in outer lanes,	S_0 = 60.3	mph
Space mean speed for all vehicles,	S = 52.3	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB off to Concord Ave.
Junction:	300
Jurisdiction:	
Analysis Year:	2035 Build Alternative 1C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1910	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	221	vph
Length of first accel/decel lane	680	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	250	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1910	221	250	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	531	61	69	v
Trucks and buses	5	5	4	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.943	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2281	264	294	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.691 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1657 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2281	6750	No
v_{12}	1657	4400	No
$v_{FO} = v_F - v_R$	2017	6750	No
v_R	264	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 12.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.387

Space mean speed in ramp influence area, S_R = 50.0 mph

Space mean speed in outer lanes, S_0 = 60.3 mph

Space mean speed for all vehicles, S = 52.4 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB on from Concord Ave.
Junction:	301
Jurisdiction:	
Analysis Year:	2035 Build Alternative 1C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1367	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	213	vph
Length of first accel/decel lane	100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	201	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1367	213	201	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	380	59	56	v
Trucks and buses	5	4	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1633	251	240	pcph

Estimation of V12 Merge Areas

L_{EQ} = -647.42 (Equation 25-2 or 25-3)

P_{FM} = 0.580 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 948 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	1884	6750	No
v_{R12}	1199	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 14.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.329	
Space mean speed in ramp influence area,	S_R = 50.7	mph
Space mean speed in outer lanes,	S_O = 54.3	mph
Space mean speed for all vehicles,	S = 52.0	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB on from Concord Ave.
Junction:	301
Jurisdiction:	
Analysis Year:	2035 Build Alternative 1C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1689	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	250	vph
Length of first accel/decel lane	100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	221	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1689	250	221	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	469	69	61	v
Trucks and buses	5	4	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2017	294	264	pcph

Estimation of V12 Merge Areas

L_{EQ} = -556.05 (Equation 25-2 or 25-3)

P_{FM} = 0.580 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1170 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2311	6750	No
v_{R12}	1464	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 16.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.333	
Space mean speed in ramp influence area,	S_R = 50.7	mph
Space mean speed in outer lanes,	S_O = 53.8	mph
Space mean speed for all vehicles,	S = 51.8	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB on from Concord Ave.
Junction:	302
Jurisdiction:	
Analysis Year:	2035 Build Alternative 1C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1689	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	221	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	250	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1689	221	250	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	469	61	69	v
Trucks and buses	5	4	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2017	260	299	pcph

Estimation of V12 Merge Areas

L_{EQ} = -474.52 (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1182 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2277	6750	No
v_{R12}	1442	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 14.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.322	
Space mean speed in ramp influence area,	S_R = 50.8	mph
Space mean speed in outer lanes,	S_O = 53.8	mph
Space mean speed for all vehicles,	S = 51.9	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB on from Concord Ave.
Junction:	302
Jurisdiction:	
Analysis Year:	2035 Build Alternative 1C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1367	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	201	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	213	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1367	201	213	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	380	56	59	v
Trucks and buses	5	4	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1633	237	254	pcph

Estimation of V12 Merge Areas

L_{EQ} = -561.62 (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 957 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	1870	6750	No
v_{R12}	1194	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 12.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.319

Space mean speed in ramp influence area, S_R = 50.9 mph

Space mean speed in outer lanes, S_O = 54.4 mph

Space mean speed for all vehicles, S = 52.1 mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB off to Concord Ave.
Junction:	303
Jurisdiction:	
Analysis Year:	2035 Build Alternative 1C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1939	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	250	vph
Length of first accel/decel lane	680	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	221	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	1939		250		221		vph
Peak-hour factor, PHF	0.90		0.90		0.90		
Peak 15-min volume, v15	539		69		61		v
Trucks and buses	5		4		5		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		

Heavy vehicle adjustment, fHV	0.930	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2316	294	264	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.689 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1686 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2316	6750	No
v_{12}	1686	4400	No
$v_{FO} = v_F - v_R$	2022	6750	No
v_R	294	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 12.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.389	
Space mean speed in ramp influence area,	S_R = 49.9	mph
Space mean speed in outer lanes,	S_0 = 60.3	mph
Space mean speed for all vehicles,	S = 52.4	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB off to Concord Ave.
Junction:	303
Jurisdiction:	
Analysis Year:	2035 Build Alternative 1C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1580	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	213	vph
Length of first accel/decel lane	680	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	201	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	1580		213		201		vph
Peak-hour factor, PHF	0.90		0.90		0.90		
Peak 15-min volume, v15	439		59		56		v
Trucks and buses	5		4		5		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		

Heavy vehicle adjustment, fHV	0.930	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1887	251	240	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.701 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1398 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	1887	6750	No
v_{12}	1398	4400	No
$v_{FO} = v_F - v_R$	1636	6750	No
v_R	251	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 10.2 pc/mi/ln

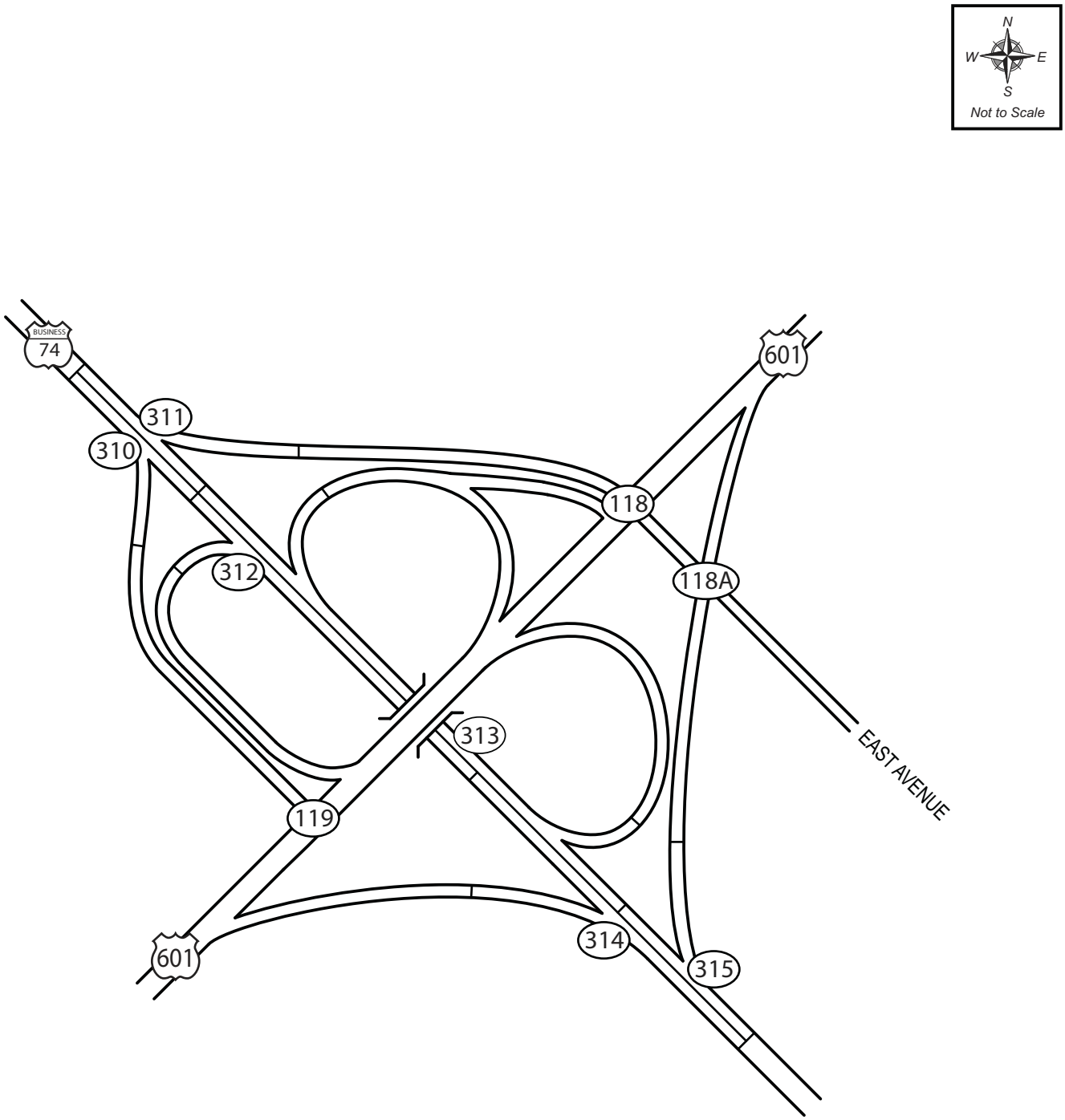
Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.386	
Space mean speed in ramp influence area,	S_R = 50.0	mph
Space mean speed in outer lanes,	S_0 = 60.3	mph
Space mean speed for all vehicles,	S = 52.3	mph

E-3-3

Business US 74 / US 601I/C



NORTH CAROLINA Turnpike Authority

MONROE CONNECTOR / BYPASS

TIP Project Numbers R-3329 & R-2559

Mecklenburg and Union Counties

Business US 74 Corridor
US 601
Key Sheet

Appendix E

KeySheetUS74CorridorUS601.ai

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*East Ave. at US 74 Off Ramp*
Agency/Co.	*PBS&J*	Jurisdiction	*118A*
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 1C*
Analysis Time Period	*AM Peak Hour*		
Project Description	*Monroe Connector/Bypass*		
East/West Street:	*East Ave.*	North/South Street:	*US 74 Off Ramp*
Intersection Orientation:	*North-South*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*10*	*487*	*10*			
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*11*	*541*	*11*	*0*	*0*	*0*
Percent Heavy Vehicles	*5*	--	--		--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration	*LTR*					
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume		*120*	*150*	*10*	*270*	
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*133*	*166*	*11*	*300*	*0*
Percent Heavy Vehicles		*5*	*5*	*8*	*8*	
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*				*TR*	*LT*		
v (vph)	*11*				*299*	*311*		
C (m) (vph)	*1604*				*478*	*397*		
v/c	*0.01*				*0.63*	*0.78*		
95% queue length	*0.02*				*4.22*	*6.69*		
Control Delay	*7.3*				*24.3*	*40.0*		
LOS	*A*				*C*	*E*		
Approach Delay	--	--	*24.3*			*40.0*		
Approach LOS	--	--	*C*			*E*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*East Ave. at US 74 Off Ramp*
Agency/Co.	*PBS&J*	Jurisdiction	*118A*
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative1C*
Analysis Time Period	*PM Peak Hour*		
Project Description	*Monroe Connector/Bypass*		
East/West Street:	*East Ave.*	North/South Street:	*US 74 Off Ramp*
Intersection Orientation:	*North-South*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*10*	*371*	*10*			
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*11*	*412*	*11*	*0*	*0*	*0*
Percent Heavy Vehicles	*5*	--	--		--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration	*LTR*					
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume		*150*	*150*	*10*	*290*	
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*166*	*166*	*11*	*322*	*0*
Percent Heavy Vehicles		*5*	*5*	*8*	*8*	
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*				*TR*	*LT*		
v (vph)	*11*				*332*	*333*		
C (m) (vph)	*1604*				*558*	*474*		
v/c	*0.01*				*0.59*	*0.70*		
95% queue length	*0.02*				*3.88*	*5.42*		
Control Delay	*7.3*				*20.5*	*28.6*		
LOS	*A*				*C*	*D*		
Approach Delay	--	--	*20.5*			*28.6*		
Approach LOS	--	--	*C*			*D*		

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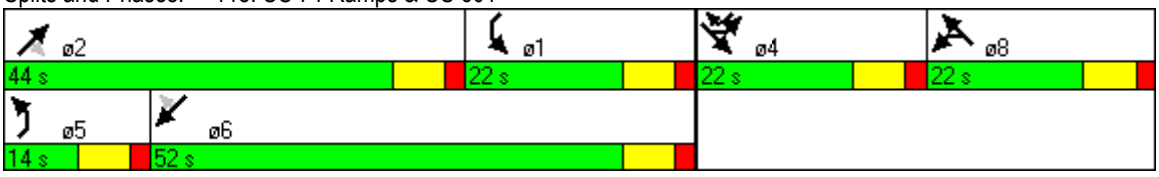
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	10	10	10	120	10	0	10	692	150	120	624	335
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.955							0.850			0.850
Flt Protected		0.984		0.950			0.950			0.950		
Satd. Flow (prot)	0	1700	0	1719	1810	0	1671	3343	1495	1671	3343	1495
Flt Permitted		0.984		0.950			0.950			0.950		
Satd. Flow (perm)	0	1700	0	1719	1810	0	1671	3343	1495	1671	3343	1495
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		412			451			446			441	
Travel Time (s)		8.0			8.8			6.8			6.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	8%	8%	8%	8%	8%	8%
Adj. Flow (vph)	11	11	11	133	11	0	11	769	167	133	693	372
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	33	0	133	11	0	11	769	167	133	693	372
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split			Prot		Perm	Prot		pm+ov
Protected Phases	4	4		8	8		5	2		1	6	4
Permitted Phases									2			6
Detector Phase	4	4		8	8		5	2	2	1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	14.0
Total Split (s)	22.0	22.0	0.0	22.0	22.0	0.0	14.0	44.0	44.0	22.0	52.0	22.0
Total Split (%)	20.0%	20.0%	0.0%	20.0%	20.0%	0.0%	12.7%	40.0%	40.0%	20.0%	47.3%	20.0%
Maximum Green (s)	15.0	15.0		15.0	15.0		7.0	37.0	37.0	15.0	45.0	15.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	None	None
Act Effct Green (s)		10.2		15.7	15.7		9.0	49.2	49.2	14.8	66.3	81.5
Actuated g/C Ratio		0.09		0.14	0.14		0.08	0.45	0.45	0.13	0.60	0.74
v/c Ratio		0.21		0.54	0.04		0.08	0.51	0.25	0.59	0.34	0.34
Control Delay		48.7		51.4	38.5		48.2	24.9	22.4	55.4	13.4	7.4
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		48.7		51.4	38.5		48.2	24.9	22.4	55.4	13.4	7.4
LOS		D		D	D		D	C	C	E	B	A
Approach Delay		48.7			50.4			24.7			16.2	
Approach LOS		D			D			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 2:NET, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 22.3		Intersection LOS: C	
Intersection Capacity Utilization 51.6%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 118: US 74 Ramps & US 601

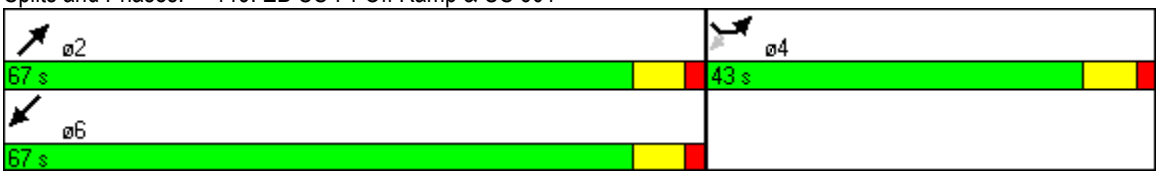


Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (vph)	341	150	0	705	674	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	3335	1538	0	3343	3343	0
Flt Permitted	0.950					
Satd. Flow (perm)	3335	1538	0	3343	3343	0
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	35			45	45	
Link Distance (ft)	529			486	575	
Travel Time (s)	10.3			7.4	8.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	8%	8%	8%	8%
Adj. Flow (vph)	379	167	0	783	749	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	379	167	0	783	749	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (ft)	20	20		100	100	
Trailing Detector (ft)	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	
Detector 1 Size(ft)	20	20		6	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type		Perm				
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						
Minimum Initial (s)	7.0	7.0		12.0	12.0	

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Minimum Split (s)	14.0	14.0		19.0	19.0	
Total Split (s)	43.0	43.0	0.0	67.0	67.0	0.0
Total Split (%)	39.1%	39.1%	0.0%	60.9%	60.9%	0.0%
Maximum Green (s)	36.0	36.0		60.0	60.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		C-Max	C-Max	
Act Effct Green (s)	38.0	38.0		62.0	62.0	
Actuated g/C Ratio	0.35	0.35		0.56	0.56	
v/c Ratio	0.33	0.31		0.42	0.40	
Control Delay	27.6	28.5		14.5	14.3	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	27.6	28.5		14.5	14.3	
LOS	C	C		B	B	
Approach Delay	27.9			14.5	14.3	
Approach LOS	C			B	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 2:NET and 6:SWT, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.42			
Intersection Signal Delay: 17.9		Intersection LOS: B	
Intersection Capacity Utilization 37.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 119: EB US 74 Off Ramp & US 601

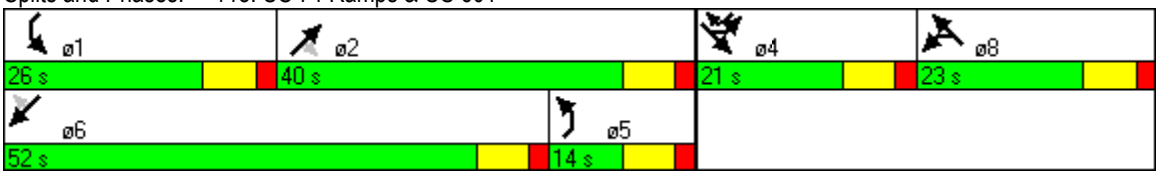


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	10	10	10	150	10	0	10	588	120	170	838	341
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.955							0.850			0.850
Flt Protected		0.984		0.950			0.950			0.950		
Satd. Flow (prot)	0	1700	0	1719	1810	0	1671	3343	1495	1671	3343	1495
Flt Permitted		0.984		0.950			0.950			0.950		
Satd. Flow (perm)	0	1700	0	1719	1810	0	1671	3343	1495	1671	3343	1495
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		412			451			446			441	
Travel Time (s)		8.0			8.8			6.8			6.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	8%	8%	8%	8%	8%	8%
Adj. Flow (vph)	11	11	11	167	11	0	11	653	133	189	931	379
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	33	0	167	11	0	11	653	133	189	931	379
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split			Prot		Perm	Prot		pm+ov
Protected Phases	4	4		8	8		5	2		1	6	4
Permitted Phases									2			6
Detector Phase	4	4		8	8		5	2	2	1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	14.0
Total Split (s)	21.0	21.0	0.0	23.0	23.0	0.0	14.0	40.0	40.0	26.0	52.0	21.0
Total Split (%)	19.1%	19.1%	0.0%	20.9%	20.9%	0.0%	12.7%	36.4%	36.4%	23.6%	47.3%	19.1%
Maximum Green (s)	14.0	14.0		16.0	16.0		7.0	33.0	33.0	19.0	45.0	14.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lag	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		Max	Max		None	C-Max	C-Max	None	None	None
Act Effct Green (s)		10.8		23.2	23.2		9.0	37.7	37.7	18.3	58.2	73.0
Actuated g/C Ratio		0.10		0.21	0.21		0.08	0.34	0.34	0.17	0.53	0.66
v/c Ratio		0.20		0.46	0.03		0.08	0.57	0.26	0.68	0.53	0.38
Control Delay		47.3		43.7	36.8		48.2	32.5	28.8	55.4	19.2	8.5
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		47.3		43.7	36.8		48.2	32.5	28.8	55.4	19.2	8.5
LOS		D		D	D		D	C	C	E	B	A
Approach Delay		47.3			43.2			32.1			21.0	
Approach LOS		D			D			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 2:NET, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay: 26.5		Intersection LOS: C	
Intersection Capacity Utilization 56.5%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 118: US 74 Ramps & US 601



Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (vph)	335	204	0	523	796	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	3335	1538	0	3343	3343	0
Flt Permitted	0.950					
Satd. Flow (perm)	3335	1538	0	3343	3343	0
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	35			45	45	
Link Distance (ft)	529			486	575	
Travel Time (s)	10.3			7.4	8.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	8%	8%	8%	8%
Adj. Flow (vph)	372	227	0	581	884	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	372	227	0	581	884	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (ft)	20	20		100	100	
Trailing Detector (ft)	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	
Detector 1 Size(ft)	20	20		6	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type		Perm				
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						
Minimum Initial (s)	7.0	7.0		12.0	12.0	

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Minimum Split (s)	14.0	14.0		19.0	19.0	
Total Split (s)	46.0	46.0	0.0	64.0	64.0	0.0
Total Split (%)	41.8%	41.8%	0.0%	58.2%	58.2%	0.0%
Maximum Green (s)	39.0	39.0		57.0	57.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		None	None	
Act Effct Green (s)	41.2	41.2		29.8	29.8	
Actuated g/C Ratio	0.51	0.51		0.37	0.37	
v/c Ratio	0.22	0.29		0.47	0.72	
Control Delay	12.4	14.1		20.7	25.5	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	12.4	14.1		20.7	25.5	
LOS	B	B		C	C	
Approach Delay	13.0			20.7	25.5	
Approach LOS	B			C	C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 81.1			
Natural Cycle: 40			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 20.5		Intersection LOS: C	
Intersection Capacity Utilization 43.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 119: EB US 74 Off Ramp & US 601

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB off to US 601
Junction:	310
Jurisdiction:	
Analysis Year:	2035 Build Alternative 1C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1579	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	491	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	371	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	700	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	1579		491		371		vph
Peak-hour factor, PHF	0.90		0.90		0.90		
Peak 15-min volume, v15	439		136		103		v
Trucks and buses	5		5		8		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		

Heavy vehicle adjustment, fHV	0.930	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1886	586	462	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.686 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1478 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	1886	6750	No
v_{12}	1478	4400	No
$v_{FO} = v_F - v_R$	1300	6750	No
v_R	586	2100	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 15.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.416	
Space mean speed in ramp influence area,	S_R = 49.6	mph
Space mean speed in outer lanes,	S_O = 60.3	mph
Space mean speed for all vehicles,	S = 51.6	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB off to US 601
Junction:	310
Jurisdiction:	
Analysis Year:	2035 Build Alternative 1C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1942	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	539	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	487	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	700	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	1942		539		487		vph
Peak-hour factor, PHF	0.90		0.90		0.90		
Peak 15-min volume, v15	539		150		135		v
Trucks and buses	5		5		8		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		

Heavy vehicle adjustment, fHV	0.930	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2320	644	606	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.672 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1771 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2320	6750	No
v_{12}	1771	4400	No
$v_{FO} = v_F - v_R$	1676	6750	No
v_R	644	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 17.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.421	
Space mean speed in ramp influence area,	S_R = 49.5	mph
Space mean speed in outer lanes,	S_O = 60.3	mph
Space mean speed for all vehicles,	S = 51.7	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB on from US 601
Junction:	311
Jurisdiction:	
Analysis Year:	2035 Build Alternative 1C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1607	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	40.0	mph
Volume on ramp	345	vph
Length of first accel/decel lane	250	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	421	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1607	345	421	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	446	96	117	v
Trucks and buses	5	8	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1919	429	503	pcph

Estimation of V12 Merge Areas

L_{EQ} = 303.27 (Equation 25-2 or 25-3)

P_{FM} = 0.585 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1122 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2348	6750	No
v_{R12}	1551	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 15.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.319

Space mean speed in ramp influence area, S_R = 50.8 mph

Space mean speed in outer lanes, S_O = 53.9 mph

Space mean speed for all vehicles, S = 51.9 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB on from US 601
Junction:	311
Jurisdiction:	
Analysis Year:	2035 Build Alternative 1C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1238	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	40.0	mph
Volume on ramp	351	vph
Length of first accel/decel lane	250	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	445	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1238	351	445	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	344	98	124	v
Trucks and buses	5	8	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1479	437	532	pcph

Estimation of V12 Merge Areas

L_{EQ} = 210.82 (Equation 25-2 or 25-3)

P_{FM} = 0.585 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 864 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	1916	6750	No
v_{R12}	1301	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 13.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.315

Space mean speed in ramp influence area, S_R = 50.9 mph

Space mean speed in outer lanes, S_O = 54.6 mph

Space mean speed for all vehicles, S = 52.0 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB on from US 601 SB
Junction:	312
Jurisdiction:	
Analysis Year:	2035 Build Alternative 1C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1088	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	371	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	491	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	700	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1088	371	491	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	302	103	136	v
Trucks and buses	5	8	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1300	462	586	pcph

Estimation of V12 Merge Areas

L_{EQ} = -584.73 (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 762 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	1762	6750	No
v_{R12}	1224	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 12.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.319

Space mean speed in ramp influence area, S_R = 50.8 mph

Space mean speed in outer lanes, S_O = 54.9 mph

Space mean speed for all vehicles, S = 52.0 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB on from US 601 SB
Junction:	312
Jurisdiction:	
Analysis Year:	2035 Build Alternative 1C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1403	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	487	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	539	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	700	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1403	487	539	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	390	135	150	v
Trucks and buses	5	8	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1676	606	644	pcph

Estimation of V12 Merge Areas

L_{EQ} = -473.45 (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 982 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2282	6750	No
v_{R12}	1588	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 15.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.325

Space mean speed in ramp influence area, S_R = 50.8 mph

Space mean speed in outer lanes, S_O = 54.3 mph

Space mean speed for all vehicles, S = 51.8 mph

FREEWAY WEAVING WORKSHEET

General Information

Analyst	OSR
Agency/Company	PBSJ
Date Performed	4/30/08
Analysis Time Period	AM Peak

Site Information

Freeway/Dir of Travel	US 74 WB
Weaving Seg Location	313
Jurisdiction	
Analysis Year	2035 Build Alternative 1C

Inputs

Freeway free-flow speed, SFF (mi/h)	55	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.31
Weaving seg length, L (ft)	550	Weaving ratio, R	0.34
Terrain	Rolling		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	1403	0.90	5	0	2.5	2.0	0.930	1.00	1675
Vo2	0	0.90	0	0	2.5	2.0	1.000	1.00	0
Vw1	421	0.90	5	0	2.5	2.0	0.930	1.00	502
Vw2	204	0.90	8	0	2.5	2.0	0.893	1.00	253
Vw				755	Vnw				1675
V									2430

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.15	0.00		
b (Exhibit 24-6)	2.20	4.00		
c (Exhibit 24-6)	0.97	1.30		
d (Exhibit 24-6)	0.80	0.75		
Weaving intensity factor, Wi	0.88	0.38		
Weaving and non-weaving speeds, Si (mi/h)	38.99	47.66		

Number of lanes required for unconstrained operation, Nw 1.34
Maximum number of lanes, Nw (max) 1.40

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	44.58
Weaving segment density, D (pc/mi/ln)	13.63
Level of service, LOS	B
Capacity of base condition, c_b (pc/h)	5719
Capacity as a 15-minute flow rate, c (veh/h)	5320
Capacity as a full-hour volume, c_h (veh/h)	4788

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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FREEWAY WEAVING WORKSHEET

General Information

Analyst	OSR
Agency/Company	PBSJ
Date Performed	4/30/08
Analysis Time Period	PM Peak

Site Information

Freeway/Dir of Travel	US 74 WB
Weaving Seg Location	313
Jurisdiction	
Analysis Year	2035 Build Alternative 1C

Inputs

Freeway free-flow speed, SFF (mi/h)	55	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.36
Weaving seg length, L (ft)	550	Weaving ratio, R	0.26
Terrain	Rolling		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	1088	0.90	5	0	2.5	2.0	0.930	1.00	1299
Vo2	0	0.90	0	0	2.5	2.0	1.000	1.00	0
Vw1	445	0.90	5	0	2.5	2.0	0.930	1.00	531
Vw2	150	0.90	8	0	2.5	2.0	0.893	1.00	186
Vw				717	Vnw				1299
V									2016

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.00
b (Exhibit 24-6)			4.00	4.00
c (Exhibit 24-6)			0.97	1.30
d (Exhibit 24-6)			0.80	0.75
Weaving intensity factor, Wi			1.84	0.19
Weaving and non-weaving speeds, Si (mi/h)			30.87	52.69

Number of lanes required for unconstrained operation, Nw 1.42
Maximum number of lanes, Nw (max) 1.40

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	42.10
Weaving segment density, D (pc/mi/ln)	11.97
Level of service, LOS	A
Capacity of base condition, c_b (pc/h)	5505
Capacity as a 15-minute flow rate, c (veh/h)	5121
Capacity as a full-hour volume, c_h (veh/h)	4609

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB on from US 601 NB
Junction:	314
Jurisdiction:	
Analysis Year:	2035 Build Alternative 1C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1459	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	40.0	mph
Volume on ramp	445	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	371	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1459	445	371	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	405	124	103	v
Trucks and buses	5	8	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1743	554	462	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1021 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2297	6750	No
v_{R12}	1575	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 15.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.316

Space mean speed in ramp influence area, S_R = 50.9 mph

Space mean speed in outer lanes, S_O = 54.2 mph

Space mean speed for all vehicles, S = 51.9 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB on from US 601 NB
Junction:	314
Jurisdiction:	
Analysis Year:	2035 Build Alternative 1C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1890	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	40.0	mph
Volume on ramp	421	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	487	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1890	421	487	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	525	117	135	v
Trucks and buses	5	8	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2257	524	606	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1322 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2781	6750	No
v_{R12}	1846	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 17.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.322

Space mean speed in ramp influence area, S_R = 50.8 mph

Space mean speed in outer lanes, S_O = 53.4 mph

Space mean speed for all vehicles, S = 51.7 mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB off to US 601
Junction:	315
Jurisdiction:	
Analysis Year:	2035 Build Alternative 1C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2311	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	487	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	204	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	400	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2311	487	204	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	642	135	57	v
Trucks and buses	5	5	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2760	582	254	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.664 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2029 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2760	6750	No
v_{12}	2029	4400	No
$v_{FO} = v_F - v_R$	2178	6750	No
v_R	582	2100	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 19.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.415	
Space mean speed in ramp influence area,	S_R = 49.6	mph
Space mean speed in outer lanes,	S_0 = 60.3	mph
Space mean speed for all vehicles,	S = 52.1	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB off to US 601
Junction:	315
Jurisdiction:	
Analysis Year:	2035 Build Alternative 1C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1924	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	371	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	150	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	400	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1924	371	150	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	534	103	42	v
Trucks and buses	5	5	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2298	443	187	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.682 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1708 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2298	6750	No
v_{12}	1708	4400	No
$v_{FO} = v_F - v_R$	1855	6750	No
v_R	443	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 16.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.403

Space mean speed in ramp influence area, S_R = 49.8 mph

Space mean speed in outer lanes, S_0 = 60.3 mph

Space mean speed for all vehicles, S = 52.1 mph

E-4

Alternative 1D

E-4-1

Business US 74 Intersections

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*OSR*
Agency/Co.	*PBS&J*
Date Performed	*4/30/08*
Analysis Time Period	*AM Peak*

Site Information

Intersection	*US 74 and Bivens Road*
Jurisdiction	
Analysis Year	*2035 Build Toll Alternat 1D*

Project Description *Monroe Connector/Bypass*

East/West Street: *US 74* | North/South Street: *Bivens Road*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*120*	*1056*	*10*	*10*	*1303*	*135*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*133*	*1173*	*11*	*11*	*1447*	*150*
Proportion of heavy vehicles, P_{HV}	*5*	--	--	*5*	--	--
Median type	*Undivided*					
RT Channelized?			*0*			*1*
Lanes	*1*	*2*	*1*	*1*	*2*	*1*
Configuration	*L*	*T*	*R*	*L*	*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*10*	*10*	*10*	*101*	*10*	*111*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*11*	*11*	*11*	*112*	*11*	*123*
Proportion of heavy vehicles, P_{HV}	*2*	*2*	*2*	*2*	*2*	*2*
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
Volume, v (vph)	*133*	*11*		*33*			*246*	
Capacity, c_m (vph)	*449*	*569*		*0*			*0*	
v/c ratio	*0.30*	*0.02*						
Queue length (95%)	*1.22*	*0.06*						
Control Delay (s/veh)	*16.4*	*11.5*						
LOS	*C*	*B*		*F*			*F*	
Approach delay (s/veh)	--	--						
Approach LOS	--	--						

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*US 74 and Bivens Road*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Toll Alternat 1D*
Analysis Time Period	*PM Peak*		

Project Description *Monroe Connector/Bypass*

East/West Street: *US 74* | North/South Street: *Bivens Road*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*111*	*1303*	*10*	*10*	*1056*	*101*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*123*	*1447*	*11*	*11*	*1173*	*112*
Proportion of heavy vehicles, P_{HV}	*5*	--	--	*5*	--	--
Median type	*Undivided*					
RT Channelized?			*0*			*1*
Lanes	*1*	*2*	*1*	*1*	*2*	*1*
Configuration	*L*	*T*	*R*	*L*	*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*10*	*10*	*10*	*135*	*10*	*120*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*11*	*11*	*11*	*150*	*11*	*133*
Proportion of heavy vehicles, P_{HV}	*2*	*2*	*2*	*2*	*2*	*2*
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
Volume, v (vph)	*123*	*11*		*33*			*294*	
Capacity, c_m (vph)	*575*	*445*		*7*			*8*	
v/c ratio	*0.21*	*0.02*		*4.71*			*36.75*	
Queue length (95%)	*0.80*	*0.08*		*5.50*			*38.61*	
Control Delay (s/veh)	*13.0*	*13.3*		*2693*			*16992*	
LOS	*B*	*B*		*F*			*F*	
Approach delay (s/veh)	--	--	*2693*			*16992*		
Approach LOS	--	--	*F*			*F*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*OSR*
Agency/Co.	*PBS&J*
Date Performed	*4/30/08*
Analysis Time Period	*AM Peak*

Site Information

Intersection	*US 74 and Seacrest Shortcut*
Jurisdiction	
Analysis Year	*2035 Build Toll Alternat 1D*

Project Description *Monroe Connector/Bypass*

East/West Street: *US 74* | North/South Street: *Seacrest Shortcut RIRO*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*0*	*890*	*306*	*0*	*1385*	*0*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*0*	*988*	*340*	*0*	*1538*	*0*
Proportion of heavy vehicles, P_{HV}		--	--		--	--
Median type	*Undivided*					
RT Channelized?			*0*			*1*
Lanes	*0*	*2*	*1*	*0*	*2*	*0*
Configuration		*T*	*R*		*T*	
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*428*	*0*	*0*	*0*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*0*	*0*	*475*	*0*	*0*	*0*
Proportion of heavy vehicles, P_{HV}			*4*			
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					*R*			
Volume, v (vph)					*475*			
Capacity, c_m (vph)					*516*			
v/c ratio					*0.92*			
Queue length (95%)					*11.03*			
Control Delay (s/veh)					*50.8*			
LOS					*F*			
Approach delay (s/veh)	--	--	*50.8*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*US 74 and Seacrest Shortcut*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Toll Alternative 1D*
Analysis Time Period	*PM Peak*		

Project Description *Monroe Connector/Bypass*

East/West Street: *US 74* | North/South Street: *Seacrest Shortcut RIRO*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*0*	*1142*	*430*	*0*	*1133*	*0*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*0*	*1268*	*477*	*0*	*1258*	*0*
Proportion of heavy vehicles, P_{HV}		--	--		--	--
Median type	*Undivided*					
RT Channelized?			*0*			*1*
Lanes	*0*	*2*	*1*	*0*	*2*	*0*
Configuration		*T*	*R*		*T*	
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*304*	*0*	*0*	*0*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*0*	*0*	*337*	*0*	*0*	*0*
Proportion of heavy vehicles, P_{HV}			*4*			
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					*R*			
Volume, v (vph)					*337*			
Capacity, c_m (vph)					*417*			
v/c ratio					*0.81*			
Queue length (95%)					*7.30*			
Control Delay (s/veh)					*41.2*			
LOS					*E*			
Approach delay (s/veh)	--	--	*41.2*					
Approach LOS	--	--	*E*					

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	419	410	15	13	613	174	111	2416	398	17	2970	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1719	3438	1538	1719	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	1719	3438	1538	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			45			55			55	
Link Distance (ft)		1096			1168			1536			3465	
Travel Time (s)		21.4			17.7			19.0			43.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	466	456	17	14	681	193	123	2684	442	19	3300	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	466	456	17	14	681	193	123	2684	442	19	3300	11
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	1	6	7	5	2	3
Permitted Phases			4			8			6			2
Detector Phase	7	4	5	3	8	1	1	6	7	5	2	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	14.0	7.0	7.0	14.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0	14.0	14.0	21.0	14.0	14.0	21.0	14.0
Total Split (s)	19.0	27.0	14.0	14.0	22.0	14.0	14.0	85.0	19.0	14.0	85.0	14.0
Total Split (%)	13.6%	19.3%	10.0%	10.0%	15.7%	10.0%	10.0%	60.7%	13.6%	10.0%	60.7%	10.0%
Maximum Green (s)	12.0	20.0	7.0	7.0	15.0	7.0	7.0	78.0	12.0	7.0	78.0	7.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	14.0	27.6	41.6	9.0	17.0	31.0	9.0	85.6	104.6	9.0	80.0	94.0
Actuated g/C Ratio	0.10	0.20	0.30	0.06	0.12	0.22	0.06	0.61	0.75	0.06	0.57	0.67
v/c Ratio	1.36	0.65	0.04	0.06	1.58	0.55	1.11	1.28	0.38	0.17	1.68	0.01
Control Delay	225.0	58.1	38.9	62.3	312.1	55.2	175.2	155.1	8.2	65.8	333.1	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	225.0	58.1	38.9	62.3	312.1	55.2	175.2	155.1	8.2	65.8	333.1	7.7
LOS	F	E	D	E	F	E	F	F	A	E	F	A
Approach Delay		140.6			252.3			135.9			330.5	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.68			
Intersection Signal Delay: 225.8		Intersection LOS: F	
Intersection Capacity Utilization 133.6%		ICU Level of Service H	
Analysis Period (min) 15			

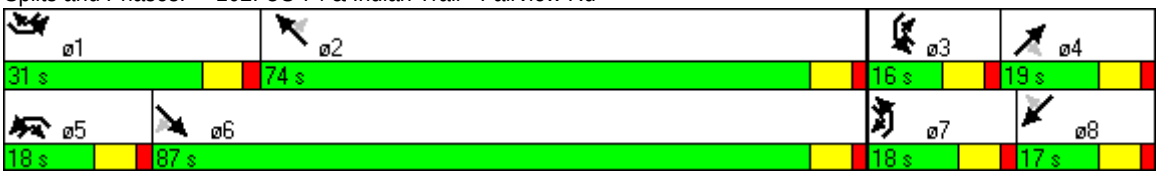
Splits and Phases: 101: Stallings Road & US 74

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	330	1622	520	137	2042	92	346	130	72	128	342	576
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3335	3438	1538	1719	3438	1538	3335	3438	1538	3335	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3438	1538	1719	3438	1538	3335	3438	1538	3335	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			35			35	
Link Distance (ft)		2103			2380			902			1112	
Travel Time (s)		26.1			29.5			17.6			21.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	367	1802	578	152	2269	102	384	144	80	142	380	640
Shared Lane Traffic (%)												
Lane Group Flow (vph)	367	1802	578	152	2269	102	384	144	80	142	380	640
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	7.0	14.0	7.0	7.0	14.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.5	21.0	14.0	14.0	21.0	14.0	14.0	14.0	14.0	14.0	14.0	14.5
Total Split (s)	31.0	87.0	18.0	18.0	74.0	16.0	18.0	19.0	18.0	16.0	17.0	31.0
Total Split (%)	22.1%	62.1%	12.9%	12.9%	52.9%	11.4%	12.9%	13.6%	12.9%	11.4%	12.1%	22.1%
Maximum Green (s)	24.0	80.0	11.0	11.0	67.0	9.0	11.0	12.0	11.0	9.0	10.0	24.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	26.0	82.0	100.0	13.0	69.0	84.8	13.0	14.2	32.2	10.8	12.0	43.0
Actuated g/C Ratio	0.19	0.59	0.71	0.09	0.49	0.61	0.09	0.10	0.23	0.08	0.09	0.31
v/c Ratio	0.59	0.89	0.53	0.95	1.34	0.11	1.24	0.41	0.23	0.55	1.29	1.36
Control Delay	56.7	32.5	11.3	121.4	188.0	12.0	182.5	63.0	46.0	70.8	201.6	211.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.7	32.5	11.3	121.4	188.0	12.0	182.5	63.0	46.0	70.8	201.6	211.6
LOS	E	C	B	F	F	B	F	E	D	E	F	F
Approach Delay		31.2			176.8			136.2			191.1	
Approach LOS		C			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.36			
Intersection Signal Delay: 118.9		Intersection LOS: F	
Intersection Capacity Utilization 114.5%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 102: US 74 & Indian Trail - Fairview Rd

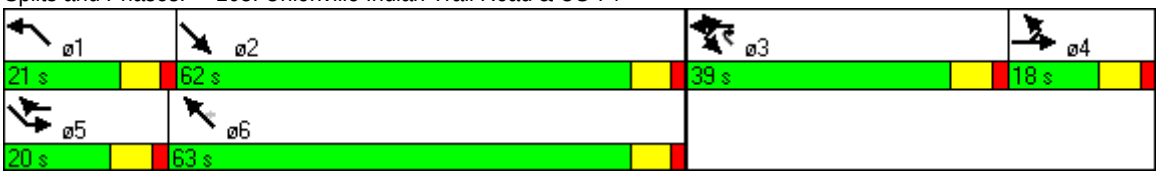


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	40	151	139	453	364	687	400	1318	56	238	1608	322
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Frt		0.937				0.850		0.994				0.850
Flt Protected		0.994		0.950	0.994		0.950			0.950		
Satd. Flow (prot)	0	3264	0	1665	1742	1568	3335	3417	0	1719	3438	1538
Flt Permitted		0.994		0.950	0.994		0.950			0.950		
Satd. Flow (perm)	0	3264	0	1665	1742	1568	3335	3417	0	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			45			55			55	
Link Distance (ft)		795			1304			1032			1062	
Travel Time (s)		15.5			19.8			12.8			13.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	44	168	154	503	404	763	444	1464	62	264	1787	358
Shared Lane Traffic (%)				12%								
Lane Group Flow (vph)	0	366	0	443	464	763	444	1526	0	264	1787	358
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	1	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	1	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pt+ov	Prot			Prot		pm+ov
Protected Phases	4	4		3	3	3 5	5	2		1	6	3
Permitted Phases												6
Detector Phase	4	4		3	3	3 5	5	2		1	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	14.0		7.0	14.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	21.0		14.0	21.0	14.0
Total Split (s)	18.0	18.0	0.0	39.0	39.0	59.0	20.0	62.0	0.0	21.0	63.0	39.0
Total Split (%)	12.9%	12.9%	0.0%	27.9%	27.9%	42.1%	14.3%	44.3%	0.0%	15.0%	45.0%	27.9%
Maximum Green (s)	11.0	11.0		32.0	32.0		13.0	55.0		14.0	56.0	32.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	None
Act Effct Green (s)		13.0		34.0	34.0	49.0	15.0	57.0		16.0	58.0	97.0
Actuated g/C Ratio		0.09		0.24	0.24	0.35	0.11	0.41		0.11	0.41	0.69
v/c Ratio		1.21		1.10	1.10	1.39	1.24	1.10		1.35	1.25	0.34
Control Delay		172.2		122.0	121.2	213.8	180.8	94.5		231.5	156.4	9.6
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay		172.2		122.0	121.2	213.8	180.8	94.5		231.5	156.4	9.6
LOS		F		F	F	F	F	F		F	F	A
Approach Delay		172.2			163.7			113.9			142.8	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 170			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.39			
Intersection Signal Delay: 141.1		Intersection LOS: F	
Intersection Capacity Utilization 109.3%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 103: Unionville Indian Trail Road & US 74

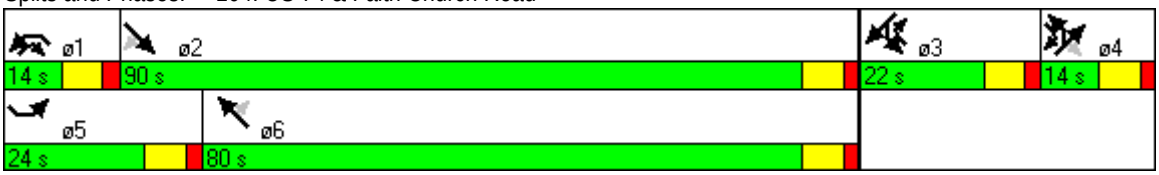


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	256	1591	24	39	1972	320	40	14	53	201	7	199
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.855	
Flt Protected	0.950			0.950				0.965		0.950		
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	0	1682	1482	1770	1593	0
Flt Permitted	0.950			0.950				0.965		0.950		
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	0	1682	1482	1770	1593	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			15			35	
Link Distance (ft)		1177			2588			625			368	
Travel Time (s)		14.6			32.1			28.4			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	9%	9%	9%	2%	2%	2%
Adj. Flow (vph)	284	1768	27	43	2191	356	44	16	59	223	8	221
Shared Lane Traffic (%)												
Lane Group Flow (vph)	284	1768	27	43	2191	356	0	60	59	223	229	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	5	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	5	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Split		pm+ov	Split		
Protected Phases	5	2	4	1	6	3	4	4	1	3	3	
Permitted Phases			2			6			4			
Detector Phase	5	2	4	1	6	3	4	4	1	3	3	
Switch Phase												
Minimum Initial (s)	7.0	14.0	7.0	7.0	14.0	7.0	7.0	7.0	7.0	7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	21.0	14.0	14.0	21.0	14.0	14.0	14.0	14.0	14.0	14.0	
Total Split (s)	24.0	90.0	14.0	14.0	80.0	22.0	14.0	14.0	14.0	22.0	22.0	0.0
Total Split (%)	17.1%	64.3%	10.0%	10.0%	57.1%	15.7%	10.0%	10.0%	10.0%	15.7%	15.7%	0.0%
Maximum Green (s)	17.0	83.0	7.0	7.0	73.0	15.0	7.0	7.0	7.0	15.0	15.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	
Act Effct Green (s)	21.8	90.6	97.8	9.0	75.0	97.0		9.0	20.2	17.0	17.0	
Actuated g/C Ratio	0.16	0.65	0.70	0.06	0.54	0.69		0.06	0.14	0.12	0.12	
v/c Ratio	1.06	0.79	0.03	0.39	1.19	0.33		0.56	0.28	1.04	1.19	
Control Delay	127.5	23.4	4.0	73.5	122.0	9.6		83.3	55.2	130.0	175.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	127.5	23.4	4.0	73.5	122.0	9.6		83.3	55.2	130.0	175.3	
LOS	F	C	A	E	F	A		F	E	F	F	
Approach Delay		37.3			105.8			69.4			152.9	
Approach LOS		D			F			E			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.19			
Intersection Signal Delay: 81.9		Intersection LOS: F	
Intersection Capacity Utilization 103.9%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 104: US 74 & Faith Church Road



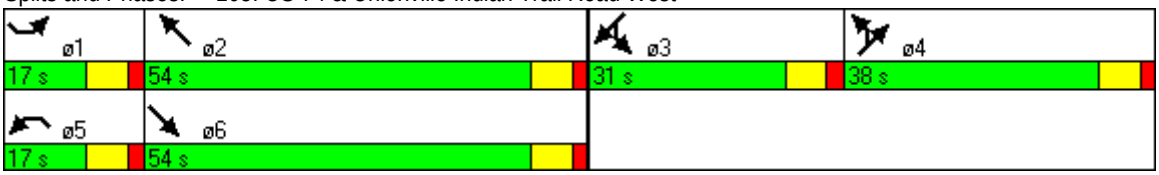
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	188	930	764	190	1256	259	711	113	131	323	205	317
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.932			0.974			0.919			0.909	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3204	0	1719	3349	0	1770	1712	0	1770	1693	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3204	0	1719	3349	0	1770	1712	0	1770	1693	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		606			973			698			813	
Travel Time (s)		7.5			12.1			10.6			12.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	209	1033	849	211	1396	288	790	126	146	359	228	352
Shared Lane Traffic (%)												
Lane Group Flow (vph)	209	1882	0	211	1684	0	790	272	0	359	580	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Split			Split		
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases												
Detector Phase	1	6		5	2		4	4		3	3	
Switch Phase												
Minimum Initial (s)	7.0	14.0		7.0	14.0		7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	21.0		14.0	21.0		14.0	14.0		14.0	14.0	
Total Split (s)	17.0	54.0	0.0	17.0	54.0	0.0	38.0	38.0	0.0	31.0	31.0	0.0
Total Split (%)	12.1%	38.6%	0.0%	12.1%	38.6%	0.0%	27.1%	27.1%	0.0%	22.1%	22.1%	0.0%
Maximum Green (s)	10.0	47.0		10.0	47.0		31.0	31.0		24.0	24.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	12.0	49.0		12.0	49.0		33.0	33.0		26.0	26.0	
Actuated g/C Ratio	0.09	0.35		0.09	0.35		0.24	0.24		0.19	0.19	
v/c Ratio	1.42	1.68		1.44	1.44		1.89	0.67		1.09	1.85	
Control Delay	268.6	340.0		273.8	236.2		441.3	58.1		128.4	424.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	268.6	340.0		273.8	236.2		441.3	58.1		128.4	424.9	
LOS	F	F		F	F		F	E		F	F	
Approach Delay		332.9			240.4			343.2			311.5	
Approach LOS		F			F			F			F	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 180
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.89
Intersection Signal Delay: 302.1 Intersection LOS: F
Intersection Capacity Utilization 147.0% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 105: US 74 & Unionville Indian Trail Road West



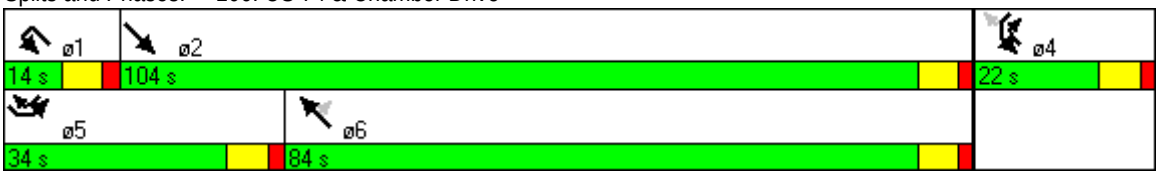
Lane Group	SEL	SET	NWU	NWT	NWR	SWL	SWR
Lane Configurations							
Volume (vph)	130	1195	10	1413	52	125	371
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Frt					0.850		0.850
Flt Protected	0.950		0.950			0.950	
Satd. Flow (prot)	1719	3438	1719	3438	1538	1770	1583
Flt Permitted	0.950		0.950			0.950	
Satd. Flow (perm)	1719	3438	1719	3438	1538	1770	1583
Right Turn on Red					No		No
Satd. Flow (RTOR)							
Link Speed (mph)		55		55		35	
Link Distance (ft)		2407		1378		1258	
Travel Time (s)		29.8		17.1		24.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	2%	2%
Adj. Flow (vph)	144	1328	11	1570	58	139	412
Shared Lane Traffic (%)							
Lane Group Flow (vph)	144	1328	11	1570	58	139	412
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Left	R NA	Left	Right	Left	Right
Median Width(ft)		12		12		12	
Link Offset(ft)		0		0		0	
Crosswalk Width(ft)		0		0		0	
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9		9	15	9
Number of Detectors	1	2	1	2	1	1	1
Detector Template	Left	Thru	Left	Thru	Right	Left	Right
Leading Detector (ft)	20	100	20	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94		94			
Detector 2 Size(ft)		6		6			
Detector 2 Type		Cl+Ex		Cl+Ex			
Detector 2 Channel							
Detector 2 Extend (s)		0.0		0.0			
Turn Type	Prot		Prot		pm+ov		pm+ov
Protected Phases	5	2	1	6	4	4	5
Permitted Phases					6		4
Detector Phase	5	2	1	6	4	4	5
Switch Phase							
Minimum Initial (s)	7.0	14.0	7.0	14.0	7.0	7.0	7.0

Lane Group	SEL	SET	NWU	NWT	NWR	SWL	SWR
Minimum Split (s)	14.0	21.0	14.0	21.0	14.0	14.0	14.0
Total Split (s)	34.0	104.0	14.0	84.0	22.0	22.0	34.0
Total Split (%)	24.3%	74.3%	10.0%	60.0%	15.7%	15.7%	24.3%
Maximum Green (s)	27.0	97.0	7.0	77.0	15.0	15.0	27.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag			Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	C-Max	None	None	None
Act Effct Green (s)	25.8	108.6	9.0	83.3	104.2	15.8	46.7
Actuated g/C Ratio	0.18	0.78	0.06	0.60	0.74	0.11	0.33
v/c Ratio	0.45	0.50	0.10	0.77	0.05	0.70	0.78
Control Delay	55.1	7.4	63.9	25.1	5.4	78.0	52.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.1	7.4	63.9	25.1	5.4	78.0	52.9
LOS	E	A	E	C	A	E	D
Approach Delay		12.1		24.7		59.2	
Approach LOS		B		C		E	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 24.8 Intersection LOS: C
Intersection Capacity Utilization 70.4% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 106: US 74 & Chamber Drive

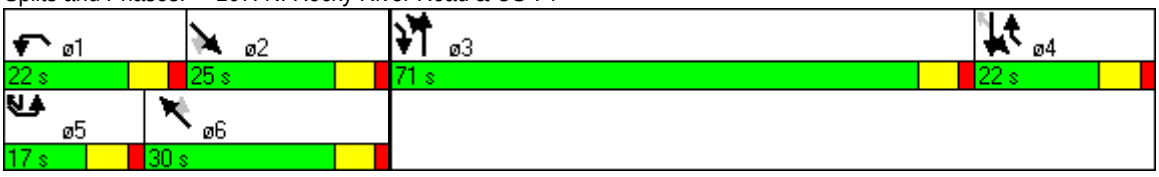


Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	819	111	370	203	98	265	176	488	480	275	619	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.962				0.850			0.850			0.850
Flt Protected		0.969			0.967		0.950			0.950		
Satd. Flow (prot)	0	1736	0	0	1801	1583	1719	3438	1538	1719	3438	1538
Flt Permitted		0.969			0.967		0.950			0.950		
Satd. Flow (perm)	0	1736	0	0	1801	1583	1719	3438	1538	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		1176			418			3021			3350	
Travel Time (s)		17.8			6.3			37.5			41.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	910	123	411	226	109	294	196	542	533	306	688	191
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1444	0	0	335	294	196	542	533	306	688	191
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	3	3		4	4	5	5	2	3	1	6	4
Permitted Phases						4			2			6
Detector Phase	3	3		4	4	5	5	2	3	1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	14.0	7.0	7.0	14.0	7.0

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0	14.0	14.0	21.0	14.0	14.0	21.0	14.0
Total Split (s)	71.0	71.0	0.0	22.0	22.0	17.0	17.0	25.0	71.0	22.0	30.0	22.0
Total Split (%)	50.7%	50.7%	0.0%	15.7%	15.7%	12.1%	12.1%	17.9%	50.7%	15.7%	21.4%	15.7%
Maximum Green (s)	64.0	64.0		15.0	15.0	10.0	10.0	18.0	64.0	15.0	23.0	15.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead		Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)		66.0			17.0	34.0	12.0	20.0	91.0	17.0	25.0	42.0
Actuated g/C Ratio		0.47			0.12	0.24	0.09	0.14	0.65	0.12	0.18	0.30
v/c Ratio		1.77			1.53	0.77	1.33	1.10	0.53	1.46	1.12	0.41
Control Delay		376.0			300.0	63.6	235.9	126.1	15.5	274.8	125.5	28.7
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		376.0			300.0	63.6	235.9	126.1	15.5	274.8	125.5	28.7
LOS		F			F	E	F	F	B	F	F	C
Approach Delay		376.0			189.5			96.6			148.5	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.77			
Intersection Signal Delay: 212.2		Intersection LOS: F	
Intersection Capacity Utilization 121.7%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 107: N. Rocky River Road & US 74

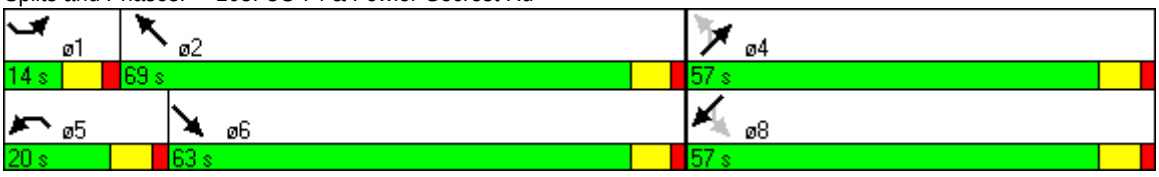


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	54	857	33	83	1073	138	29	66	57	173	120	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.994			0.983			0.949			0.970	
Flt Protected	0.950			0.950				0.991			0.978	
Satd. Flow (prot)	1719	3417	0	1719	3380	0	0	1752	0	0	1767	0
Flt Permitted	0.950			0.950				0.871			0.730	
Satd. Flow (perm)	1719	3417	0	1719	3380	0	0	1540	0	0	1319	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		2601			2354			277			1205	
Travel Time (s)		39.4			35.7			5.4			18.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	60	952	37	92	1192	153	32	73	63	192	133	94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	60	989	0	92	1345	0	0	168	0	0	419	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		
Detector Phase	1	6		5	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		21.0	21.0	
Total Split (s)	14.0	63.0	0.0	20.0	69.0	0.0	57.0	57.0	0.0	57.0	57.0	0.0
Total Split (%)	10.0%	45.0%	0.0%	14.3%	49.3%	0.0%	40.7%	40.7%	0.0%	40.7%	40.7%	0.0%
Maximum Green (s)	7.0	56.0		13.0	62.0		50.0	50.0		50.0	50.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	9.3	63.0		13.5	69.9			48.5			48.5	
Actuated g/C Ratio	0.07	0.45		0.10	0.50			0.35			0.35	
v/c Ratio	0.52	0.64		0.56	0.80			0.31			0.92	
Control Delay	80.0	33.3		73.2	35.3			34.5			69.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	80.0	33.3		73.2	35.3			34.5			69.2	
LOS	F	C		E	D			C			E	
Approach Delay		36.0			37.8			34.5			69.2	
Approach LOS		D			D			C			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 41.3		Intersection LOS: D	
Intersection Capacity Utilization 86.2%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 108: US 74 & Fowler-Secrest Rd

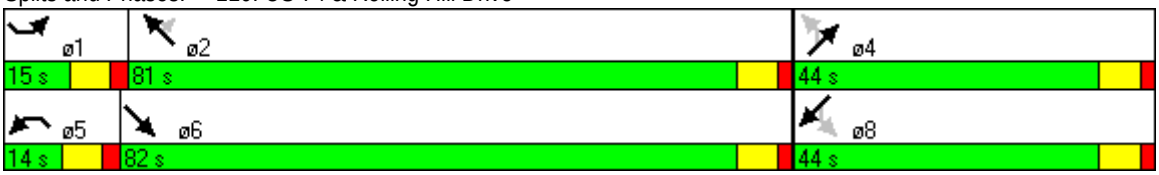


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	47	1028	124	16	1251	7	157	11	16	9	13	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.984				0.850		0.988			0.896	
Flt Protected	0.950			0.950				0.959			0.995	
Satd. Flow (prot)	1719	3383	0	1719	3438	1538	0	1765	0	0	1661	0
Flt Permitted	0.950			0.950				0.626			0.966	
Satd. Flow (perm)	1719	3383	0	1719	3438	1538	0	1152	0	0	1612	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		309			978			474			425	
Travel Time (s)		4.7			14.8			12.9			11.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	52	1142	138	18	1390	8	174	12	18	10	14	82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	52	1280	0	18	1390	8	0	204	0	0	106	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot		Perm	Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases						2	4			8		
Detector Phase	1	6		5	2	2	4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	12.0	7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0		14.0	19.0	19.0	14.0	14.0		14.0	14.0	
Total Split (s)	15.0	82.0	0.0	14.0	81.0	81.0	44.0	44.0	0.0	44.0	44.0	0.0
Total Split (%)	10.7%	58.6%	0.0%	10.0%	57.9%	57.9%	31.4%	31.4%	0.0%	31.4%	31.4%	0.0%
Maximum Green (s)	8.0	75.0		7.0	74.0	74.0	37.0	37.0		37.0	37.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		None	None	
Act Effct Green (s)	10.8	93.8		9.2	86.6	86.6		30.5			30.5	
Actuated g/C Ratio	0.08	0.67		0.07	0.62	0.62		0.22			0.22	
v/c Ratio	0.39	0.56		0.16	0.65	0.01		0.81			0.30	
Control Delay	70.4	15.8		65.2	21.2	14.3		75.5			46.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	
Total Delay	70.4	15.8		65.2	21.2	14.3		75.5			46.3	
LOS	E	B		E	C	B		E			D	
Approach Delay		18.0			21.7			75.5			46.3	
Approach LOS		B			C			E			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 24.5		Intersection LOS: C	
Intersection Capacity Utilization 64.3%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 110: US 74 & Rolling Hill Drive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	125	10	113	72	10	79	84	847	133	150	1056	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.862			0.934			0.980				0.850
Flt Protected	0.950				0.978		0.950			0.950		
Satd. Flow (prot)	1770	1606	0	0	1702	0	1719	3369	0	1719	3438	1538
Flt Permitted	0.588				0.729		0.950			0.950		
Satd. Flow (perm)	1095	1606	0	0	1268	0	1719	3369	0	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		510			371			748			991	
Travel Time (s)		13.9			10.1			11.3			15.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	139	11	126	80	11	88	93	941	148	167	1173	106
Shared Lane Traffic (%)												
Lane Group Flow (vph)	139	137	0	0	179	0	93	1089	0	167	1173	106
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm			Perm			Prot			Prot		Perm
Protected Phases		3			8		1	6		5	2	
Permitted Phases	3			8								2
Detector Phase	3	3		8	8		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	12.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0		14.0	19.0	19.0
Total Split (s)	40.0	40.0	0.0	40.0	40.0	0.0	21.0	71.0	0.0	29.0	79.0	79.0
Total Split (%)	28.6%	28.6%	0.0%	28.6%	28.6%	0.0%	15.0%	50.7%	0.0%	20.7%	56.4%	56.4%
Maximum Green (s)	33.0	33.0		33.0	33.0		14.0	64.0		22.0	72.0	72.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?								Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	Max		None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	35.0	35.0			35.0		13.9	69.9		20.1	76.1	76.1
Actuated g/C Ratio	0.25	0.25			0.25		0.10	0.50		0.14	0.54	0.54
v/c Ratio	0.51	0.34			0.56		0.55	0.65		0.68	0.63	0.13
Control Delay	52.7	46.0			53.9		71.8	28.8		70.4	24.4	16.7
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	52.7	46.0			53.9		71.8	28.8		70.4	24.4	16.7
LOS	D	D			D		E	C		E	C	B
Approach Delay		49.4			53.9			32.2			29.1	
Approach LOS		D			D			C			C	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 33.5 Intersection LOS: C
Intersection Capacity Utilization 69.5% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 111: Roland Drive & US 74

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	86	916	50	237	1108	96	33	22	129	123	51	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992				0.850		0.872				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3411	0	1719	3438	1538	1770	1624	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3411	0	1719	3438	1538	1770	1624	0	1770	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		822			734			281			279	
Travel Time (s)		12.5			11.1			5.5			7.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	96	1018	56	263	1231	107	37	24	143	137	57	149
Shared Lane Traffic (%)												
Lane Group Flow (vph)	96	1074	0	263	1231	107	37	167	0	137	57	149
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	5	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	5	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot		pm+ov	Split			Split		pm+ov
Protected Phases	1	6		5	2	8	4	4		8	8	1
Permitted Phases						2						8
Detector Phase	1	6		5	2	8	4	4		8	8	1
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	7.0	7.0	7.0		7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0		14.0	19.0	14.0	14.0	14.0		14.0	14.0	14.0
Total Split (s)	20.0	60.0	0.0	34.0	74.0	21.0	25.0	25.0	0.0	21.0	21.0	20.0
Total Split (%)	14.3%	42.9%	0.0%	24.3%	52.9%	15.0%	17.9%	17.9%	0.0%	15.0%	15.0%	14.3%
Maximum Green (s)	13.0	53.0		27.0	67.0	14.0	18.0	18.0		14.0	14.0	13.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	C-Max		None	C-Max	Max	None	None		Max	Max	Max
Act Effct Green (s)	15.0	57.5		26.5	69.0	86.2	18.8	18.8		17.2	17.2	37.2
Actuated g/C Ratio	0.11	0.41		0.19	0.49	0.62	0.13	0.13		0.12	0.12	0.27
v/c Ratio	0.52	0.77		0.81	0.73	0.11	0.16	0.77		0.63	0.25	0.35
Control Delay	70.0	40.5		73.4	31.2	6.1	54.6	80.8		72.7	59.6	45.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	70.0	40.5		73.4	31.2	6.1	54.6	80.8		72.7	59.6	45.1
LOS	E	D		E	C	A	D	F		E	E	D
Approach Delay		42.9			36.5			76.0			58.5	
Approach LOS		D			D			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 43.4		Intersection LOS: D	
Intersection Capacity Utilization 72.6%		ICU Level of Service C	
Analysis Period (min) 15			

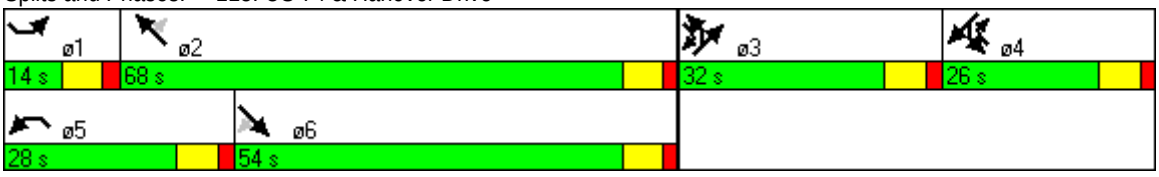
Splits and Phases: 112: US 74 & Williams Road

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	16	1061	110	257	1303	589	101	103	193	467	109	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850			0.850		0.902			0.982	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	1752	1664	0	3400	1811	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	1752	1664	0	3400	1811	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		338			529			376			313	
Travel Time (s)		5.1			8.0			7.3			8.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	18	1179	122	286	1448	654	112	114	214	519	121	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	18	1179	122	286	1448	654	112	328	0	519	138	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Split			Split		
Protected Phases	1	6	3	5	2	4	3	3		4	4	
Permitted Phases			6			2						
Detector Phase	1	6	3	5	2	4	3	3		4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0		14.0	14.0	
Total Split (s)	14.0	54.0	32.0	28.0	68.0	26.0	32.0	32.0	0.0	26.0	26.0	0.0
Total Split (%)	10.0%	38.6%	22.9%	20.0%	48.6%	18.6%	22.9%	22.9%	0.0%	18.6%	18.6%	0.0%
Maximum Green (s)	7.0	47.0	25.0	21.0	61.0	19.0	25.0	25.0		19.0	19.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Act Effct Green (s)	9.0	49.0	81.0	23.0	71.4	95.4	27.0	27.0		21.0	21.0	
Actuated g/C Ratio	0.06	0.35	0.58	0.16	0.51	0.68	0.19	0.19		0.15	0.15	
v/c Ratio	0.16	0.98	0.14	1.01	0.83	0.62	0.33	1.02		1.02	0.51	
Control Delay	65.6	66.5	14.0	114.3	35.1	15.0	52.0	110.8		102.3	62.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	65.6	66.5	14.0	114.3	35.1	15.0	52.0	110.8		102.3	62.0	
LOS	E	E	B	F	D	B	D	F		F	E	
Approach Delay		61.6			39.1			95.8			93.9	
Approach LOS		E			D			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.02			
Intersection Signal Delay: 58.0		Intersection LOS: E	
Intersection Capacity Utilization 90.8%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 113: US 74 & Hanover Drive

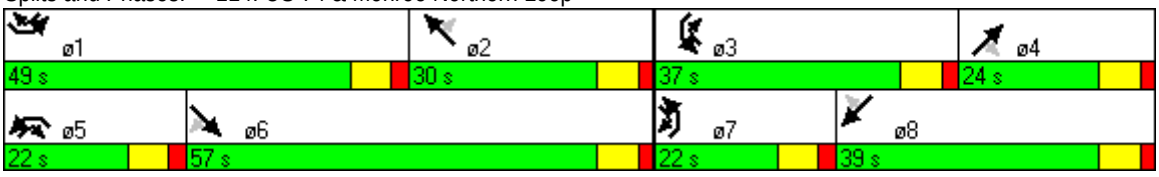


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	742	536	482	229	738	681	394	497	136	645	793	968
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3335	4940	1538	3335	4940	1538	3335	3438	1538	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	4940	1538	3335	4940	1538	3335	3438	1538	3433	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		858			915			405			209	
Travel Time (s)		13.0			13.9			7.9			3.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	2%	2%	2%
Adj. Flow (vph)	824	596	536	254	820	757	438	552	151	717	881	1076
Shared Lane Traffic (%)												
Lane Group Flow (vph)	824	596	536	254	820	757	438	552	151	717	881	1076
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	49.0	57.0	22.0	22.0	30.0	37.0	22.0	24.0	22.0	37.0	39.0	49.0
Total Split (%)	35.0%	40.7%	15.7%	15.7%	21.4%	26.4%	15.7%	17.1%	15.7%	26.4%	27.9%	35.0%
Maximum Green (s)	42.0	50.0	15.0	15.0	23.0	30.0	15.0	17.0	15.0	30.0	32.0	42.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	44.0	52.8	74.8	16.2	25.0	62.0	17.0	19.0	40.2	32.0	34.0	83.0
Actuated g/C Ratio	0.31	0.38	0.53	0.12	0.18	0.44	0.12	0.14	0.29	0.23	0.24	0.59
v/c Ratio	0.79	0.32	0.65	0.66	0.93	1.11	1.08	1.18	0.34	0.91	1.03	1.15
Control Delay	50.1	31.6	28.2	68.0	73.9	106.2	124.7	152.9	41.9	69.6	88.9	107.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.1	31.6	28.2	68.0	73.9	106.2	124.7	152.9	41.9	69.6	88.9	107.1
LOS	D	C	C	E	E	F	F	F	D	E	F	F
Approach Delay		38.5			86.4			127.4			91.0	
Approach LOS		D			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 140			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.18			
Intersection Signal Delay: 81.9		Intersection LOS: F	
Intersection Capacity Utilization 97.9%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 114: US 74 & Monroe Northern Loop

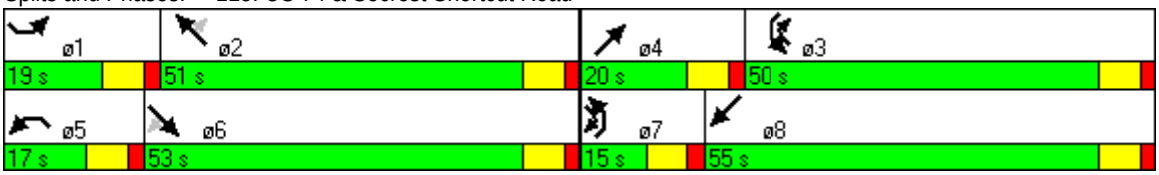


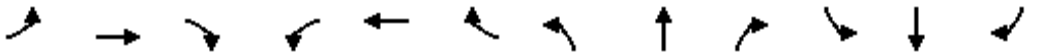
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	151	1097	57	158	1398	479	55	46	119	519	66	209
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.892			0.886	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	3335	4940	1538	1770	1662	0	1770	1650	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	3335	4940	1538	1770	1662	0	1770	1650	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		413			1354			238			233	
Travel Time (s)		6.3			20.5			6.5			4.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	168	1219	63	176	1553	532	61	51	132	577	73	232
Shared Lane Traffic (%)												
Lane Group Flow (vph)	168	1219	63	176	1553	532	61	183	0	577	305	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot			Prot		
Protected Phases	1	6	7	5	2	3	7	4		3	8	
Permitted Phases			6			2						
Detector Phase	1	6	7	5	2	3	7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0		14.0	14.0	
Total Split (s)	19.0	53.0	15.0	17.0	51.0	50.0	15.0	20.0	0.0	50.0	55.0	0.0
Total Split (%)	13.6%	37.9%	10.7%	12.1%	36.4%	35.7%	10.7%	14.3%	0.0%	35.7%	39.3%	0.0%
Maximum Green (s)	12.0	46.0	8.0	10.0	44.0	43.0	8.0	13.0		43.0	48.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Act Effct Green (s)	14.0	48.2	63.0	11.8	46.0	91.0	9.8	15.0		45.0	50.2	
Actuated g/C Ratio	0.10	0.34	0.45	0.08	0.33	0.65	0.07	0.11		0.32	0.36	
v/c Ratio	0.98	0.72	0.09	0.62	0.96	0.53	0.49	1.03		1.01	0.52	
Control Delay	124.8	42.9	22.6	72.3	60.2	8.8	76.7	134.9		88.0	39.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	124.8	42.9	22.6	72.3	60.2	8.8	76.7	134.9		88.0	39.2	
LOS	F	D	C	E	E	A	E	F		F	D	
Approach Delay		51.5			49.1			120.3			71.2	
Approach LOS		D			D			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.03			
Intersection Signal Delay: 57.4		Intersection LOS: E	
Intersection Capacity Utilization 90.5%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 115: US 74 & Secrest Shortcut Road





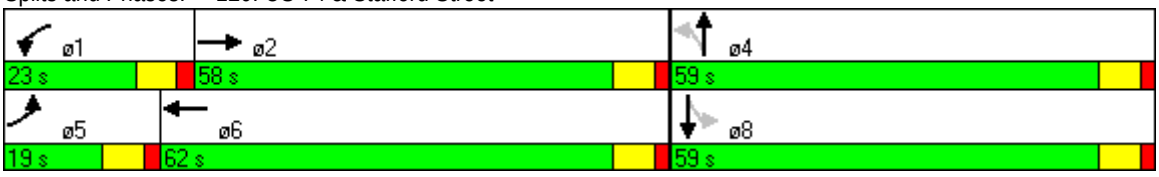
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	185	1564	151	225	1958	138	253	137	302	155	114	259
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.987			0.990			0.897			0.896	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4876	0	1719	4891	0	1770	1671	0	1770	1669	0
Flt Permitted	0.950			0.950			0.320			0.243		
Satd. Flow (perm)	1719	4876	0	1719	4891	0	596	1671	0	453	1669	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		443			590			549			636	
Travel Time (s)		6.7			8.9			15.0			12.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	206	1738	168	250	2176	153	281	152	336	172	127	288
Shared Lane Traffic (%)												
Lane Group Flow (vph)	206	1906	0	250	2329	0	281	488	0	172	415	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

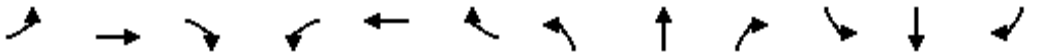
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	19.0	58.0	0.0	23.0	62.0	0.0	59.0	59.0	0.0	59.0	59.0	0.0
Total Split (%)	13.6%	41.4%	0.0%	16.4%	44.3%	0.0%	42.1%	42.1%	0.0%	42.1%	42.1%	0.0%
Maximum Green (s)	12.0	51.0		16.0	55.0		52.0	52.0		52.0	52.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	14.0	53.0		18.0	57.0		54.0	54.0		54.0	54.0	
Actuated g/C Ratio	0.10	0.38		0.13	0.41		0.39	0.39		0.39	0.39	
v/c Ratio	1.20	1.03		1.13	1.17		1.22	0.76		0.98	0.64	
Control Delay	183.6	72.3		153.7	119.9		170.0	46.3		107.0	40.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	183.6	72.3		153.7	119.9		170.0	46.3		107.0	40.8	
LOS	F	E		F	F		F	D		F	D	
Approach Delay		83.1			123.2			91.5			60.2	
Approach LOS		F			F			F			E	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.22
Intersection Signal Delay: 99.1 Intersection LOS: F
Intersection Capacity Utilization 103.7% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 120: US 74 & Stafford Street





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	78	1711	159	195	2094	53	117	10	117	107	10	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.987			0.996			0.862			0.857	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4876	0	1719	4920	0	1770	1606	0	1770	1596	0
Flt Permitted	0.950			0.950			0.374			0.562		
Satd. Flow (perm)	1719	4876	0	1719	4920	0	697	1606	0	1047	1596	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			20	
Link Distance (ft)		493			536			238			211	
Travel Time (s)		7.5			8.1			6.5			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	87	1901	177	217	2327	59	130	11	130	119	11	217
Shared Lane Traffic (%)												
Lane Group Flow (vph)	87	2078	0	217	2386	0	130	141	0	119	228	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	15.0	73.0	0.0	29.0	87.0	0.0	38.0	38.0	0.0	38.0	38.0	0.0
Total Split (%)	10.7%	52.1%	0.0%	20.7%	62.1%	0.0%	27.1%	27.1%	0.0%	27.1%	27.1%	0.0%
Maximum Green (s)	8.0	66.0		22.0	80.0		31.0	31.0		31.0	31.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	10.9	74.1		22.5	85.7		28.4	28.4		28.4	28.4	
Actuated g/C Ratio	0.08	0.53		0.16	0.61		0.20	0.20		0.20	0.20	
v/c Ratio	0.65	0.81		0.78	0.79		0.92	0.43		0.56	0.71	
Control Delay	84.6	31.5		76.1	23.8		111.2	52.0		59.7	63.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	84.6	31.5		76.1	23.8		111.2	52.0		59.7	63.5	
LOS	F	C		E	C		F	D		E	E	
Approach Delay		33.6			28.1			80.4			62.2	
Approach LOS		C			C			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 35.2		Intersection LOS: D	
Intersection Capacity Utilization 83.2%		ICU Level of Service E	
Analysis Period (min) 15			

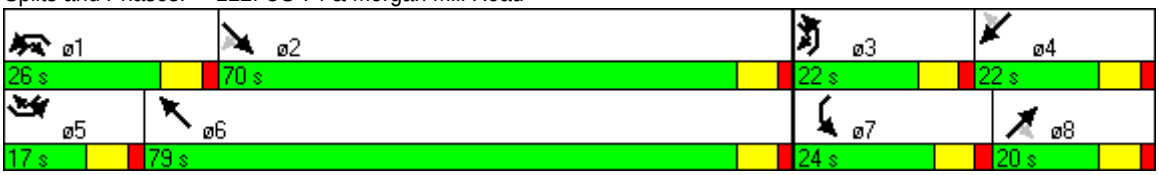
Splits and Phases: 121: US 74 & Boyte Street

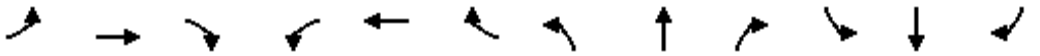
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	122	1629	160	138	2022	128	159	105	110	163	168	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.991				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	1719	4896	0	1687	1776	1509	1687	1776	1509
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	1719	4896	0	1687	1776	1509	1687	1776	1509
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		515			499			502			475	
Travel Time (s)		7.8			7.6			9.8			9.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	7%	7%	7%	7%	7%	7%
Adj. Flow (vph)	136	1810	178	153	2247	142	177	117	122	181	187	214
Shared Lane Traffic (%)												
Lane Group Flow (vph)	136	1810	178	153	2389	0	177	117	122	181	187	214
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot			Prot		pm+ov	Prot		pm+ov
Protected Phases	5	2	3	1	6		3	8	1	7	4	5
Permitted Phases			2						8			4
Detector Phase	5	2	3	1	6		3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0		7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0		14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	17.0	70.0	22.0	26.0	79.0	0.0	22.0	20.0	26.0	24.0	22.0	17.0
Total Split (%)	12.1%	50.0%	15.7%	18.6%	56.4%	0.0%	15.7%	14.3%	18.6%	17.1%	15.7%	12.1%
Maximum Green (s)	10.0	63.0	15.0	19.0	72.0		15.0	13.0	19.0	17.0	15.0	10.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max		None	None	None	None	None	None
Act Effct Green (s)	12.1	67.7	89.6	18.4	74.0		16.9	15.5	38.9	18.4	17.0	34.1
Actuated g/C Ratio	0.09	0.48	0.64	0.13	0.53		0.12	0.11	0.28	0.13	0.12	0.24
v/c Ratio	0.91	0.76	0.18	0.68	0.92		0.87	0.60	0.29	0.82	0.87	0.58
Control Delay	116.9	32.5	11.3	72.9	37.7		96.4	72.9	41.4	86.4	95.0	54.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	116.9	32.5	11.3	72.9	37.7		96.4	72.9	41.4	86.4	95.0	54.2
LOS	F	C	B	E	D		F	E	D	F	F	D
Approach Delay		36.1			39.8			73.7			77.3	
Approach LOS		D			D			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 44.7		Intersection LOS: D	
Intersection Capacity Utilization 83.0%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 122: US 74 & Morgan Mill Road





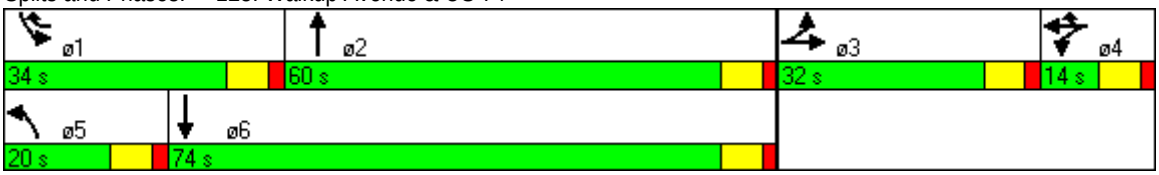
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	89	188	92	31	135	348	91	1842	43	382	1457	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.966				0.850		0.997			0.993	
Flt Protected		0.988		0.950			0.950			0.950		
Satd. Flow (prot)	0	1778	0	1770	1863	1583	1719	4925	0	1719	4905	0
Flt Permitted		0.988		0.950			0.950			0.950		
Satd. Flow (perm)	0	1778	0	1770	1863	1583	1719	4925	0	1719	4905	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		443			502			602			356	
Travel Time (s)		12.1			9.8			9.1			5.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	99	209	102	34	150	387	101	2047	48	424	1619	77
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	410	0	34	150	387	101	2095	0	424	1696	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pt+ov	Prot			Prot		
Protected Phases	3	3		4	4	4 1	5	2		1	6	
Permitted Phases												
Detector Phase	3	3		4	4	4 1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0		14.0	19.0	
Total Split (s)	32.0	32.0	0.0	14.0	14.0	48.0	20.0	60.0	0.0	34.0	74.0	0.0
Total Split (%)	22.9%	22.9%	0.0%	10.0%	10.0%	34.3%	14.3%	42.9%	0.0%	24.3%	52.9%	0.0%
Maximum Green (s)	25.0	25.0		7.0	7.0		13.0	53.0		27.0	67.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lead		Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)		27.0		9.0	9.0	43.0	13.7	55.0		29.0	70.3	
Actuated g/C Ratio		0.19		0.06	0.06	0.31	0.10	0.39		0.21	0.50	
v/c Ratio		1.20		0.30	1.25	0.80	0.60	1.08		1.19	0.69	
Control Delay		160.5		69.7	215.0	58.0	75.3	87.3		157.5	28.6	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		160.5		69.7	215.0	58.0	75.3	87.3		157.5	28.6	
LOS		F		E	F	E	E	F		F	C	
Approach Delay		160.5			99.9			86.7			54.4	
Approach LOS		F			F			F			D	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.25
Intersection Signal Delay: 80.9 Intersection LOS: F
Intersection Capacity Utilization 101.9% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 123: Walkup Avenue & US 74



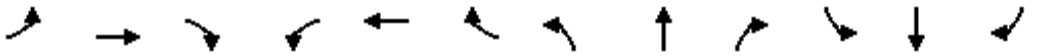
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	115	1313	210	66	1642	208	169	236	43	139	245	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.983			0.977			0.958	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	1719	4856	0	1752	1802	0	1752	1767	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	1719	4856	0	1752	1802	0	1752	1767	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		425			487			426			331	
Travel Time (s)		6.4			7.4			11.6			6.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	128	1459	233	73	1824	231	188	262	48	154	272	107
Shared Lane Traffic (%)												
Lane Group Flow (vph)	128	1459	233	73	2055	0	188	310	0	154	379	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot			Prot			Prot		
Protected Phases	1	6	7	5	2		7	4		3	8	
Permitted Phases			6									
Detector Phase	1	6	7	5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	16.0	66.0	21.0	17.0	67.0	0.0	21.0	36.0	0.0	21.0	36.0	0.0
Total Split (%)	11.4%	47.1%	15.0%	12.1%	47.9%	0.0%	15.0%	25.7%	0.0%	15.0%	25.7%	0.0%
Maximum Green (s)	9.0	59.0	14.0	10.0	60.0		14.0	29.0		14.0	29.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes			Yes			Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max		None	None		None	None	
Act Effct Green (s)	11.0	64.5	85.5	11.3	62.0		16.0	31.4		15.6	31.0	
Actuated g/C Ratio	0.08	0.46	0.61	0.08	0.44		0.11	0.22		0.11	0.22	
v/c Ratio	0.95	0.64	0.25	0.53	0.96		0.94	0.77		0.79	0.97	
Control Delay	127.9	31.3	14.2	75.7	49.2		110.6	64.6		87.7	92.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	127.9	31.3	14.2	75.7	49.2		110.6	64.6		87.7	92.2	
LOS	F	C	B	E	D		F	E		F	F	
Approach Delay		35.9			50.1			82.0			90.9	
Approach LOS		D			D			F			F	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.97
Intersection Signal Delay: 52.5 Intersection LOS: D
Intersection Capacity Utilization 87.5% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 124: US 74 & Sutherland Avenue



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	2	34	27	24	48	115	61	1727	38	150	1401	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.934			0.894				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1740	0	1770	1665	0	1719	4940	1538	1719	4940	1538
Flt Permitted	0.402			0.713			0.950			0.950		
Satd. Flow (perm)	749	1740	0	1328	1665	0	1719	4940	1538	1719	4940	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		163			218			356			257	
Travel Time (s)		5.6			4.2			5.4			3.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	2	38	30	27	53	128	68	1919	42	167	1557	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	68	0	27	181	0	68	1919	42	167	1557	4
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm			Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	12.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	19.0
Total Split (s)	32.0	32.0	0.0	32.0	32.0	0.0	17.0	79.0	79.0	29.0	91.0	91.0
Total Split (%)	22.9%	22.9%	0.0%	22.9%	22.9%	0.0%	12.1%	56.4%	56.4%	20.7%	65.0%	65.0%
Maximum Green (s)	25.0	25.0		25.0	25.0		10.0	72.0	72.0	22.0	84.0	84.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	21.9	21.9		21.9	21.9		11.7	83.0	83.0	20.1	94.2	94.2
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.08	0.59	0.59	0.14	0.67	0.67
v/c Ratio	0.02	0.25		0.13	0.70		0.47	0.66	0.05	0.68	0.47	0.00
Control Delay	47.0	52.7		50.2	69.6		72.0	21.5	14.6	70.4	12.8	10.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.0	52.7		50.2	69.6		72.0	21.5	14.6	70.4	12.8	10.2
LOS	D	D		D	E		E	C	B	E	B	B
Approach Delay		52.5			67.1			23.1			18.3	
Approach LOS		D			E			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay: 23.8		Intersection LOS: C	
Intersection Capacity Utilization 63.8%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 125: Dove Street & US 74

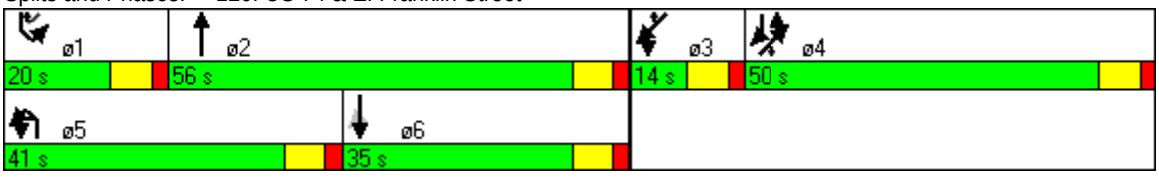
Lane Group	NBU	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT
Lane Configurations												
Volume (vph)	13	985	1356	127	128	1030	255	355	84	1042	129	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.86	0.97	0.86	0.86	1.00	0.91	1.00	1.00	1.00	0.88	1.00	1.00
Frt			0.987				0.850			0.850		
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	3335	6144	0	1719	4940	1538	1752	1845	2760	1752	1845
Flt Permitted		0.950			0.950			0.950			0.950	
Satd. Flow (perm)	0	3335	6144	0	1719	4940	1538	1752	1845	2760	1752	1845
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			45			35			20
Link Distance (ft)			341			436			391			335
Travel Time (s)			5.2			6.6			7.6			11.4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%
Adj. Flow (vph)	14	1094	1507	141	142	1144	283	394	93	1158	143	89
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1108	1648	0	142	1144	283	394	93	1158	143	89
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			24			24			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1	1	2		1	2	1	1	2	1	1	2
Detector Template	Left	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru
Leading Detector (ft)	20	20	100		20	100	20	20	100	20	20	100
Trailing Detector (ft)	0	0	0		0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0		0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	6		20	6	20	20	6	20	20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94			94			94			94
Detector 2 Size(ft)			6			6			6			6
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			0.0
Turn Type	Prot	Prot			Prot		pm+ov	Split		Prot	Split	
Protected Phases	5	5	2		1	6	4	4	4	4	3	3
Permitted Phases							6					
Detector Phase	5	5	2		1	6	4	4	4	4	3	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	12.0		7.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SWR
Lane Configurations	
Volume (vph)	170
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1568
Flt Permitted	
Satd. Flow (perm)	1568
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	3%
Adj. Flow (vph)	189
Shared Lane Traffic (%)	
Lane Group Flow (vph)	189
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	pt+ov
Protected Phases	3 1
Permitted Phases	
Detector Phase	3 1
Switch Phase	
Minimum Initial (s)	

Lane Group	NBU	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT
Minimum Split (s)	14.0	14.0	19.0		14.0	19.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	41.0	41.0	56.0	0.0	20.0	35.0	50.0	50.0	50.0	50.0	14.0	14.0
Total Split (%)	29.3%	29.3%	40.0%	0.0%	14.3%	25.0%	35.7%	35.7%	35.7%	35.7%	10.0%	10.0%
Maximum Green (s)	34.0	34.0	49.0		13.0	28.0	43.0	43.0	43.0	43.0	7.0	7.0
Yellow Time (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag		Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max		None	C-Max	None	None	None	None	None	None
Act Effct Green (s)		36.0	51.3		14.7	30.0	75.0	45.0	45.0	45.0	9.0	9.0
Actuated g/C Ratio		0.26	0.37		0.10	0.21	0.54	0.32	0.32	0.32	0.06	0.06
v/c Ratio		1.29	0.73		0.79	1.08	0.34	0.70	0.16	1.31	1.27	0.75
Control Delay		181.5	40.8		90.0	103.1	12.2	49.4	34.9	184.3	222.6	98.8
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		181.5	40.8		90.0	103.1	12.2	49.4	34.9	184.3	222.6	98.8
LOS		F	D		F	F	B	D	C	F	F	F
Approach Delay			97.4			85.5			143.5			117.3
Approach LOS			F			F			F			F

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 160			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.31			
Intersection Signal Delay: 107.7		Intersection LOS: F	
Intersection Capacity Utilization 108.6%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 126: US 74 & E. Franklin Street



Lane Group	SWR
Minimum Split (s)	
Total Split (s)	34.0
Total Split (%)	24.3%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Act Effct Green (s)	23.7
Actuated g/C Ratio	0.17
v/c Ratio	0.71
Control Delay	46.4
Queue Delay	0.0
Total Delay	46.4
LOS	D
Approach Delay	
Approach LOS	

Intersection Summary

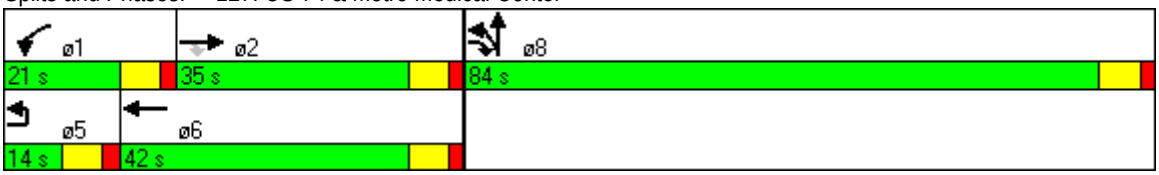
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	10	0	1049	932	219	1210	18	1542	0	314	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.91	0.91	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.998			0.949			
Flt Protected	0.950				0.950			0.950	0.968			
Satd. Flow (prot)	1719	0	4940	1538	1736	4978	0	1504	1455	0	0	0
Flt Permitted	0.950				0.950			0.950	0.968			
Satd. Flow (perm)	1719	0	4940	1538	1736	4978	0	1504	1455	0	0	0
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			55			45			25
Link Distance (ft)			239			375			459			142
Travel Time (s)			3.6			4.6			7.0			3.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	4%	4%	4%	14%	14%	14%	2%	2%
Adj. Flow (vph)	11	0	1166	1036	243	1344	20	1713	0	349	0	0
Shared Lane Traffic (%)								39%				
Lane Group Flow (vph)	11	0	1166	1036	243	1364	0	1045	1017	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			12			12			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1		2	1	1	2		1	2			
Detector Template	Left		Thru	Right	Left	Thru		Left	Thru			
Leading Detector (ft)	20		100	20	20	100		20	100			
Trailing Detector (ft)	0		0	0	0	0		0	0			
Detector 1 Position(ft)	0		0	0	0	0		0	0			
Detector 1 Size(ft)	20		6	20	20	6		20	6			
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 2 Position(ft)			94			94			94			
Detector 2 Size(ft)			6			6			6			
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			
Turn Type	Prot			pm+ov	Prot			Split				
Protected Phases	5		2	8	1	6		8	8			
Permitted Phases				2								
Detector Phase	5		2	8	1	6		8	8			
Switch Phase												
Minimum Initial (s)	7.0		12.0	12.0	7.0	14.0		12.0	12.0			

Lane Group	SBR
Lane Configurations	
Volume (vph)	29
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.865
Flt Protected	
Satd. Flow (prot)	1611
Flt Permitted	
Satd. Flow (perm)	1611
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	2%
Adj. Flow (vph)	32
Shared Lane Traffic (%)	
Lane Group Flow (vph)	32
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Detector Phase	
Switch Phase	
Minimum Initial (s)	

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Minimum Split (s)	14.0		19.0	19.0	14.0	21.0		19.0	19.0			
Total Split (s)	14.0	0.0	35.0	84.0	21.0	42.0	0.0	84.0	84.0	0.0	0.0	0.0
Total Split (%)	10.0%	0.0%	25.0%	60.0%	15.0%	30.0%	0.0%	60.0%	60.0%	0.0%	0.0%	0.0%
Maximum Green (s)	7.0		28.0	77.0	14.0	35.0		77.0	77.0			
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0		5.0	5.0			
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0		2.0	2.0			
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	2.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	2.0	2.0
Lead/Lag	Lead		Lag		Lead	Lag						
Lead-Lag Optimize?			Yes			Yes						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0		3.0	3.0			
Recall Mode	None		C-Max	None	None	C-Max		None	None			
Act Effct Green (s)	9.0		30.0	114.0	16.0	45.4		79.0	79.0			
Actuated g/C Ratio	0.06		0.21	0.81	0.11	0.32		0.56	0.56			
v/c Ratio	0.10		1.10	0.83	1.23	0.85		1.23	1.24			
Control Delay	63.9		109.8	14.8	188.4	50.2		143.4	147.0			
Queue Delay	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Total Delay	63.9		109.8	14.8	188.4	50.2		143.4	147.0			
LOS	E		F	B	F	D		F	F			
Approach Delay			65.1			71.1			145.2			
Approach LOS			E			E			F			

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 170			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.24			
Intersection Signal Delay: 94.3		Intersection LOS: F	
Intersection Capacity Utilization 97.2%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 127: US 74 & Metro Medical Center



Lane Group	SBR
Minimum Split (s)	
Total Split (s)	0.0
Total Split (%)	0.0%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	2.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Act Effct Green (s)	140.0
Actuated g/C Ratio	1.00
v/c Ratio	0.02
Control Delay	0.0
Queue Delay	0.0
Total Delay	0.0
LOS	A
Approach Delay	
Approach LOS	

Intersection Summary

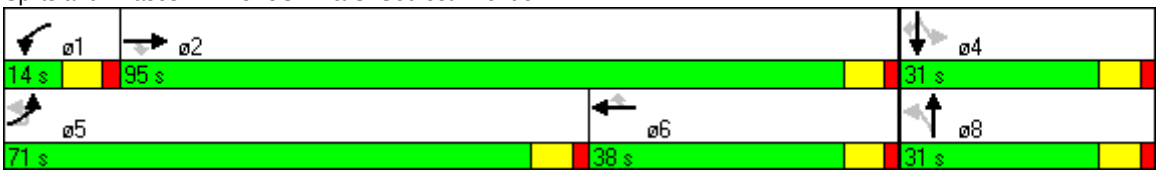
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	12	299	991	35	9	1247	248	47	238	9	109	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850			0.850		0.996			
Flt Protected		0.950			0.950				0.992			0.974
Satd. Flow (prot)	0	1736	3471	1553	1736	3471	1553	0	1840	0	0	1814
Flt Permitted		0.061			0.950				0.538			0.353
Satd. Flow (perm)	0	111	3471	1553	1736	3471	1553	0	998	0	0	658
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			55			55			35			35
Link Distance (ft)			411			374			242			283
Travel Time (s)			5.1			4.6			4.7			5.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%
Adj. Flow (vph)	13	332	1101	39	10	1386	276	52	264	10	121	110
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	345	1101	39	10	1386	276	0	326	0	0	231
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			12			12			0			0
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1	1	2	1	1	2	1	1	2		1	2
Detector Template	Left	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru
Leading Detector (ft)	20	20	100	20	20	100	20	20	100		20	100
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0		0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0		0	0
Detector 1 Size(ft)	20	20	6	20	20	6	20	20	6		20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)			94			94			94			94
Detector 2 Size(ft)			6			6			6			6
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			0.0
Turn Type	custom	Prot		Perm	Prot		Perm	Perm			Perm	
Protected Phases		5	2		1	6			8			4
Permitted Phases	5			2			6	8			4	
Detector Phase	5	5	2	2	1	6	6	8	8		4	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	14.0	14.0	7.0	14.0	14.0	7.0	7.0		7.0	7.0

Lane Group	SBR
Lane Configurations	
Volume (vph)	166
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	2%
Adj. Flow (vph)	184
Shared Lane Traffic (%)	
Lane Group Flow (vph)	184
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Detector Phase	4
Switch Phase	
Minimum Initial (s)	7.0

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Minimum Split (s)	14.0	14.0	21.0	21.0	14.0	21.0	21.0	14.0	14.0		14.0	14.0
Total Split (s)	71.0	71.0	95.0	95.0	14.0	38.0	38.0	31.0	31.0	0.0	31.0	31.0
Total Split (%)	50.7%	50.7%	67.9%	67.9%	10.0%	27.1%	27.1%	22.1%	22.1%	0.0%	22.1%	22.1%
Maximum Green (s)	64.0	64.0	88.0	88.0	7.0	31.0	31.0	24.0	24.0		24.0	24.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Time Before Reduce (s)	0.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0	0.0		0.0	0.0
Time To Reduce (s)	0.0	0.0	50.0	50.0	0.0	50.0	50.0	0.0	0.0		0.0	0.0
Recall Mode	None	None	C-Min	C-Min	None	C-Min	C-Min	None	None		None	None
Act Effct Green (s)		66.0	101.2	101.2	9.0	33.0	33.0		26.0			26.0
Actuated g/C Ratio		0.47	0.72	0.72	0.06	0.24	0.24		0.19			0.19
v/c Ratio		6.63	0.44	0.03	0.09	1.69	0.75		1.76			1.89
Control Delay		2584.2	9.1	6.7	63.7	350.9	63.9		397.2			462.0
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0
Total Delay		2584.2	9.1	6.7	63.7	350.9	63.9		397.2			462.0
LOS		F	A	A	E	F	E		F			F
Approach Delay			607.3			301.8			397.2			285.1
Approach LOS			F			F			F			F

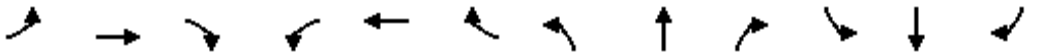
Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 6.63			
Intersection Signal Delay: 424.4		Intersection LOS: F	
Intersection Capacity Utilization 94.3%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 128: US 74 & S. Secrest Avenue



Lane Group	SBR
Minimum Split (s)	14.0
Total Split (s)	31.0
Total Split (%)	22.1%
Maximum Green (s)	24.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Minimum Gap (s)	3.0
Time Before Reduce (s)	0.0
Time To Reduce (s)	0.0
Recall Mode	None
Act Effct Green (s)	26.0
Actuated g/C Ratio	0.19
v/c Ratio	0.63
Control Delay	63.0
Queue Delay	0.0
Total Delay	63.0
LOS	E
Approach Delay	
Approach LOS	

Intersection Summary

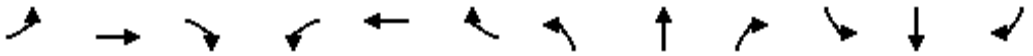


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	109	1048	32	3	1301	101	20	18	3	59	20	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.989			0.991				0.850
Flt Protected	0.950			0.950				0.976			0.964	
Satd. Flow (prot)	1736	3457	0	1736	3433	0	0	1802	0	0	1796	1583
Flt Permitted	0.950			0.950				0.781			0.789	
Satd. Flow (perm)	1736	3457	0	1736	3433	0	0	1442	0	0	1470	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			20			25	
Link Distance (ft)		245			259			179			276	
Travel Time (s)		4.8			5.0			6.1			7.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	121	1164	36	3	1446	112	22	20	3	66	22	88
Shared Lane Traffic (%)												
Lane Group Flow (vph)	121	1200	0	3	1558	0	0	45	0	0	88	88
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		pm+ov
Protected Phases	5	2		1	6			8			4	5
Permitted Phases							8			4		4
Detector Phase	5	2		1	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	17.0		14.0	17.0		14.0	14.0		14.0	14.0	14.0
Total Split (s)	25.0	104.0	0.0	14.0	93.0	0.0	22.0	22.0	0.0	22.0	22.0	25.0
Total Split (%)	17.9%	74.3%	0.0%	10.0%	66.4%	0.0%	15.7%	15.7%	0.0%	15.7%	15.7%	17.9%
Maximum Green (s)	18.0	97.0		7.0	86.0		15.0	15.0		15.0	15.0	18.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None
Act Effct Green (s)	16.5	112.4		9.0	93.7			14.8			14.8	36.3
Actuated g/C Ratio	0.12	0.80		0.06	0.67			0.11			0.11	0.26
v/c Ratio	0.59	0.43		0.03	0.68			0.29			0.56	0.21
Control Delay	70.2	5.5		62.0	16.8			61.8			73.2	40.3
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Delay	70.2	5.5		62.0	16.8			61.8			73.2	40.3
LOS	E	A		E	B			E			E	D
Approach Delay		11.4			16.9			61.8			56.8	
Approach LOS		B			B			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay: 17.5		Intersection LOS: B	
Intersection Capacity Utilization 66.6%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 129: US 74 & Bivens Street



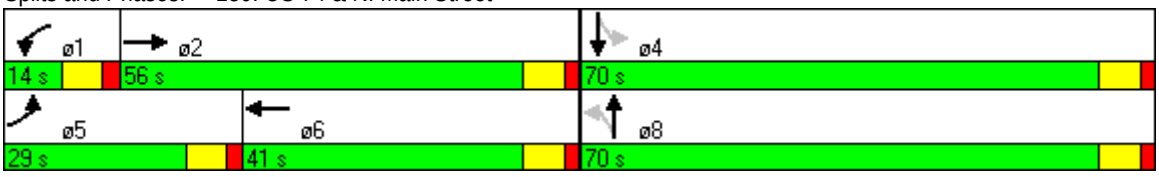
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	375	738	39	51	945	102	50	384	51	77	291	362
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993			0.985			0.986			0.917	
Flt Protected	0.950			0.950				0.995		0.950		
Satd. Flow (prot)	1736	3447	0	1736	3419	0	0	1827	0	1770	1708	0
Flt Permitted	0.950			0.950				0.412		0.363		
Satd. Flow (perm)	1736	3447	0	1736	3419	0	0	757	0	676	1708	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		282			333			173			197	
Travel Time (s)		5.5			6.5			3.4			3.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	417	820	43	57	1050	113	56	427	57	86	323	402
Shared Lane Traffic (%)												
Lane Group Flow (vph)	417	863	0	57	1163	0	0	540	0	86	725	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	

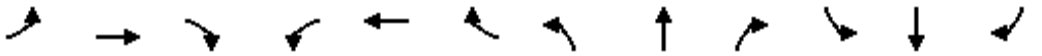
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	17.0		14.0	17.0		14.0	14.0		14.0	14.0	
Total Split (s)	29.0	56.0	0.0	14.0	41.0	0.0	70.0	70.0	0.0	70.0	70.0	0.0
Total Split (%)	20.7%	40.0%	0.0%	10.0%	29.3%	0.0%	50.0%	50.0%	0.0%	50.0%	50.0%	0.0%
Maximum Green (s)	22.0	49.0		7.0	34.0		63.0	63.0		63.0	63.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	None		None	None		None	None	
Act Effct Green (s)	24.0	53.8		9.0	36.0			65.0		65.0	65.0	
Actuated g/C Ratio	0.17	0.38		0.06	0.26			0.46		0.46	0.46	
v/c Ratio	1.40	0.65		0.51	1.32			1.54		0.27	0.91	
Control Delay	240.6	39.0		79.7	194.1			285.6		26.0	52.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	240.6	39.0		79.7	194.1			285.6		26.0	52.4	
LOS	F	D		E	F			F		C	D	
Approach Delay		104.7			188.8			285.6			49.6	
Approach LOS		F			F			F			D	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:EBT, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.54
Intersection Signal Delay: 145.1 Intersection LOS: F
Intersection Capacity Utilization 128.4% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 130: US 74 & N. Main Street





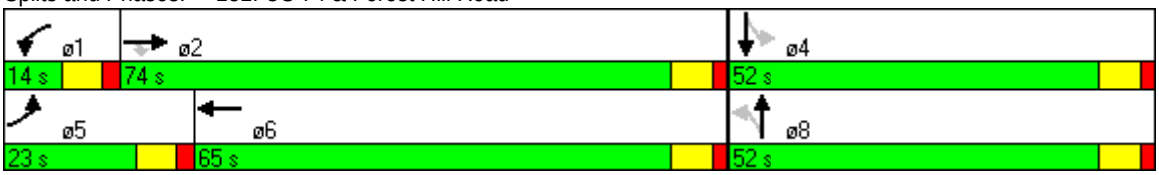
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	100	734	111	33	904	10	120	35	29	11	41	127
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.998			0.979			0.904	
Flt Protected	0.950			0.950				0.968			0.997	
Satd. Flow (prot)	1736	3471	1553	1736	3464	0	0	1683	0	0	1647	0
Flt Permitted	0.950			0.950				0.536			0.976	
Satd. Flow (perm)	1736	3471	1553	1736	3464	0	0	932	0	0	1612	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			35	
Link Distance (ft)		576			646			376			353	
Travel Time (s)		7.1			8.0			4.7			6.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	7%	7%	7%	4%	4%	4%
Adj. Flow (vph)	111	816	123	37	1004	11	133	39	32	12	46	141
Shared Lane Traffic (%)												
Lane Group Flow (vph)	111	816	123	37	1015	0	0	204	0	0	199	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		Perm	Prot			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8			4		
Detector Phase	5	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	14.0	14.0	7.0	14.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	21.0	21.0	14.0	21.0		14.0	14.0		14.0	14.0	
Total Split (s)	23.0	74.0	74.0	14.0	65.0	0.0	52.0	52.0	0.0	52.0	52.0	0.0
Total Split (%)	16.4%	52.9%	52.9%	10.0%	46.4%	0.0%	37.1%	37.1%	0.0%	37.1%	37.1%	0.0%
Maximum Green (s)	16.0	67.0	67.0	7.0	58.0		45.0	45.0		45.0	45.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	
Act Effct Green (s)	15.8	83.1	83.1	10.2	74.6			34.6			34.6	
Actuated g/C Ratio	0.11	0.59	0.59	0.07	0.53			0.25			0.25	
v/c Ratio	0.56	0.40	0.13	0.29	0.55			0.89			0.50	
Control Delay	69.5	18.1	16.1	67.4	25.2			85.7			48.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Delay	69.5	18.1	16.1	67.4	25.2			85.7			48.2	
LOS	E	B	B	E	C			F			D	
Approach Delay		23.3			26.7			85.7			48.2	
Approach LOS		C			C			F			D	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 31.8 Intersection LOS: C
Intersection Capacity Utilization 68.6% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 131: US 74 & Forest Hill Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	398	612	17	10	410	111	174	2969	419	15	2416	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1719	3438	1538	1719	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	1719	3438	1538	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			45			55			55	
Link Distance (ft)		1096			1168			1536			3465	
Travel Time (s)		21.4			17.7			19.0			43.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	442	680	19	11	456	123	193	3299	466	17	2684	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	442	680	19	11	456	123	193	3299	466	17	2684	14
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	1	6	7	5	2	3
Permitted Phases			4			8			6			2
Detector Phase	7	4	5	3	8	1	1	6	7	5	2	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	14.0	7.0	7.0	14.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0	14.0	14.0	21.0	14.0	14.0	21.0	14.0
Total Split (s)	18.0	24.0	14.0	14.0	20.0	17.0	17.0	88.0	18.0	14.0	85.0	14.0
Total Split (%)	12.9%	17.1%	10.0%	10.0%	14.3%	12.1%	12.1%	62.9%	12.9%	10.0%	60.7%	10.0%
Maximum Green (s)	11.0	17.0	7.0	7.0	13.0	10.0	10.0	81.0	11.0	7.0	78.0	7.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	13.0	24.6	38.6	9.0	15.0	32.0	12.0	88.6	106.6	9.0	80.0	94.0
Actuated g/C Ratio	0.09	0.18	0.28	0.06	0.11	0.23	0.09	0.63	0.76	0.06	0.57	0.67
v/c Ratio	1.39	1.09	0.04	0.05	1.20	0.34	1.31	1.52	0.40	0.15	1.37	0.01
Control Delay	236.9	116.0	41.3	62.1	165.4	48.3	228.5	259.3	7.7	65.3	195.9	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	236.9	116.0	41.3	62.1	165.4	48.3	228.5	259.3	7.7	65.3	195.9	7.7
LOS	F	F	D	E	F	D	F	F	A	E	F	A
Approach Delay		161.6			139.0			228.2			194.1	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.52			
Intersection Signal Delay: 201.9		Intersection LOS: F	
Intersection Capacity Utilization 127.3%		ICU Level of Service H	
Analysis Period (min) 15			

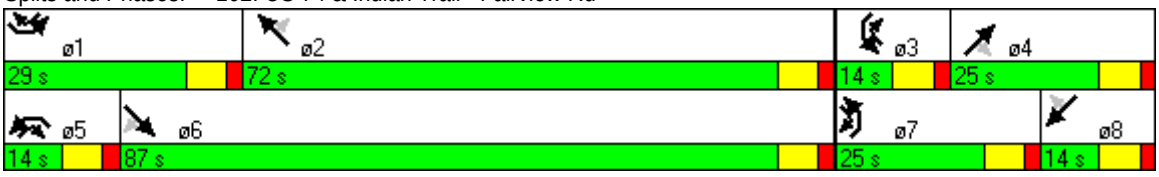
Splits and Phases: 101: Stallings Road & US 74

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	576	2042	346	72	1622	128	520	342	137	92	130	330
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3335	3438	1538	1719	3438	1538	3335	3438	1538	3335	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3438	1538	1719	3438	1538	3335	3438	1538	3335	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			35			35	
Link Distance (ft)		2103			2380			902			1112	
Travel Time (s)		26.1			29.5			17.6			21.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	640	2269	384	80	1802	142	578	380	152	102	144	367
Shared Lane Traffic (%)												
Lane Group Flow (vph)	640	2269	384	80	1802	142	578	380	152	102	144	367
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	7.0	14.0	7.0	7.0	14.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.5	21.0	14.0	14.0	21.0	14.0	14.0	14.0	14.0	14.0	14.0	14.5
Total Split (s)	29.0	87.0	25.0	14.0	72.0	14.0	25.0	25.0	14.0	14.0	14.0	29.0
Total Split (%)	20.7%	62.1%	17.9%	10.0%	51.4%	10.0%	17.9%	17.9%	10.0%	10.0%	10.0%	20.7%
Maximum Green (s)	22.0	80.0	18.0	7.0	65.0	7.0	18.0	18.0	7.0	7.0	7.0	22.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	24.0	82.0	107.0	9.0	67.0	81.0	20.0	20.0	34.0	9.0	9.0	38.0
Actuated g/C Ratio	0.17	0.59	0.76	0.06	0.48	0.58	0.14	0.14	0.24	0.06	0.06	0.27
v/c Ratio	1.12	1.13	0.33	0.72	1.10	0.16	1.21	0.77	0.41	0.48	0.65	0.88
Control Delay	126.5	92.9	6.0	97.4	88.2	14.3	163.7	69.4	48.5	71.0	78.3	71.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	126.5	92.9	6.0	97.4	88.2	14.3	163.7	69.4	48.5	71.0	78.3	71.7
LOS	F	F	A	F	F	B	F	E	D	E	E	E
Approach Delay		89.3			83.4			115.7			73.1	
Approach LOS		F			F			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.21			
Intersection Signal Delay: 90.3		Intersection LOS: F	
Intersection Capacity Utilization 99.6%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 102: US 74 & Indian Trail - Fairview Rd

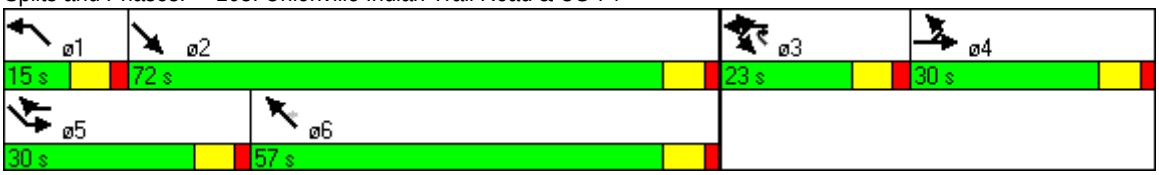


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	56	364	238	322	151	400	687	1608	40	139	1318	453
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Frt		0.946				0.850		0.996				0.850
Flt Protected		0.996		0.950	0.982		0.950			0.950		
Satd. Flow (prot)	0	3302	0	1665	1721	1568	3335	3424	0	1719	3438	1538
Flt Permitted		0.996		0.950	0.982		0.950			0.950		
Satd. Flow (perm)	0	3302	0	1665	1721	1568	3335	3424	0	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			45			55			55	
Link Distance (ft)		795			1304			1032			1062	
Travel Time (s)		15.5			19.8			12.8			13.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	62	404	264	358	168	444	763	1787	44	154	1464	503
Shared Lane Traffic (%)				28%								
Lane Group Flow (vph)	0	730	0	258	268	444	763	1831	0	154	1464	503
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	1	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	1	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pt+ov	Prot			Prot		pm+ov
Protected Phases	4	4		3	3	3 5	5	2		1	6	3
Permitted Phases												6
Detector Phase	4	4		3	3	3 5	5	2		1	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	14.0		7.0	14.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	21.0		14.0	21.0	14.0
Total Split (s)	30.0	30.0	0.0	23.0	23.0	53.0	30.0	72.0	0.0	15.0	57.0	23.0
Total Split (%)	21.4%	21.4%	0.0%	16.4%	16.4%	37.9%	21.4%	51.4%	0.0%	10.7%	40.7%	16.4%
Maximum Green (s)	23.0	23.0		16.0	16.0		23.0	65.0		8.0	50.0	16.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	None
Act Effct Green (s)		25.0		18.0	18.0	43.0	25.0	67.0		10.0	52.0	75.0
Actuated g/C Ratio		0.18		0.13	0.13	0.31	0.18	0.48		0.07	0.37	0.54
v/c Ratio		1.24		1.21	1.21	0.92	1.28	1.12		1.25	1.15	0.61
Control Delay		167.6		178.3	179.8	57.2	184.0	96.5		214.4	115.6	26.4
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay		167.6		178.3	179.8	57.2	184.0	96.5		214.4	115.6	26.4
LOS		F		F	F	E	F	F		F	F	C
Approach Delay		167.6			123.3			122.2			101.6	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 170			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.28			
Intersection Signal Delay: 120.7		Intersection LOS: F	
Intersection Capacity Utilization 104.9%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 103: Unionville Indian Trail Road & US 74

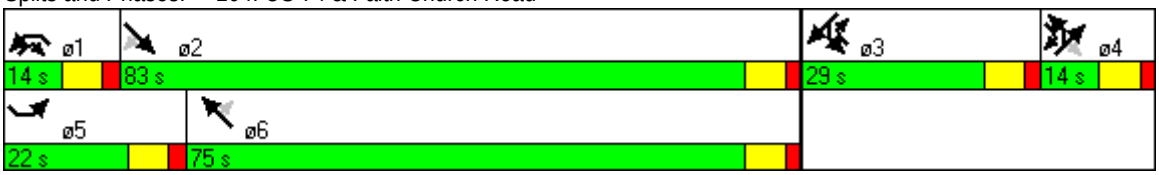


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	199	1972	40	53	1591	201	24	7	39	320	14	256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.858	
Flt Protected	0.950			0.950				0.963		0.950		
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	0	1679	1482	1770	1598	0
Flt Permitted	0.950			0.950				0.963		0.950		
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	0	1679	1482	1770	1598	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			15			35	
Link Distance (ft)		1177			2588			625			368	
Travel Time (s)		14.6			32.1			28.4			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	9%	9%	9%	2%	2%	2%
Adj. Flow (vph)	221	2191	44	59	1768	223	27	8	43	356	16	284
Shared Lane Traffic (%)												
Lane Group Flow (vph)	221	2191	44	59	1768	223	0	35	43	356	300	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	5	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	5	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Split		pm+ov	Split		
Protected Phases	5	2	4	1	6	3	4	4	1	3	3	
Permitted Phases			2			6			4			
Detector Phase	5	2	4	1	6	3	4	4	1	3	3	
Switch Phase												
Minimum Initial (s)	7.0	14.0	7.0	7.0	14.0	7.0	7.0	7.0	7.0	7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	21.0	14.0	14.0	21.0	14.0	14.0	14.0	14.0	14.0	14.0	
Total Split (s)	22.0	83.0	14.0	14.0	75.0	29.0	14.0	14.0	14.0	29.0	29.0	0.0
Total Split (%)	15.7%	59.3%	10.0%	10.0%	53.6%	20.7%	10.0%	10.0%	10.0%	20.7%	20.7%	0.0%
Maximum Green (s)	15.0	76.0	7.0	7.0	68.0	22.0	7.0	7.0	7.0	22.0	22.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	
Act Effct Green (s)	19.4	83.6	90.8	9.0	70.4	99.4		9.0	20.2	24.0	24.0	
Actuated g/C Ratio	0.14	0.60	0.65	0.06	0.50	0.71		0.06	0.14	0.17	0.17	
v/c Ratio	0.92	1.07	0.04	0.53	1.02	0.20		0.32	0.20	1.17	1.09	
Control Delay	101.4	69.7	5.7	81.2	62.2	7.5		71.1	53.2	157.2	134.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	101.4	69.7	5.7	81.2	62.2	7.5		71.1	53.2	157.2	134.8	
LOS	F	E	A	F	E	A		E	D	F	F	
Approach Delay		71.4			56.8			61.2			147.0	
Approach LOS		E			E			E			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.17			
Intersection Signal Delay: 75.0		Intersection LOS: E	
Intersection Capacity Utilization 97.2%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 104: US 74 & Faith Church Road



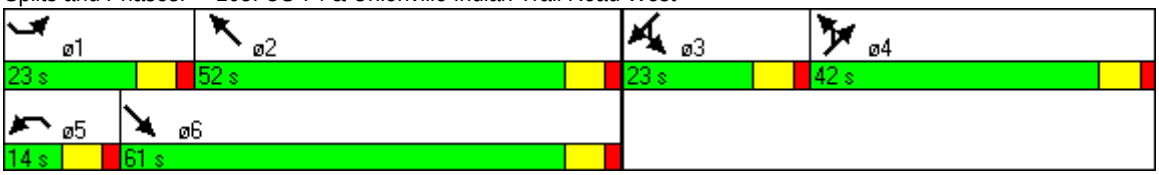
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	317	1256	711	131	930	323	764	205	190	259	113	188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.946			0.961			0.928			0.906	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3252	0	1719	3304	0	1770	1729	0	1770	1688	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3252	0	1719	3304	0	1770	1729	0	1770	1688	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		606			973			698			813	
Travel Time (s)		7.5			12.1			10.6			12.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	352	1396	790	146	1033	359	849	228	211	288	126	209
Shared Lane Traffic (%)												
Lane Group Flow (vph)	352	2186	0	146	1392	0	849	439	0	288	335	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	5	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	5	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Split			Split		
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases												
Detector Phase	1	6		5	2		4	4		3	3	
Switch Phase												
Minimum Initial (s)	7.0	14.0		7.0	14.0		7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	21.0		14.0	21.0		14.0	14.0		14.0	14.0	
Total Split (s)	23.0	61.0	0.0	14.0	52.0	0.0	42.0	42.0	0.0	23.0	23.0	0.0
Total Split (%)	16.4%	43.6%	0.0%	10.0%	37.1%	0.0%	30.0%	30.0%	0.0%	16.4%	16.4%	0.0%
Maximum Green (s)	16.0	54.0		7.0	45.0		35.0	35.0		16.0	16.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	18.0	56.0		9.0	47.0		37.0	37.0		18.0	18.0	
Actuated g/C Ratio	0.13	0.40		0.06	0.34		0.26	0.26		0.13	0.13	
v/c Ratio	1.59	1.68		1.32	1.26		1.81	0.96		1.26	1.54	
Control Delay	325.1	338.8		240.3	161.5		405.2	84.0		196.5	305.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	325.1	338.8		240.3	161.5		405.2	84.0		196.5	305.6	
LOS	F	F		F	F		F	F		F	F	
Approach Delay		336.9			169.0			295.7			255.2	
Approach LOS		F			F			F			F	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 180
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.81
Intersection Signal Delay: 276.4 Intersection LOS: F
Intersection Capacity Utilization 141.2% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 105: US 74 & Unionville Indian Trail Road West

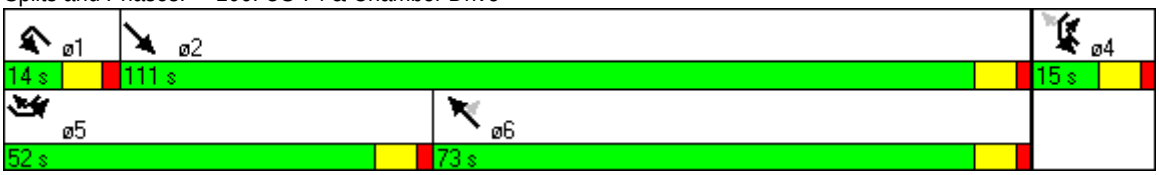


Lane Group	SEL	SET	NWU	NWT	NWR	SWL	SWR
Lane Configurations							
Volume (vph)	371	1413	10	1195	125	52	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Frt					0.850		0.850
Flt Protected	0.950		0.950			0.950	
Satd. Flow (prot)	1719	3438	1719	3438	1538	1770	1583
Flt Permitted	0.950		0.950			0.950	
Satd. Flow (perm)	1719	3438	1719	3438	1538	1770	1583
Right Turn on Red					No		No
Satd. Flow (RTOR)							
Link Speed (mph)		55		55		35	
Link Distance (ft)		2407		1378		1258	
Travel Time (s)		29.8		17.1		24.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	2%	2%
Adj. Flow (vph)	412	1570	11	1328	139	58	144
Shared Lane Traffic (%)							
Lane Group Flow (vph)	412	1570	11	1328	139	58	144
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Left	R NA	Left	Right	Left	Right
Median Width(ft)		12		12		12	
Link Offset(ft)		0		0		0	
Crosswalk Width(ft)		0		0		0	
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9		9	15	9
Number of Detectors	1	2	1	2	1	1	1
Detector Template	Left	Thru	Left	Thru	Right	Left	Right
Leading Detector (ft)	20	100	20	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94		94			
Detector 2 Size(ft)		6		6			
Detector 2 Type		Cl+Ex		Cl+Ex			
Detector 2 Channel							
Detector 2 Extend (s)		0.0		0.0			
Turn Type	Prot		Prot		pm+ov		pm+ov
Protected Phases	5	2	1	6	4	4	5
Permitted Phases					6		4
Detector Phase	5	2	1	6	4	4	5
Switch Phase							
Minimum Initial (s)	7.0	14.0	7.0	14.0	7.0	7.0	7.0

Lane Group	SEL	SET	NWU	NWT	NWR	SWL	SWR
Minimum Split (s)	14.0	21.0	14.0	21.0	14.0	14.0	14.0
Total Split (s)	52.0	111.0	14.0	73.0	15.0	15.0	52.0
Total Split (%)	37.1%	79.3%	10.0%	52.1%	10.7%	10.7%	37.1%
Maximum Green (s)	45.0	104.0	7.0	66.0	8.0	8.0	45.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag			Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	C-Max	None	None	None
Act Effct Green (s)	40.0	114.6	9.0	75.2	90.0	9.8	54.8
Actuated g/C Ratio	0.29	0.82	0.06	0.54	0.64	0.07	0.39
v/c Ratio	0.84	0.56	0.10	0.72	0.14	0.47	0.23
Control Delay	62.1	5.9	63.9	28.4	11.3	75.4	28.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.1	5.9	63.9	28.4	11.3	75.4	28.3
LOS	E	A	E	C	B	E	C
Approach Delay		17.6		27.1		41.8	
Approach LOS		B		C		D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 22.8		Intersection LOS: C	
Intersection Capacity Utilization 71.9%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 106: US 74 & Chamber Drive



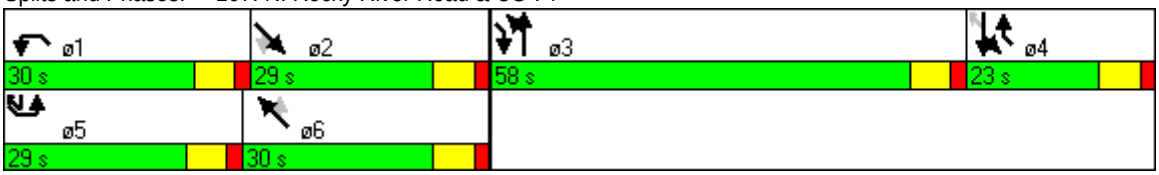
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	480	98	275	172	111	176	265	619	819	370	488	203
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.956				0.850			0.850			0.850
Flt Protected		0.973			0.970		0.950			0.950		
Satd. Flow (prot)	0	1733	0	0	1807	1583	1719	3438	1538	1719	3438	1538
Flt Permitted		0.973			0.970		0.950			0.950		
Satd. Flow (perm)	0	1733	0	0	1807	1583	1719	3438	1538	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		1176			418			3021			3350	
Travel Time (s)		17.8			6.3			37.5			41.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	533	109	306	191	123	196	294	688	910	411	542	226
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	948	0	0	314	196	294	688	910	411	542	226
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	3	3		4	4	5	5	2	3	1	6	4
Permitted Phases						4			2			6
Detector Phase	3	3		4	4	5	5	2	3	1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	14.0	7.0	7.0	14.0	7.0

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0	14.0	14.0	21.0	14.0	14.0	21.0	14.0
Total Split (s)	58.0	58.0	0.0	23.0	23.0	29.0	29.0	29.0	58.0	30.0	30.0	23.0
Total Split (%)	41.4%	41.4%	0.0%	16.4%	16.4%	20.7%	20.7%	20.7%	41.4%	21.4%	21.4%	16.4%
Maximum Green (s)	51.0	51.0		16.0	16.0	22.0	22.0	22.0	51.0	23.0	23.0	16.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead		Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)		53.0			18.0	47.0	24.0	24.0	82.0	25.0	25.0	43.0
Actuated g/C Ratio		0.38			0.13	0.34	0.17	0.17	0.59	0.18	0.18	0.31
v/c Ratio		1.45			1.35	0.37	1.00	1.17	1.01	1.34	0.88	0.48
Control Delay		242.5			229.4	37.8	108.9	142.6	61.7	216.2	72.9	25.3
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		242.5			229.4	37.8	108.9	142.6	61.7	216.2	72.9	25.3
LOS		F			F	D	F	F	E	F	E	C
Approach Delay		242.5			155.7			98.5			113.7	
Approach LOS		F			F			F			F	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green
Natural Cycle: 180
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.45
Intersection Signal Delay: 139.0 Intersection LOS: F
Intersection Capacity Utilization 105.3% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 107: N. Rocky River Road & US 74

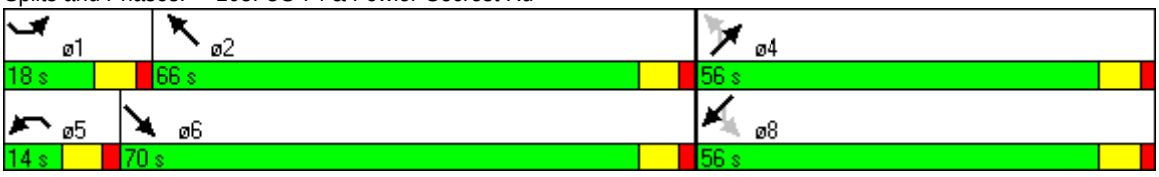


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	85	1073	29	57	857	173	33	120	83	138	66	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.975			0.953			0.972	
Flt Protected	0.950			0.950				0.993			0.974	
Satd. Flow (prot)	1719	3424	0	1719	3352	0	0	1763	0	0	1764	0
Flt Permitted	0.950			0.950				0.916			0.570	
Satd. Flow (perm)	1719	3424	0	1719	3352	0	0	1626	0	0	1032	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		2601			2354			277			1205	
Travel Time (s)		39.4			35.7			5.4			18.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	94	1192	32	63	952	192	37	133	92	153	73	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	94	1224	0	63	1144	0	0	262	0	0	286	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		
Detector Phase	1	6		5	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		21.0	21.0	
Total Split (s)	18.0	70.0	0.0	14.0	66.0	0.0	56.0	56.0	0.0	56.0	56.0	0.0
Total Split (%)	12.9%	50.0%	0.0%	10.0%	47.1%	0.0%	40.0%	40.0%	0.0%	40.0%	40.0%	0.0%
Maximum Green (s)	11.0	63.0		7.0	59.0		49.0	49.0		49.0	49.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	13.1	74.8		10.5	69.4			42.5			42.5	
Actuated g/C Ratio	0.09	0.53		0.08	0.50			0.30			0.30	
v/c Ratio	0.58	0.67		0.49	0.69			0.53			0.91	
Control Delay	75.5	28.3		75.5	31.5			43.4			79.1	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	75.5	28.3		75.5	31.5			43.4			79.1	
LOS	E	C		E	C			D			E	
Approach Delay		31.7			33.8			43.4			79.1	
Approach LOS		C			C			D			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay: 37.9		Intersection LOS: D	
Intersection Capacity Utilization 80.7%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 108: US 74 & Fowler-Secrest Rd



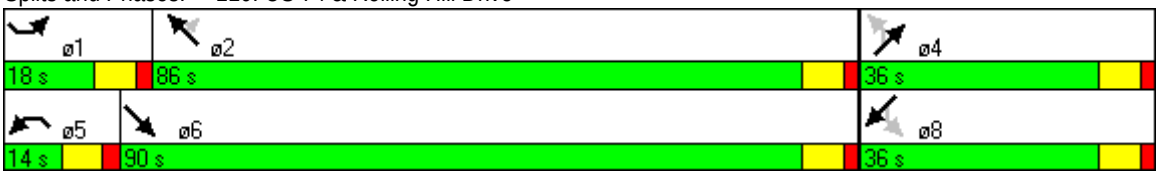
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	74	1251	157	16	1028	9	124	13	15	7	10	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.983				0.850		0.986			0.901	
Flt Protected	0.950			0.950				0.961			0.994	
Satd. Flow (prot)	1719	3380	0	1719	3438	1538	0	1765	0	0	1668	0
Flt Permitted	0.950			0.950				0.701			0.965	
Satd. Flow (perm)	1719	3380	0	1719	3438	1538	0	1288	0	0	1620	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		309			978			474			425	
Travel Time (s)		4.7			14.8			12.9			11.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	82	1390	174	18	1142	10	138	14	17	8	11	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	82	1564	0	18	1142	10	0	169	0	0	71	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot		Perm	Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases						2	4			8		
Detector Phase	1	6		5	2	2	4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	12.0	7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0		14.0	19.0	19.0	14.0	14.0		14.0	14.0	
Total Split (s)	18.0	90.0	0.0	14.0	86.0	86.0	36.0	36.0	0.0	36.0	36.0	0.0
Total Split (%)	12.9%	64.3%	0.0%	10.0%	61.4%	61.4%	25.7%	25.7%	0.0%	25.7%	25.7%	0.0%
Maximum Green (s)	11.0	83.0		7.0	79.0	79.0	29.0	29.0		29.0	29.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		None	None	
Act Effct Green (s)	12.7	99.6		9.2	87.7	87.7		24.6			24.6	
Actuated g/C Ratio	0.09	0.71		0.07	0.63	0.63		0.18			0.18	
v/c Ratio	0.53	0.65		0.16	0.53	0.01		0.75			0.25	
Control Delay	72.8	14.7		65.2	16.7	12.2		74.0			50.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	
Total Delay	72.8	14.7		65.2	16.7	12.2		74.0			50.1	
LOS	E	B		E	B	B		E			D	
Approach Delay		17.6			17.4			74.0			50.1	
Approach LOS		B			B			E			D	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 21.4 Intersection LOS: C
Intersection Capacity Utilization 73.0% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 110: US 74 & Rolling Hill Drive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	133	10	150	95	10	84	79	1056	125	113	847	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.859			0.940			0.984				0.850
Flt Protected	0.950				0.975		0.950			0.950		
Satd. Flow (prot)	1770	1600	0	0	1707	0	1719	3383	0	1719	3438	1538
Flt Permitted	0.592				0.638		0.950			0.950		
Satd. Flow (perm)	1103	1600	0	0	1117	0	1719	3383	0	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		510			371			748			991	
Travel Time (s)		13.9			10.1			11.3			15.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	148	11	167	106	11	93	88	1173	139	126	941	80
Shared Lane Traffic (%)												
Lane Group Flow (vph)	148	178	0	0	210	0	88	1312	0	126	941	80
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm			Perm			Prot			Prot		Perm
Protected Phases		3			8		1	6		5	2	
Permitted Phases	3			8								2
Detector Phase	3	3		8	8		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	12.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0		14.0	19.0	19.0
Total Split (s)	45.0	45.0	0.0	45.0	45.0	0.0	19.0	72.0	0.0	23.0	76.0	76.0
Total Split (%)	32.1%	32.1%	0.0%	32.1%	32.1%	0.0%	13.6%	51.4%	0.0%	16.4%	54.3%	54.3%
Maximum Green (s)	38.0	38.0		38.0	38.0		12.0	65.0		16.0	69.0	69.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?								Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	Max		None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	40.0	40.0			40.0		12.8	68.9		16.1	72.2	72.2
Actuated g/C Ratio	0.29	0.29			0.29		0.09	0.49		0.12	0.52	0.52
v/c Ratio	0.47	0.39			0.66		0.56	0.79		0.64	0.53	0.10
Control Delay	47.2	43.3			55.3		74.5	34.1		73.9	24.2	18.2
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	47.2	43.3			55.3		74.5	34.1		73.9	24.2	18.2
LOS	D	D			E		E	C		E	C	B
Approach Delay		45.1			55.3			36.7			29.2	
Approach LOS		D			E			D			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 36.1		Intersection LOS: D	
Intersection Capacity Utilization 76.8%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 111: Roland Drive & US 74

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	134	1108	33	129	916	123	50	51	237	96	22	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996				0.850		0.877				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3424	0	1719	3438	1538	1770	1634	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3424	0	1719	3438	1538	1770	1634	0	1770	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		822			734			281			279	
Travel Time (s)		12.5			11.1			5.5			7.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	149	1231	37	143	1018	137	56	57	263	107	24	96
Shared Lane Traffic (%)												
Lane Group Flow (vph)	149	1268	0	143	1018	137	56	320	0	107	24	96
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot		pm+ov	Split			Split		pm+ov
Protected Phases	1	6		5	2	8	4	4		8	8	1
Permitted Phases						2						8
Detector Phase	1	6		5	2	8	4	4		8	8	1
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	7.0	7.0	7.0		7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0		14.0	19.0	14.0	14.0	14.0		14.0	14.0	14.0
Total Split (s)	25.0	65.0	0.0	20.0	60.0	16.0	39.0	39.0	0.0	16.0	16.0	25.0
Total Split (%)	17.9%	46.4%	0.0%	14.3%	42.9%	11.4%	27.9%	27.9%	0.0%	11.4%	11.4%	17.9%
Maximum Green (s)	18.0	58.0		13.0	53.0	9.0	32.0	32.0		9.0	9.0	18.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	C-Max		None	C-Max	Max	None	None		Max	Max	Max
Act Effct Green (s)	20.0	60.3		14.7	55.0	68.2	31.8	31.8		13.2	13.2	38.2
Actuated g/C Ratio	0.14	0.43		0.10	0.39	0.49	0.23	0.23		0.09	0.09	0.27
v/c Ratio	0.61	0.86		0.79	0.75	0.18	0.14	0.86		0.64	0.14	0.22
Control Delay	67.7	43.3		90.4	41.0	11.4	43.1	74.4		79.6	62.1	42.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	67.7	43.3		90.4	41.0	11.4	43.1	74.4		79.6	62.1	42.1
LOS	E	D		F	D	B	D	E		E	E	D
Approach Delay		45.9			43.3			69.7			61.9	
Approach LOS		D			D			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 48.7		Intersection LOS: D	
Intersection Capacity Utilization 78.6%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 112: US 74 & Williams Road

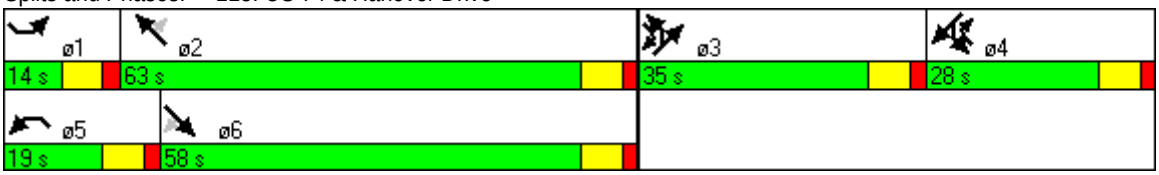
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	15	1303	101	193	1061	467	110	109	257	589	103	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850			0.850		0.895			0.980	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	1752	1651	0	3400	1808	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	1752	1651	0	3400	1808	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		338			529			376			313	
Travel Time (s)		5.1			8.0			7.3			8.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	17	1448	112	214	1179	519	122	121	286	654	114	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	1448	112	214	1179	519	122	407	0	654	132	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Split			Split		
Protected Phases	1	6	3	5	2	4	3	3		4	4	
Permitted Phases			6			2						
Detector Phase	1	6	3	5	2	4	3	3		4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0		14.0	14.0	
Total Split (s)	14.0	58.0	35.0	19.0	63.0	28.0	35.0	35.0	0.0	28.0	28.0	0.0
Total Split (%)	10.0%	41.4%	25.0%	13.6%	45.0%	20.0%	25.0%	25.0%	0.0%	20.0%	20.0%	0.0%
Maximum Green (s)	7.0	51.0	28.0	12.0	56.0	21.0	28.0	28.0		21.0	21.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Act Effct Green (s)	9.0	53.0	88.0	14.0	66.4	92.4	30.0	30.0		23.0	23.0	
Actuated g/C Ratio	0.06	0.38	0.63	0.10	0.47	0.66	0.21	0.21		0.16	0.16	
v/c Ratio	0.15	1.11	0.12	1.24	0.72	0.51	0.33	1.15		1.17	0.44	
Control Delay	65.3	102.2	10.8	199.0	33.8	12.5	49.3	143.3		144.5	58.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	65.3	102.2	10.8	199.0	33.8	12.5	49.3	143.3		144.5	58.2	
LOS	E	F	B	F	C	B	D	F		F	E	
Approach Delay		95.3			46.5			121.6			130.0	
Approach LOS		F			D			F			F	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 160
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.24
Intersection Signal Delay: 84.5 Intersection LOS: F
Intersection Capacity Utilization 101.7% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 113: US 74 & Hanover Drive

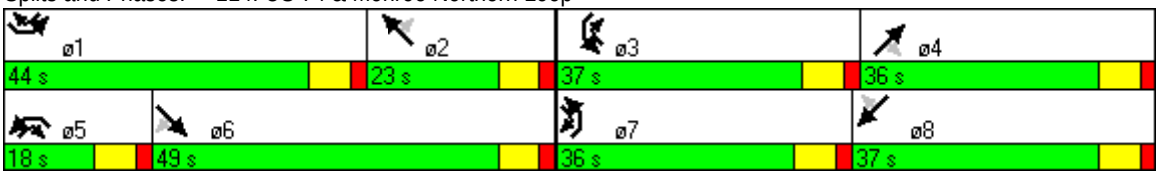


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	968	738	394	136	536	645	482	793	229	681	497	742
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3335	4940	1538	3335	4940	1538	3335	3438	1538	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	4940	1538	3335	4940	1538	3335	3438	1538	3433	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		858			915			405			209	
Travel Time (s)		13.0			13.9			7.9			3.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	2%	2%	2%
Adj. Flow (vph)	1076	820	438	151	596	717	536	881	254	757	552	824
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1076	820	438	151	596	717	536	881	254	757	552	824
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	44.0	49.0	36.0	18.0	23.0	37.0	36.0	36.0	18.0	37.0	37.0	44.0
Total Split (%)	31.4%	35.0%	25.7%	12.9%	16.4%	26.4%	25.7%	25.7%	12.9%	26.4%	26.4%	31.4%
Maximum Green (s)	37.0	42.0	29.0	11.0	16.0	30.0	29.0	29.0	11.0	30.0	30.0	37.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	39.0	44.7	78.4	12.3	18.0	55.0	28.7	31.0	48.3	32.0	34.3	78.3
Actuated g/C Ratio	0.28	0.32	0.56	0.09	0.13	0.39	0.20	0.22	0.34	0.23	0.24	0.56
v/c Ratio	1.16	0.52	0.51	0.51	0.94	1.19	0.78	1.16	0.48	0.96	0.64	0.93
Control Delay	127.9	40.5	21.3	67.3	83.6	138.1	61.3	133.0	39.5	77.8	51.8	47.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	127.9	40.5	21.3	67.3	83.6	138.1	61.3	133.0	39.5	77.8	51.8	47.2
LOS	F	D	C	E	F	F	E	F	D	E	D	D
Approach Delay		77.2			108.6			95.8			59.2	
Approach LOS		E			F			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.19			
Intersection Signal Delay: 82.3		Intersection LOS: F	
Intersection Capacity Utilization 102.0%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 114: US 74 & Monroe Northern Loop



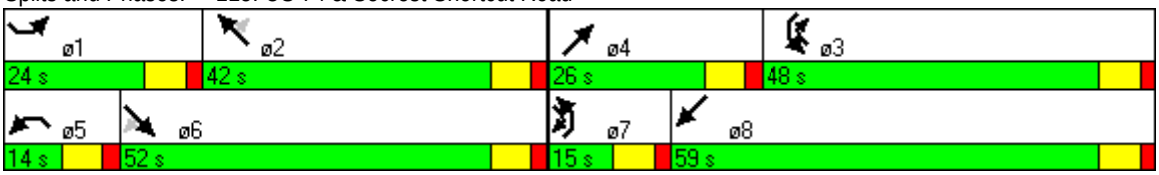
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	209	1398	55	119	1097	519	57	66	158	479	46	151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.894			0.885	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	3335	4940	1538	1770	1665	0	1770	1649	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	3335	4940	1538	1770	1665	0	1770	1649	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		413			1354			238			233	
Travel Time (s)		6.3			20.5			6.5			4.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	232	1553	61	132	1219	577	63	73	176	532	51	168
Shared Lane Traffic (%)												
Lane Group Flow (vph)	232	1553	61	132	1219	577	63	249	0	532	219	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot			Prot		
Protected Phases	1	6	7	5	2	3	7	4		3	8	
Permitted Phases			6			2						
Detector Phase	1	6	7	5	2	3	7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	

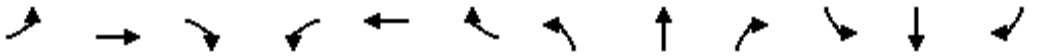
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0		14.0	14.0	
Total Split (s)	24.0	52.0	15.0	14.0	42.0	48.0	15.0	26.0	0.0	48.0	59.0	0.0
Total Split (%)	17.1%	37.1%	10.7%	10.0%	30.0%	34.3%	10.7%	18.6%	0.0%	34.3%	42.1%	0.0%
Maximum Green (s)	17.0	45.0	8.0	7.0	35.0	41.0	8.0	19.0		41.0	52.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Act Effct Green (s)	19.0	47.0	61.8	9.0	37.0	80.0	9.8	21.0		43.0	54.2	
Actuated g/C Ratio	0.14	0.34	0.44	0.06	0.26	0.57	0.07	0.15		0.31	0.39	
v/c Ratio	1.00	0.94	0.09	0.62	0.93	0.66	0.51	1.00		0.98	0.34	
Control Delay	117.6	56.6	23.2	76.8	63.7	14.5	77.6	114.7		81.4	32.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	117.6	56.6	23.2	76.8	63.7	14.5	77.6	114.7		81.4	32.3	
LOS	F	E	C	E	E	B	E	F		F	C	
Approach Delay		63.2			49.9			107.2			67.1	
Approach LOS		E			D			F			E	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.00
Intersection Signal Delay: 61.3 Intersection LOS: E
Intersection Capacity Utilization 89.2% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 115: US 74 & Secrest Shortcut Road





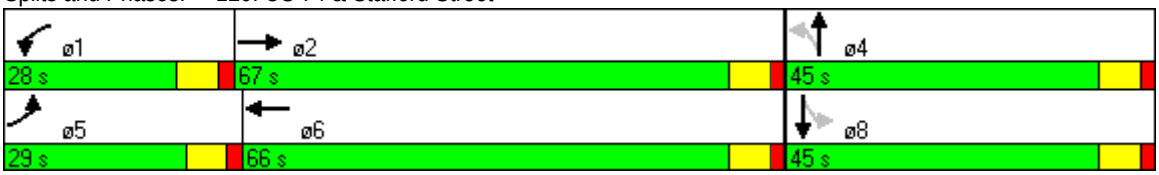
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	259	1958	253	302	1564	155	151	114	225	138	137	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.983			0.986			0.901			0.914	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4856	0	1719	4871	0	1770	1678	0	1770	1703	0
Flt Permitted	0.950			0.950			0.276			0.249		
Satd. Flow (perm)	1719	4856	0	1719	4871	0	514	1678	0	464	1703	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		443			590			549			636	
Travel Time (s)		6.7			8.9			15.0			12.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	288	2176	281	336	1738	172	168	127	250	153	152	206
Shared Lane Traffic (%)												
Lane Group Flow (vph)	288	2457	0	336	1910	0	168	377	0	153	358	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

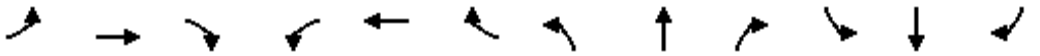
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	29.0	67.0	0.0	28.0	66.0	0.0	45.0	45.0	0.0	45.0	45.0	0.0
Total Split (%)	20.7%	47.9%	0.0%	20.0%	47.1%	0.0%	32.1%	32.1%	0.0%	32.1%	32.1%	0.0%
Maximum Green (s)	22.0	60.0		21.0	59.0		38.0	38.0		38.0	38.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	24.0	62.0		23.0	61.0		40.0	40.0		40.0	40.0	
Actuated g/C Ratio	0.17	0.44		0.16	0.44		0.29	0.29		0.29	0.29	
v/c Ratio	0.98	1.14		1.19	0.90		1.14	0.79		1.15	0.74	
Control Delay	104.0	106.6		164.8	43.6		162.5	59.1		168.7	55.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	104.0	106.6		164.8	43.6		162.5	59.1		168.7	55.6	
LOS	F	F		F	D		F	E		F	E	
Approach Delay		106.3			61.7			91.0			89.4	
Approach LOS		F			E			F			F	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.19
Intersection Signal Delay: 86.9 Intersection LOS: F
Intersection Capacity Utilization 104.3% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 120: US 74 & Stafford Street





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	195	2094	117	117	1711	107	159	10	195	53	10	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992			0.991			0.857			0.867	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4900	0	1719	4896	0	1770	1596	0	1770	1615	0
Flt Permitted	0.950			0.950			0.650			0.333		
Satd. Flow (perm)	1719	4900	0	1719	4896	0	1211	1596	0	620	1615	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			20	
Link Distance (ft)		493			536			238			211	
Travel Time (s)		7.5			8.1			6.5			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	217	2327	130	130	1901	119	177	11	217	59	11	87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	217	2457	0	130	2020	0	177	228	0	59	98	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	31.0	86.0	0.0	21.0	76.0	0.0	33.0	33.0	0.0	33.0	33.0	0.0
Total Split (%)	22.1%	61.4%	0.0%	15.0%	54.3%	0.0%	23.6%	23.6%	0.0%	23.6%	23.6%	0.0%
Maximum Green (s)	24.0	79.0		14.0	69.0		26.0	26.0		26.0	26.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	23.1	84.5		15.2	76.6		25.3	25.3		25.3	25.3	
Actuated g/C Ratio	0.16	0.60		0.11	0.55		0.18	0.18		0.18	0.18	
v/c Ratio	0.76	0.83		0.70	0.75		0.81	0.79		0.53	0.34	
Control Delay	73.3	26.0		79.9	27.8		81.4	74.3		68.8	52.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	73.3	26.0		79.9	27.8		81.4	74.3		68.8	52.5	
LOS	E	C		E	C		F	E		E	D	
Approach Delay		29.9			31.0			77.4			58.6	
Approach LOS		C			C			E			E	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 34.7 Intersection LOS: C
Intersection Capacity Utilization 84.6% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 121: US 74 & Boyte Street

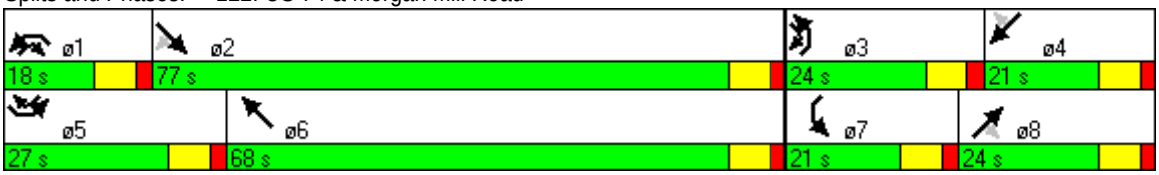
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	193	2022	159	110	1629	163	160	168	138	128	105	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.986				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	1719	4871	0	1687	1776	1509	1687	1776	1509
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	1719	4871	0	1687	1776	1509	1687	1776	1509
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		515			499			502			475	
Travel Time (s)		7.8			7.6			9.8			9.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	7%	7%	7%	7%	7%	7%
Adj. Flow (vph)	214	2247	177	122	1810	181	178	187	153	142	117	136
Shared Lane Traffic (%)												
Lane Group Flow (vph)	214	2247	177	122	1991	0	178	187	153	142	117	136
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot			Prot		pm+ov	Prot		pm+ov
Protected Phases	5	2	3	1	6		3	8	1	7	4	5
Permitted Phases			2						8			4
Detector Phase	5	2	3	1	6		3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0		7.0	7.0	7.0	7.0	7.0	7.0

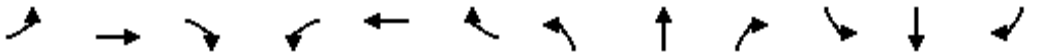
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0		14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	27.0	77.0	24.0	18.0	68.0	0.0	24.0	24.0	18.0	21.0	21.0	27.0
Total Split (%)	19.3%	55.0%	17.1%	12.9%	48.6%	0.0%	17.1%	17.1%	12.9%	15.0%	15.0%	19.3%
Maximum Green (s)	20.0	70.0	17.0	11.0	61.0		17.0	17.0	11.0	14.0	14.0	20.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max		None	None	None	None	None	None
Act Effct Green (s)	21.2	73.4	96.7	12.8	65.0		18.3	18.3	36.2	15.5	15.5	41.6
Actuated g/C Ratio	0.15	0.52	0.69	0.09	0.46		0.13	0.13	0.26	0.11	0.11	0.30
v/c Ratio	0.82	0.87	0.17	0.77	0.88		0.81	0.80	0.39	0.76	0.60	0.30
Control Delay	82.3	34.0	8.2	92.3	40.0		85.2	83.9	46.1	85.6	72.3	39.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	82.3	34.0	8.2	92.3	40.0		85.2	83.9	46.1	85.6	72.3	39.7
LOS	F	C	A	F	D		F	F	D	F	E	D
Approach Delay		36.2			43.1			73.2			65.9	
Approach LOS		D			D			E			E	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 44.2 Intersection LOS: D
Intersection Capacity Utilization 78.4% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 122: US 74 & Morgan Mill Road



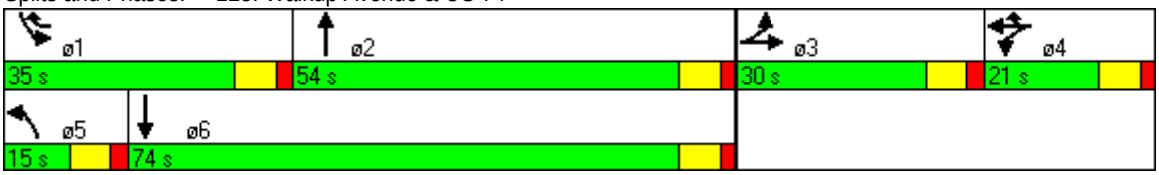


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	69	135	91	43	188	382	92	1457	31	348	1842	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.958				0.850		0.997			0.993	
Flt Protected		0.988		0.950			0.950			0.950		
Satd. Flow (prot)	0	1763	0	1770	1863	1583	1719	4925	0	1719	4905	0
Flt Permitted		0.988		0.950			0.950			0.950		
Satd. Flow (perm)	0	1763	0	1770	1863	1583	1719	4925	0	1719	4905	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		443			502			602			356	
Travel Time (s)		12.1			9.8			9.1			5.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	77	150	101	48	209	424	102	1619	34	387	2047	99
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	328	0	48	209	424	102	1653	0	387	2146	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pt+ov	Prot			Prot		
Protected Phases	3	3		4	4	4 1	5	2		1	6	
Permitted Phases												
Detector Phase	3	3		4	4	4 1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0		14.0	19.0	
Total Split (s)	30.0	30.0	0.0	21.0	21.0	56.0	15.0	54.0	0.0	35.0	74.0	0.0
Total Split (%)	21.4%	21.4%	0.0%	15.0%	15.0%	40.0%	10.7%	38.6%	0.0%	25.0%	52.9%	0.0%
Maximum Green (s)	23.0	23.0		14.0	14.0		8.0	47.0		28.0	67.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lead		Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)		25.0		16.0	16.0	51.0	10.0	49.0		30.0	69.0	
Actuated g/C Ratio		0.18		0.11	0.11	0.36	0.07	0.35		0.21	0.49	
v/c Ratio		1.04		0.24	0.98	0.73	0.83	0.96		1.05	0.89	
Control Delay		116.7		59.8	118.1	47.6	108.7	58.4		113.2	37.7	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		116.7		59.8	118.1	47.6	108.7	58.4		113.2	37.7	
LOS		F		E	F	D	F	E		F	D	
Approach Delay		116.7			70.1			61.3			49.2	
Approach LOS		F			E			E			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 120			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.05			
Intersection Signal Delay: 60.1		Intersection LOS: E	
Intersection Capacity Utilization 91.2%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 123: Walkup Avenue & US 74



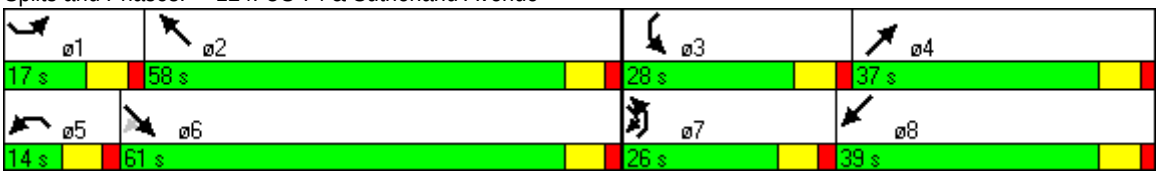
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	96	1642	169	43	1313	139	210	245	66	208	236	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.986			0.968			0.951	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	1719	4871	0	1752	1786	0	1752	1754	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	1719	4871	0	1752	1786	0	1752	1754	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		425			487			426			331	
Travel Time (s)		6.4			7.4			11.6			6.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	107	1824	188	48	1459	154	233	272	73	231	262	128
Shared Lane Traffic (%)												
Lane Group Flow (vph)	107	1824	188	48	1613	0	233	345	0	231	390	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot			Prot			Prot		
Protected Phases	1	6	7	5	2		7	4		3	8	
Permitted Phases			6									
Detector Phase	1	6	7	5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0		7.0	7.0		7.0	7.0	

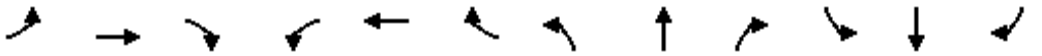
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	17.0	61.0	26.0	14.0	58.0	0.0	26.0	37.0	0.0	28.0	39.0	0.0
Total Split (%)	12.1%	43.6%	18.6%	10.0%	41.4%	0.0%	18.6%	26.4%	0.0%	20.0%	27.9%	0.0%
Maximum Green (s)	10.0	54.0	19.0	7.0	51.0		19.0	30.0		21.0	32.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes			Yes			Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max		None	None		None	None	
Act Effct Green (s)	11.8	59.6	85.4	9.0	54.0		20.8	32.1		22.1	33.4	
Actuated g/C Ratio	0.08	0.43	0.61	0.06	0.39		0.15	0.23		0.16	0.24	
v/c Ratio	0.74	0.87	0.20	0.43	0.86		0.89	0.84		0.83	0.93	
Control Delay	90.8	42.9	13.7	75.6	45.4		92.3	70.7		81.7	82.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	90.8	42.9	13.7	75.6	45.4		92.3	70.7		81.7	82.1	
LOS	F	D	B	E	D		F	E		F	F	
Approach Delay		42.8			46.3			79.4			81.9	
Approach LOS		D			D			E			F	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 53.1 Intersection LOS: D
Intersection Capacity Utilization 85.3% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 124: US 74 & Sutherland Avenue





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	48	61	37	34	151	26	1399	23	116	1728	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.916			0.878				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1706	0	1770	1635	0	1719	4940	1538	1719	4940	1538
Flt Permitted	0.379			0.589			0.950			0.950		
Satd. Flow (perm)	706	1706	0	1097	1635	0	1719	4940	1538	1719	4940	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		163			218			356			257	
Travel Time (s)		5.6			4.2			5.4			3.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	4	53	68	41	38	168	29	1554	26	129	1920	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	121	0	41	206	0	29	1554	26	129	1920	2
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm			Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	12.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	19.0
Total Split (s)	39.0	39.0	0.0	39.0	39.0	0.0	16.0	74.0	74.0	27.0	85.0	85.0
Total Split (%)	27.9%	27.9%	0.0%	27.9%	27.9%	0.0%	11.4%	52.9%	52.9%	19.3%	60.7%	60.7%
Maximum Green (s)	32.0	32.0		32.0	32.0		9.0	67.0	67.0	20.0	78.0	78.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	24.9	24.9		24.9	24.9		10.2	82.4	82.4	17.7	95.5	95.5
Actuated g/C Ratio	0.18	0.18		0.18	0.18		0.07	0.59	0.59	0.13	0.68	0.68
v/c Ratio	0.03	0.40		0.21	0.71		0.23	0.53	0.03	0.59	0.57	0.00
Control Delay	44.2	53.6		49.4	67.0		65.2	19.5	15.5	68.4	14.4	11.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.2	53.6		49.4	67.0		65.2	19.5	15.5	68.4	14.4	11.5
LOS	D	D		D	E		E	B	B	E	B	B
Approach Delay		53.3			64.1			20.2			17.8	
Approach LOS		D			E			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 22.7		Intersection LOS: C	
Intersection Capacity Utilization 62.8%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 125: Dove Street & US 74

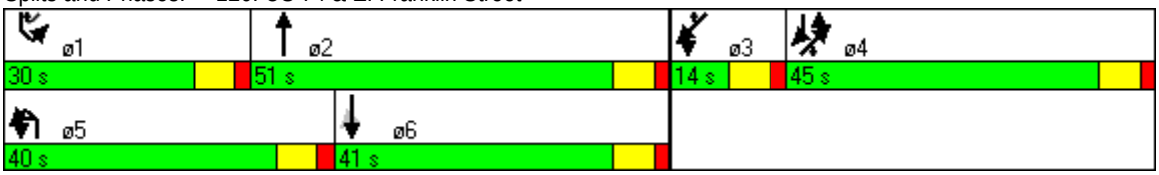
Lane Group	NBU	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT
Lane Configurations												
Volume (vph)	9	1042	1030	129	170	1356	355	255	80	985	127	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.86	0.97	0.86	0.86	1.00	0.91	1.00	1.00	1.00	0.88	1.00	1.00
Frt			0.983				0.850			0.850		
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	3335	6119	0	1719	4940	1538	1752	1845	2760	1752	1845
Flt Permitted		0.950			0.950			0.950			0.950	
Satd. Flow (perm)	0	3335	6119	0	1719	4940	1538	1752	1845	2760	1752	1845
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			45			35			20
Link Distance (ft)			341			436			391			335
Travel Time (s)			5.2			6.6			7.6			11.4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%
Adj. Flow (vph)	10	1158	1144	143	189	1507	394	283	89	1094	141	93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1168	1287	0	189	1507	394	283	89	1094	141	93
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			24			24			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1	1	2		1	2	1	1	2	1	1	2
Detector Template	Left	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru
Leading Detector (ft)	20	20	100		20	100	20	20	100	20	20	100
Trailing Detector (ft)	0	0	0		0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0		0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	6		20	6	20	20	6	20	20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94			94			94			94
Detector 2 Size(ft)			6			6			6			6
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			0.0
Turn Type	Prot	Prot			Prot		pm+ov	Split		Prot	Split	
Protected Phases	5	5	2		1	6	4	4	4	4	3	3
Permitted Phases							6					
Detector Phase	5	5	2		1	6	4	4	4	4	3	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	12.0		7.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SWR
Lane Configurations	
Volume (vph)	128
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1568
Flt Permitted	
Satd. Flow (perm)	1568
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	3%
Adj. Flow (vph)	142
Shared Lane Traffic (%)	
Lane Group Flow (vph)	142
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	pt+ov
Protected Phases	3 1
Permitted Phases	
Detector Phase	3 1
Switch Phase	
Minimum Initial (s)	

Lane Group	NBU	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT
Minimum Split (s)	14.0	14.0	19.0		14.0	19.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	40.0	40.0	51.0	0.0	30.0	41.0	45.0	45.0	45.0	45.0	14.0	14.0
Total Split (%)	28.6%	28.6%	36.4%	0.0%	21.4%	29.3%	32.1%	32.1%	32.1%	32.1%	10.0%	10.0%
Maximum Green (s)	33.0	33.0	44.0		23.0	34.0	38.0	38.0	38.0	38.0	7.0	7.0
Yellow Time (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag		Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max		None	C-Max	None	None	None	None	None	None
Act Effct Green (s)		35.0	49.5		21.5	36.0	76.0	40.0	40.0	40.0	9.0	9.0
Actuated g/C Ratio		0.25	0.35		0.15	0.26	0.54	0.29	0.29	0.29	0.06	0.06
v/c Ratio		1.40	0.60		0.72	1.19	0.47	0.56	0.17	1.39	1.25	0.78
Control Delay		226.5	39.0		71.2	137.0	13.6	47.8	38.6	219.9	216.7	103.2
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		226.5	39.0		71.2	137.0	13.6	47.8	38.6	219.9	216.7	103.2
LOS		F	D		E	F	B	D	D	F	F	F
Approach Delay			128.2			107.8			175.6			117.0
Approach LOS			F			F			F			F

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.40			
Intersection Signal Delay: 131.8		Intersection LOS: F	
Intersection Capacity Utilization 114.3%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 126: US 74 & E. Franklin Street



Lane Group	SWR
Minimum Split (s)	
Total Split (s)	44.0
Total Split (%)	31.4%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Act Effct Green (s)	30.5
Actuated g/C Ratio	0.22
v/c Ratio	0.42
Control Delay	27.2
Queue Delay	0.0
Total Delay	27.2
LOS	C
Approach Delay	
Approach LOS	

Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	10	0	1232	1545	311	1031	29	928	0	223	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.91	0.91	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.996			0.940			
Flt Protected	0.950				0.950			0.950	0.971			
Satd. Flow (prot)	1719	0	4940	1538	1736	4968	0	1504	1445	0	0	0
Flt Permitted	0.950				0.950			0.950	0.971			
Satd. Flow (perm)	1719	0	4940	1538	1736	4968	0	1504	1445	0	0	0
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			55			45			25
Link Distance (ft)			239			375			459			142
Travel Time (s)			3.6			4.6			7.0			3.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	4%	4%	4%	14%	14%	14%	2%	2%
Adj. Flow (vph)	11	0	1369	1717	346	1146	32	1031	0	248	0	0
Shared Lane Traffic (%)								36%				
Lane Group Flow (vph)	11	0	1369	1717	346	1178	0	660	619	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			12			12			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1		2	1	1	2		1	2			
Detector Template	Left		Thru	Right	Left	Thru		Left	Thru			
Leading Detector (ft)	20		100	20	20	100		20	100			
Trailing Detector (ft)	0		0	0	0	0		0	0			
Detector 1 Position(ft)	0		0	0	0	0		0	0			
Detector 1 Size(ft)	20		6	20	20	6		20	6			
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 2 Position(ft)			94			94			94			
Detector 2 Size(ft)			6			6			6			
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			
Turn Type	Prot			pm+ov	Prot			Split				
Protected Phases	5		2	8	1	6		8	8			
Permitted Phases				2								
Detector Phase	5		2	8	1	6		8	8			
Switch Phase												
Minimum Initial (s)	7.0		12.0	12.0	7.0	14.0		12.0	12.0			

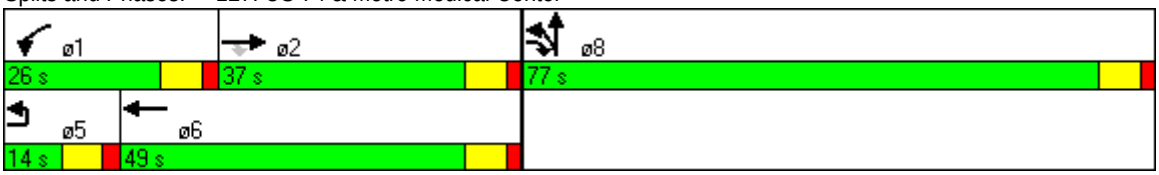
Lane Group	SBR
Lane Configurations	
Volume (vph)	18
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.865
Flt Protected	
Satd. Flow (prot)	1611
Flt Permitted	
Satd. Flow (perm)	1611
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	2%
Adj. Flow (vph)	20
Shared Lane Traffic (%)	
Lane Group Flow (vph)	20
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Detector Phase	
Switch Phase	
Minimum Initial (s)	

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Minimum Split (s)	14.0		19.0	19.0	14.0	21.0		19.0	19.0			
Total Split (s)	14.0	0.0	37.0	77.0	26.0	49.0	0.0	77.0	77.0	0.0	0.0	0.0
Total Split (%)	10.0%	0.0%	26.4%	55.0%	18.6%	35.0%	0.0%	55.0%	55.0%	0.0%	0.0%	0.0%
Maximum Green (s)	7.0		30.0	70.0	19.0	42.0		70.0	70.0			
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0		5.0	5.0			
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0		2.0	2.0			
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	2.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	2.0	2.0
Lead/Lag	Lead		Lag		Lead	Lag						
Lead-Lag Optimize?			Yes			Yes						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0		3.0	3.0			
Recall Mode	None		C-Max	None	None	C-Max		None	None			
Act Effct Green (s)	9.0		32.0	109.0	21.0	52.4		72.0	72.0			
Actuated g/C Ratio	0.06		0.23	0.78	0.15	0.37		0.51	0.51			
v/c Ratio	0.10		1.21	1.43	1.33	0.63		0.85	0.83			
Control Delay	63.9		149.4	220.5	217.5	38.9		42.0	40.6			
Queue Delay	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Total Delay	63.9		149.4	220.5	217.5	38.9		42.0	40.6			
LOS	E		F	F	F	D		D	D			
Approach Delay			188.5			79.4			41.3			
Approach LOS			F			E			D			

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.43
Intersection Signal Delay: 128.0 Intersection LOS: F
Intersection Capacity Utilization 121.2% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 127: US 74 & Metro Medical Center



Lane Group	SBR
Minimum Split (s)	
Total Split (s)	0.0
Total Split (%)	0.0%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	2.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Act Effct Green (s)	140.0
Actuated g/C Ratio	1.00
v/c Ratio	0.01
Control Delay	0.0
Queue Delay	0.0
Total Delay	0.0
LOS	A
Approach Delay	
Approach LOS	

Intersection Summary

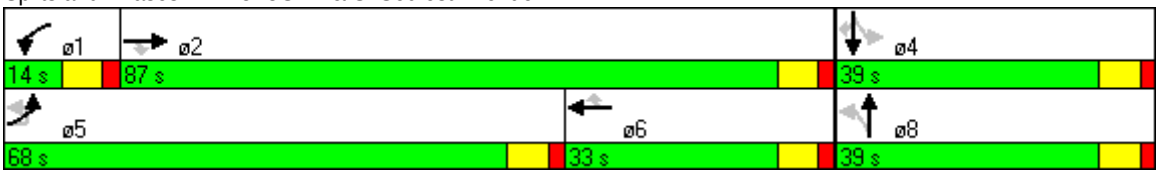
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	20	166	1247	47	9	991	109	35	99	9	248	238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850			0.850		0.992			
Flt Protected		0.950			0.950				0.988			0.975
Satd. Flow (prot)	0	1736	3471	1553	1736	3471	1553	0	1826	0	0	1816
Flt Permitted		0.063			0.950				0.161			0.680
Satd. Flow (perm)	0	115	3471	1553	1736	3471	1553	0	298	0	0	1267
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			55			55			35			35
Link Distance (ft)			411			374			242			283
Travel Time (s)			5.1			4.6			4.7			5.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%
Adj. Flow (vph)	22	184	1386	52	10	1101	121	39	110	10	276	264
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	206	1386	52	10	1101	121	0	159	0	0	540
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			12			12			0			0
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1	1	2	1	1	2	1	1	2		1	2
Detector Template	Left	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru
Leading Detector (ft)	20	20	100	20	20	100	20	20	100		20	100
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0		0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0		0	0
Detector 1 Size(ft)	20	20	6	20	20	6	20	20	6		20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)			94			94			94			94
Detector 2 Size(ft)			6			6			6			6
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			0.0
Turn Type	custom	Prot		Perm	Prot		Perm	Perm			Perm	
Protected Phases		5	2		1	6			8			4
Permitted Phases	5			2			6	8			4	
Detector Phase	5	5	2	2	1	6	6	8	8		4	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	14.0	14.0	7.0	14.0	14.0	7.0	7.0		7.0	7.0

Lane Group	SBR
Lane Configurations	
Volume (vph)	299
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	2%
Adj. Flow (vph)	332
Shared Lane Traffic (%)	
Lane Group Flow (vph)	332
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Detector Phase	4
Switch Phase	
Minimum Initial (s)	7.0

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Minimum Split (s)	14.0	14.0	21.0	21.0	14.0	21.0	21.0	14.0	14.0		14.0	14.0
Total Split (s)	68.0	68.0	87.0	87.0	14.0	33.0	33.0	39.0	39.0	0.0	39.0	39.0
Total Split (%)	48.6%	48.6%	62.1%	62.1%	10.0%	23.6%	23.6%	27.9%	27.9%	0.0%	27.9%	27.9%
Maximum Green (s)	61.0	61.0	80.0	80.0	7.0	26.0	26.0	32.0	32.0		32.0	32.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Time Before Reduce (s)	0.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0	0.0		0.0	0.0
Time To Reduce (s)	0.0	0.0	50.0	50.0	0.0	50.0	50.0	0.0	0.0		0.0	0.0
Recall Mode	None	None	C-Min	C-Min	None	C-Min	C-Min	None	None		None	None
Act Effct Green (s)		63.0	93.2	93.2	9.0	28.0	28.0		34.0			34.0
Actuated g/C Ratio		0.45	0.67	0.67	0.06	0.20	0.20		0.24			0.24
v/c Ratio		3.96	0.60	0.05	0.09	1.59	0.39		2.21			1.75
Control Delay		1391.3	15.1	9.4	63.7	307.0	52.9		611.8			384.0
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0
Total Delay		1391.3	15.1	9.4	63.7	307.0	52.9		611.8			384.0
LOS		F	B	A	E	F	D		F			F
Approach Delay			187.4			280.0			611.8			265.7
Approach LOS			F			F			F			F

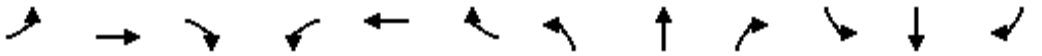
Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 3.96			
Intersection Signal Delay: 251.3		Intersection LOS: F	
Intersection Capacity Utilization 89.4%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 128: US 74 & S. Secrest Avenue



Lane Group	SBR
Minimum Split (s)	14.0
Total Split (s)	39.0
Total Split (%)	27.9%
Maximum Green (s)	32.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Minimum Gap (s)	3.0
Time Before Reduce (s)	0.0
Time To Reduce (s)	0.0
Recall Mode	None
Act Effct Green (s)	34.0
Actuated g/C Ratio	0.24
v/c Ratio	0.86
Control Delay	73.2
Queue Delay	0.0
Total Delay	73.2
LOS	E
Approach Delay	
Approach LOS	

Intersection Summary

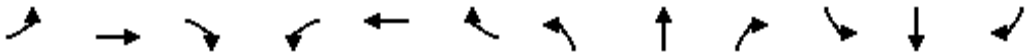


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	79	1301	20	3	1048	59	32	20	6	101	18	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.992			0.985				0.850
Flt Protected	0.950			0.950				0.973			0.959	
Satd. Flow (prot)	1736	3464	0	1736	3443	0	0	1785	0	0	1786	1583
Flt Permitted	0.950			0.950				0.669			0.722	
Satd. Flow (perm)	1736	3464	0	1736	3443	0	0	1227	0	0	1345	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			20			25	
Link Distance (ft)		245			259			179			276	
Travel Time (s)		4.8			5.0			6.1			7.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	88	1446	22	3	1164	66	36	22	7	112	20	121
Shared Lane Traffic (%)												
Lane Group Flow (vph)	88	1468	0	3	1230	0	0	65	0	0	132	121
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		pm+ov
Protected Phases	5	2		1	6			8			4	5
Permitted Phases							8			4		4
Detector Phase	5	2		1	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	17.0		14.0	17.0		14.0	14.0		14.0	14.0	14.0
Total Split (s)	20.0	94.0	0.0	14.0	88.0	0.0	32.0	32.0	0.0	32.0	32.0	20.0
Total Split (%)	14.3%	67.1%	0.0%	10.0%	62.9%	0.0%	22.9%	22.9%	0.0%	22.9%	22.9%	14.3%
Maximum Green (s)	13.0	87.0		7.0	81.0		25.0	25.0		25.0	25.0	13.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None
Act Effct Green (s)	14.4	106.3		9.0	89.7			20.9			20.9	40.3
Actuated g/C Ratio	0.10	0.76		0.06	0.64			0.15			0.15	0.29
v/c Ratio	0.49	0.56		0.03	0.56			0.36			0.66	0.27
Control Delay	68.1	9.6		62.0	16.6			57.1			70.7	37.8
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Delay	68.1	9.6		62.0	16.6			57.1			70.7	37.8
LOS	E	A		E	B			E			E	D
Approach Delay		12.9			16.7			57.1			55.0	
Approach LOS		B			B			E			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 18.8		Intersection LOS: B	
Intersection Capacity Utilization 64.8%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 129: US 74 & Bivens Street

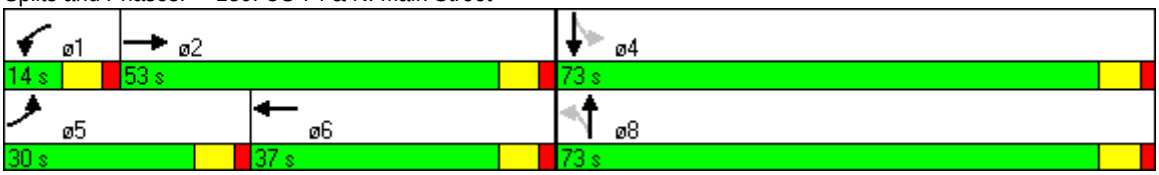


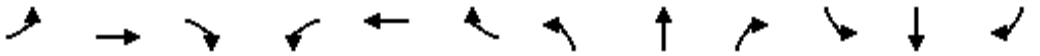
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	362	945	50	51	738	77	39	291	51	102	384	375
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992			0.986			0.982			0.926	
Flt Protected	0.950			0.950				0.995		0.950		
Satd. Flow (prot)	1736	3443	0	1736	3423	0	0	1820	0	1770	1725	0
Flt Permitted	0.950			0.950				0.335		0.438		
Satd. Flow (perm)	1736	3443	0	1736	3423	0	0	613	0	816	1725	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		282			333			173			197	
Travel Time (s)		5.5			6.5			3.4			3.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	402	1050	56	57	820	86	43	323	57	113	427	417
Shared Lane Traffic (%)												
Lane Group Flow (vph)	402	1106	0	57	906	0	0	423	0	113	844	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	17.0		14.0	17.0		14.0	14.0		14.0	14.0	
Total Split (s)	30.0	53.0	0.0	14.0	37.0	0.0	73.0	73.0	0.0	73.0	73.0	0.0
Total Split (%)	21.4%	37.9%	0.0%	10.0%	26.4%	0.0%	52.1%	52.1%	0.0%	52.1%	52.1%	0.0%
Maximum Green (s)	23.0	46.0		7.0	30.0		66.0	66.0		66.0	66.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	None		None	None		None	None	
Act Effct Green (s)	25.0	50.8		9.0	32.0			68.0		68.0	68.0	
Actuated g/C Ratio	0.18	0.36		0.06	0.23			0.49		0.49	0.49	
v/c Ratio	1.30	0.89		0.51	1.16			1.42		0.29	1.01	
Control Delay	200.0	52.2		79.7	132.6			237.7		24.0	68.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	200.0	52.2		79.7	132.6			237.7		24.0	68.8	
LOS	F	D		E	F			F		C	E	
Approach Delay		91.6			129.5			237.7			63.5	
Approach LOS		F			F			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT, Start of Green			
Natural Cycle: 160			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.42			
Intersection Signal Delay: 110.1		Intersection LOS: F	
Intersection Capacity Utilization 107.0%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 130: US 74 & N. Main Street





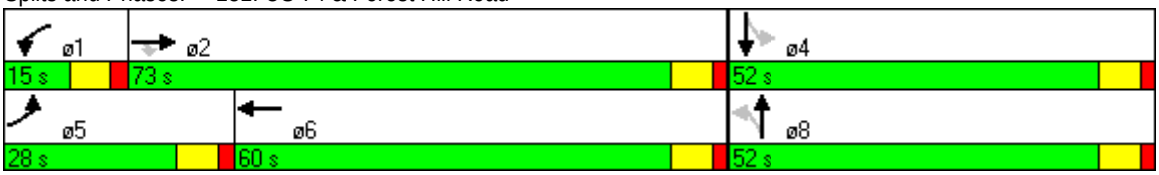
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	127	904	121	29	734	11	111	41	33	10	35	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.998			0.976			0.907	
Flt Protected	0.950			0.950				0.971			0.997	
Satd. Flow (prot)	1736	3471	1553	1736	3464	0	0	1683	0	0	1652	0
Flt Permitted	0.950			0.950				0.602			0.973	
Satd. Flow (perm)	1736	3471	1553	1736	3464	0	0	1043	0	0	1612	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			35	
Link Distance (ft)		576			646			376			353	
Travel Time (s)		7.1			8.0			4.7			6.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	7%	7%	7%	4%	4%	4%
Adj. Flow (vph)	141	1004	134	32	816	12	123	46	37	11	39	111
Shared Lane Traffic (%)												
Lane Group Flow (vph)	141	1004	134	32	828	0	0	206	0	0	161	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		Perm	Prot			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8			4		
Detector Phase	5	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	14.0	14.0	7.0	14.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	21.0	21.0	14.0	21.0		14.0	14.0		14.0	14.0	
Total Split (s)	28.0	73.0	73.0	15.0	60.0	0.0	52.0	52.0	0.0	52.0	52.0	0.0
Total Split (%)	20.0%	52.1%	52.1%	10.7%	42.9%	0.0%	37.1%	37.1%	0.0%	37.1%	37.1%	0.0%
Maximum Green (s)	21.0	66.0	66.0	8.0	53.0		45.0	45.0		45.0	45.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	
Act Effct Green (s)	18.6	87.8	87.8	10.4	74.1			32.3			32.3	
Actuated g/C Ratio	0.13	0.63	0.63	0.07	0.53			0.23			0.23	
v/c Ratio	0.61	0.46	0.14	0.25	0.45			0.85			0.43	
Control Delay	68.1	17.2	14.5	65.2	23.5			80.6			48.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Delay	68.1	17.2	14.5	65.2	23.5			80.6			48.0	
LOS	E	B	B	E	C			F			D	
Approach Delay		22.5			25.1			80.6			48.0	
Approach LOS		C			C			F			D	

Intersection Summary

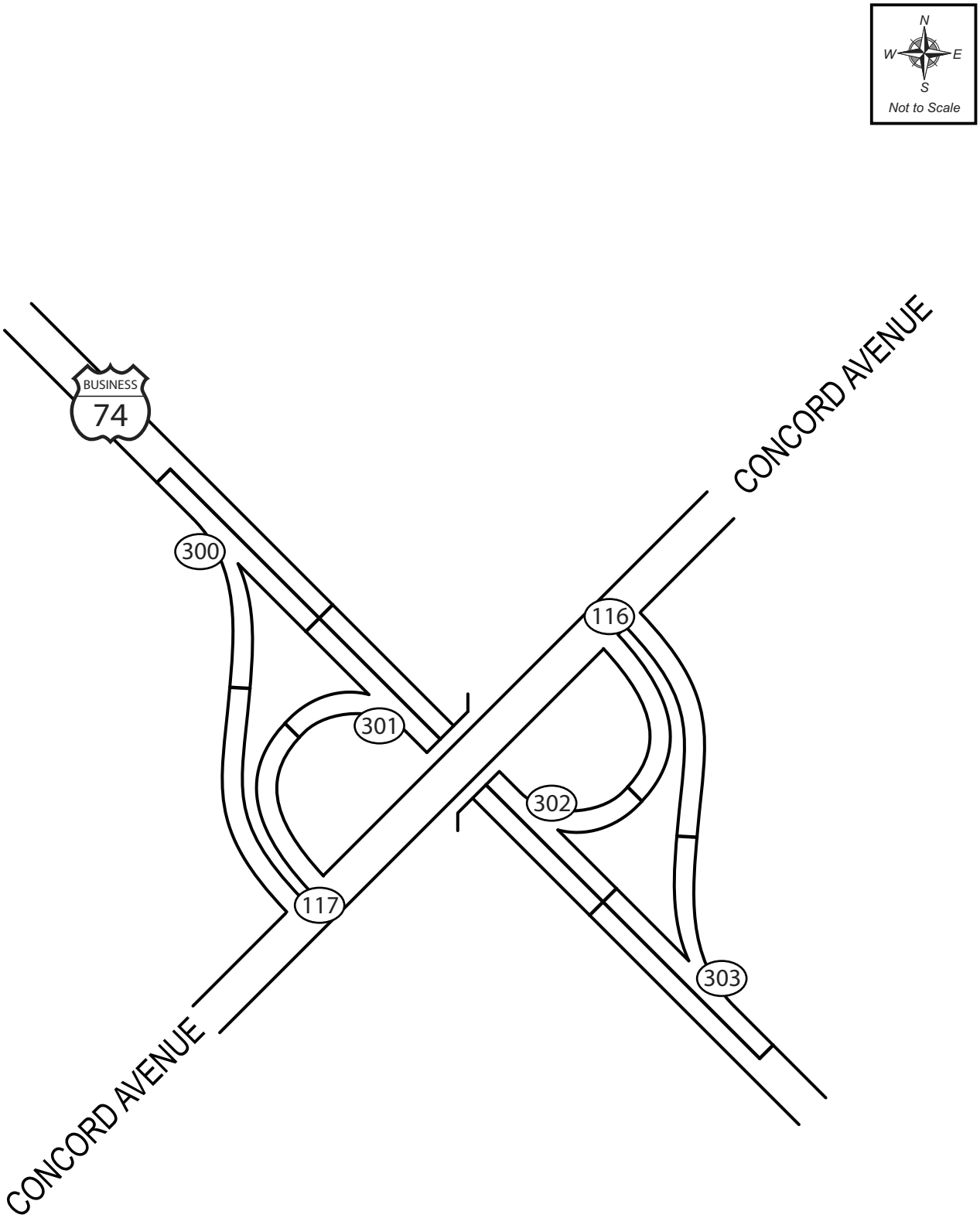
Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 29.8 Intersection LOS: C
Intersection Capacity Utilization 66.3% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 131: US 74 & Forest Hill Road



E-4-2

Business US 74 / Concord Ave I/C



NORTH CAROLINA Turnpike Authority

MONROE CONNECTOR / BYPASS

TIP Project Numbers R-3329 & R-2559

Mecklenburg and Union Counties

Business US 74 Corridor
Concord Avenue
Key Sheet

Appendix E

KeySheetUS74CorridorConcordAve.ai

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*WB US 74 Ramp at Concord Ave*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 1D*
Analysis Time Period	*AM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *WB US 74 Ramp*	North/South Street: *Concord Ave.*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*370*	*114*	*106*	*431*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*411*	*126*	*117*	*478*	*0*
Percent Heavy Vehicles		--	--	*4*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*183*	*0*	*67*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*203*	*0*	*74*	*0*	*0*	*0*
Percent Heavy Vehicles	*5*		*5*			
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (vph)		*117*		*277*				
C (m) (vph)		*1021*		*223*				
v/c		*0.11*		*1.24*				
95% queue length		*0.39*		*14.11*				
Control Delay		*9.0*		*185.1*				
LOS		*A*		*F*				
Approach Delay	--	--	*185.1*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*WB US 74 Ramp at Concord Ave*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 1D*
Analysis Time Period	*PM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *WB US 74 Ramp*	North/South Street: *Concord Ave.*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*469*	*116*	*85*	*352*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*521*	*128*	*94*	*391*	*0*
Percent Heavy Vehicles		--	--	*4*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*145*	*0*	*68*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*161*	*0*	*75*	*0*	*0*	*0*
Percent Heavy Vehicles	*5*		*5*			
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (vph)		*94*		*236*				
C (m) (vph)		*927*		*238*				
v/c		*0.10*		*0.99*				
95% queue length		*0.34*		*9.28*				
Control Delay		*9.3*		*100.4*				
LOS		*A*		*F*				
Approach Delay	--	--	*100.4*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*EB US 74 Ramp at Concord Ave*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 1D*
Analysis Time Period	*AM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *EB US 74 Ramp*	North/South Street: *Concord Ave.*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*145*	*399*			*546*	*68*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*161*	*443*	*0*	*0*	*606*	*75*
Percent Heavy Vehicles	*4*	--	--		--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume		*0*		*85*	*0*	*116*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*94*	*0*	*128*
Percent Heavy Vehicles				*5*		*5*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*161*						*222*	
C (m) (vph)	*902*						*214*	
v/c	*0.18*						*1.04*	
95% queue length	*0.65*						*9.64*	
Control Delay	*9.9*						*119.2*	
LOS	*A*						*F*	
Approach Delay	--	--				*119.2*		
Approach LOS	--	--				*F*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*EB US 74 Ramp at Concord Ave*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 1D*
Analysis Time Period	*PM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *EB US 74 Ramp*	North/South Street: *Concord Ave.*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*183*	*479*			*430*	*67*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*203*	*532*	*0*	*0*	*477*	*74*
Percent Heavy Vehicles	*4*	--	--		--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume		*0*		*106*	*0*	*114*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*117*	*0*	*126*
Percent Heavy Vehicles				*5*		*5*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*203*						*243*	
C (m) (vph)	*1009*						*192*	
v/c	*0.20*						*1.27*	
95% queue length	*0.75*						*13.25*	
Control Delay	*9.5*						*202.9*	
LOS	*A*						*F*	
Approach Delay	--	--				*202.9*		
Approach LOS	--	--				*F*		

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Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB off to Concord Ave.
Junction:	300
Jurisdiction:	
Analysis Year:	2035 Build Alternative 1D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1702	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	201	vph
Length of first accel/decel lane	680	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	213	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1702	201	213	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	473	56	59	v
Trucks and buses	5	5	4	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.943	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2033	240	251	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.698 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1492 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2033	6750	No
v_{12}	1492	4400	No
$v_{FO} = v_F - v_R$	1793	6750	No
v_R	240	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 11.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.385

Space mean speed in ramp influence area, S_R = 50.0 mph

Space mean speed in outer lanes, S_0 = 60.3 mph

Space mean speed for all vehicles, S = 52.4 mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB off to Concord Ave.
Junction:	300
Jurisdiction:	
Analysis Year:	2035 Build Alternative 1D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2072	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	220	vph
Length of first accel/decel lane	680	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	250	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2072	220	250	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	576	61	69	v
Trucks and buses	5	5	4	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.943	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2475	263	294	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.686 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1780 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2475	6750	No
v_{12}	1780	4400	No
$v_{FO} = v_F - v_R$	2212	6750	No
v_R	263	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 13.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.387

Space mean speed in ramp influence area, S_R = 50.0 mph

Space mean speed in outer lanes, S_0 = 60.3 mph

Space mean speed for all vehicles, S = 52.5 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB on from Concord Ave.
Junction:	301
Jurisdiction:	
Analysis Year:	2035 Build Alternative 1D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1501	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	213	vph
Length of first accel/decel lane	100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	201	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1501	213	201	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	417	59	56	v
Trucks and buses	5	4	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1793	251	240	pcph

Estimation of V12 Merge Areas

L_{EQ} = -613.18 (Equation 25-2 or 25-3)

P_{FM} = 0.580 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1040 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2044	6750	No
v_{R12}	1291	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 14.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.330

Space mean speed in ramp influence area, S_R = 50.7 mph

Space mean speed in outer lanes, S_O = 54.1 mph

Space mean speed for all vehicles, S = 51.9 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB on from Concord Ave.
Junction:	301
Jurisdiction:	
Analysis Year:	2035 Build Alternative 1D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1852	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	250	vph
Length of first accel/decel lane	100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	220	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1852	250	220	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	514	69	61	v
Trucks and buses	5	4	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2212	294	263	pcph

Estimation of V12 Merge Areas

L_{EQ} = -514.32 (Equation 25-2 or 25-3)

P_{FM} = 0.580 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1284 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2506	6750	No
v_{R12}	1578	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 17.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.335

Space mean speed in ramp influence area, S_R = 50.6 mph

Space mean speed in outer lanes, S_O = 53.5 mph

Space mean speed for all vehicles, S = 51.7 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB on from Concord Ave.
Junction:	302
Jurisdiction:	
Analysis Year:	2035 Build Alternative 1D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1852	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	220	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	250	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1852	220	250	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	514	61	69	v
Trucks and buses	5	4	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2212	259	299	pcph

Estimation of V12 Merge Areas

L_{EQ} = -433.01 (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1296 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2471	6750	No
v_{R12}	1555	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 15.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.324	
Space mean speed in ramp influence area,	S_R = 50.8	mph
Space mean speed in outer lanes,	S_O = 53.5	mph
Space mean speed for all vehicles,	S = 51.8	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB on from Concord Ave.
Junction:	302
Jurisdiction:	
Analysis Year:	2035 Build Alternative 1D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1501	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	201	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	213	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1501	201	213	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	417	56	59	v
Trucks and buses	5	4	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1793	237	254	pcph

Estimation of V12 Merge Areas

L_{EQ} = -527.38 (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1051 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2030	6750	No
v_{R12}	1288	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 13.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.320	
Space mean speed in ramp influence area,	S_R = 50.8	mph
Space mean speed in outer lanes,	S_O = 54.1	mph
Space mean speed for all vehicles,	S = 52.0	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB off to Concord Ave.
Junction:	303
Jurisdiction:	
Analysis Year:	2035 Build Alternative 1D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2102	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	250	vph
Length of first accel/decel lane	680	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	220	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2102	250	220	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	584	69	61	v
Trucks and buses	5	5	4	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.943	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2511	299	259	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.683 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1811 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2511	6750	No
v_{12}	1811	4400	No
$v_{FO} = v_F - v_R$	2212	6750	No
v_R	299	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 13.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.390	
Space mean speed in ramp influence area,	S_R = 49.9	mph
Space mean speed in outer lanes,	S_0 = 60.3	mph
Space mean speed for all vehicles,	S = 52.5	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB off to Concord Ave.
Junction:	303
Jurisdiction:	
Analysis Year:	2035 Build Alternative 1D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1714	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	213	vph
Length of first accel/decel lane	680	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	201	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	1714		213		201		vph
Peak-hour factor, PHF	0.90		0.90		0.90		
Peak 15-min volume, v15	476		59		56		v
Trucks and buses	5		5		4		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		

Heavy vehicle adjustment, fHV	0.930	0.930	0.943	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2047	254	237	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.697 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1504 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2047	6750	No
v_{12}	1504	4400	No
$v_{FO} = v_F - v_R$	1793	6750	No
v_R	254	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 11.1 pc/mi/ln

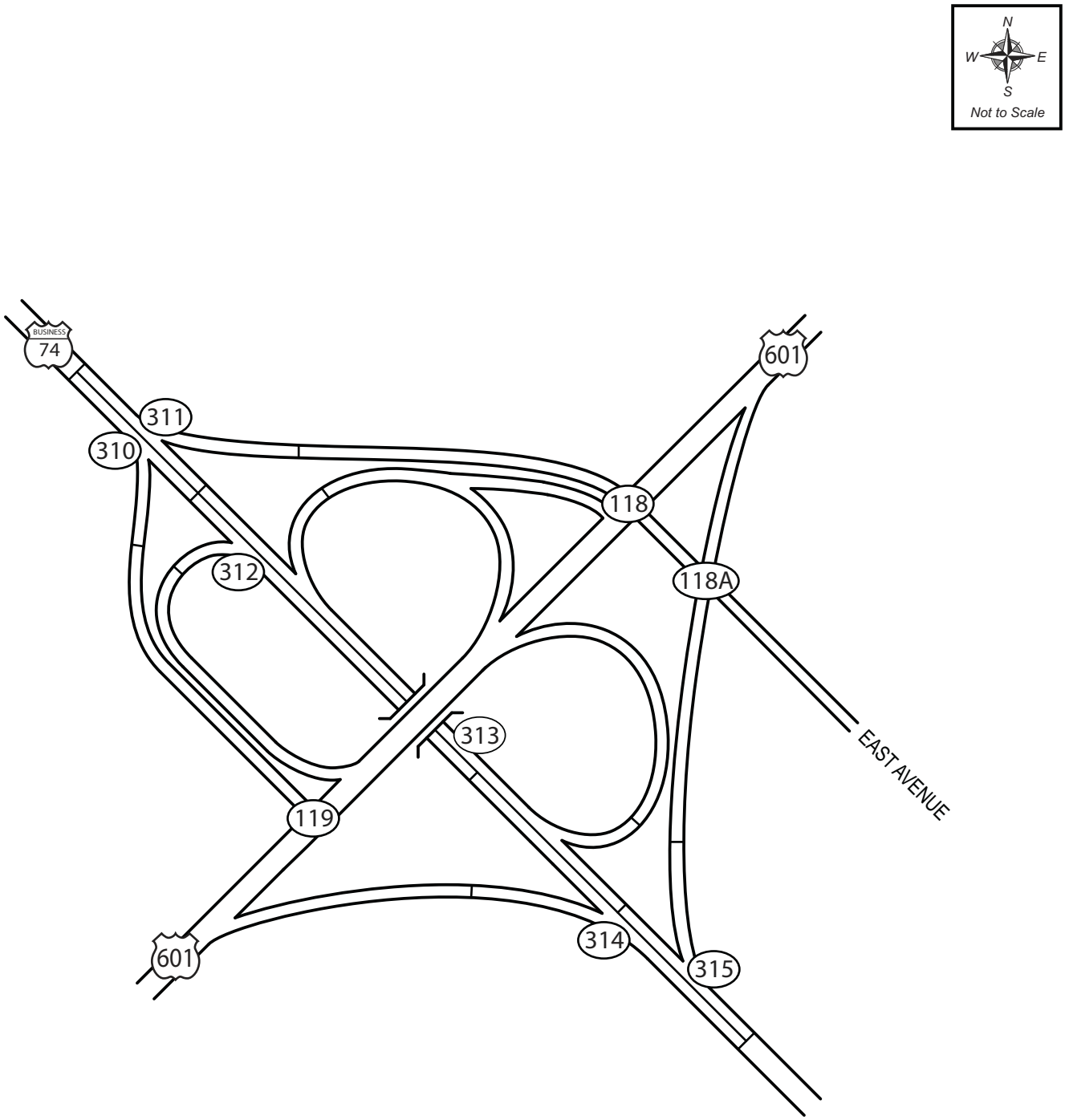
Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.386	
Space mean speed in ramp influence area,	S_R = 50.0	mph
Space mean speed in outer lanes,	S_0 = 60.3	mph
Space mean speed for all vehicles,	S = 52.4	mph

E-4-3

Business US 74 / US 601I/C



NORTH CAROLINA Turnpike Authority

MONROE CONNECTOR / BYPASS

TIP Project Numbers R-3329 & R-2559

Mecklenburg and Union Counties

Business US 74 Corridor
US 601
Key Sheet

Appendix E

KeySheetUS74CorridorUS601.ai

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*East Ave. at US 74 Off Ramp*
Agency/Co.	*PBS&J*	Jurisdiction	*118A*
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 1D*
Analysis Time Period	*AM Peak Hour*		
Project Description	*Monroe Connector/Bypass*		
East/West Street:	*East Ave.*	North/South Street:	*US 74 Off Ramp*
Intersection Orientation:	*North-South*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*10*	*370*	*10*			
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*11*	*411*	*11*	*0*	*0*	*0*
Percent Heavy Vehicles	*5*	--	--		--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration	*LTR*					
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume		*120*	*150*	*10*	*270*	
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*133*	*166*	*11*	*300*	*0*
Percent Heavy Vehicles		*5*	*5*	*8*	*8*	
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*				*TR*	*LT*		
v (vph)	*11*				*299*	*311*		
C (m) (vph)	*1604*				*566*	*477*		
v/c	*0.01*				*0.53*	*0.65*		
95% queue length	*0.02*				*3.08*	*4.60*		
Control Delay	*7.3*				*18.3*	*25.6*		
LOS	*A*				*C*	*D*		
Approach Delay	--	--	*18.3*			*25.6*		
Approach LOS	--	--	*C*			*D*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*East Ave. at US 74 Off Ramp*
Agency/Co.	*PBS&J*	Jurisdiction	*118A*
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 1D*
Analysis Time Period	*PM Peak Hour*		
Project Description	*Monroe Connector/Bypass*		
East/West Street:	*East Ave.*	North/South Street:	*US 74 Off Ramp*
Intersection Orientation:	*North-South*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*10*	*279*	*10*			
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*11*	*310*	*11*	*0*	*0*	*0*
Percent Heavy Vehicles	*5*	--	--		--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration	*LTR*					
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume		*150*	*150*	*10*	*290*	
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*166*	*166*	*11*	*322*	*0*
Percent Heavy Vehicles		*5*	*5*	*8*	*8*	
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*				*TR*	*LT*		
v (vph)	*11*				*332*	*333*		
C (m) (vph)	*1604*				*637*	*546*		
v/c	*0.01*				*0.52*	*0.61*		
95% queue length	*0.02*				*3.03*	*4.07*		
Control Delay	*7.3*				*16.6*	*21.4*		
LOS	*A*				*C*	*C*		
Approach Delay	--	--	*16.6*			*21.4*		
Approach LOS	--	--	*C*			*C*		

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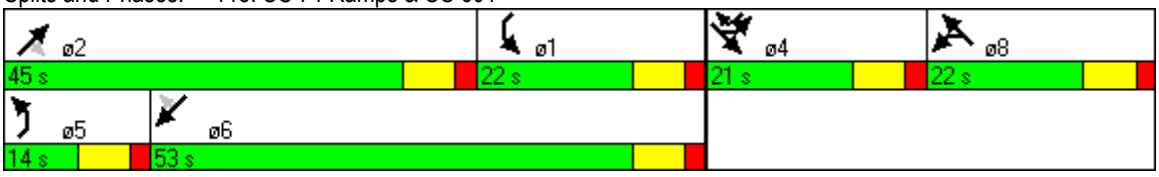
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	10	10	10	120	10	0	10	664	150	120	510	329
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.955							0.850			0.850
Flt Protected		0.984		0.950			0.950			0.950		
Satd. Flow (prot)	0	1700	0	1719	1810	0	1671	3343	1495	1671	3343	1495
Flt Permitted		0.984		0.950			0.950			0.950		
Satd. Flow (perm)	0	1700	0	1719	1810	0	1671	3343	1495	1671	3343	1495
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		412			451			446			441	
Travel Time (s)		8.0			8.8			6.8			6.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	8%	8%	8%	8%	8%	8%
Adj. Flow (vph)	11	11	11	133	11	0	11	738	167	133	567	366
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	33	0	133	11	0	11	738	167	133	567	366
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split			Prot		Perm	Prot		pm+ov
Protected Phases	4	4		8	8		5	2		1	6	4
Permitted Phases									2			6
Detector Phase	4	4		8	8		5	2	2	1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	14.0
Total Split (s)	21.0	21.0	0.0	22.0	22.0	0.0	14.0	45.0	45.0	22.0	53.0	21.0
Total Split (%)	19.1%	19.1%	0.0%	20.0%	20.0%	0.0%	12.7%	40.9%	40.9%	20.0%	48.2%	19.1%
Maximum Green (s)	14.0	14.0		15.0	15.0		7.0	38.0	38.0	15.0	46.0	14.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	None	None
Act Effct Green (s)		10.2		15.5	15.5		9.0	49.4	49.4	14.8	66.5	81.7
Actuated g/C Ratio		0.09		0.14	0.14		0.08	0.45	0.45	0.13	0.60	0.74
v/c Ratio		0.21		0.55	0.04		0.08	0.49	0.25	0.59	0.28	0.33
Control Delay		48.7		52.0	38.9		48.2	24.3	22.2	55.4	12.5	7.2
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		48.7		52.0	38.9		48.2	24.3	22.2	55.4	12.5	7.2
LOS		D		D	D		D	C	C	E	B	A
Approach Delay		48.7			51.0			24.2			16.0	
Approach LOS		D			D			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 2:NET, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 22.3		Intersection LOS: C	
Intersection Capacity Utilization 50.8%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 118: US 74 Ramps & US 601

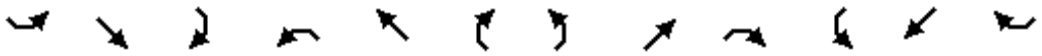


Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (vph)	339	140	0	665	659	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	3335	1538	0	3343	3343	0
Flt Permitted	0.950					
Satd. Flow (perm)	3335	1538	0	3343	3343	0
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	35			45	45	
Link Distance (ft)	529			486	575	
Travel Time (s)	10.3			7.4	8.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	8%	8%	8%	8%
Adj. Flow (vph)	377	156	0	739	732	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	377	156	0	739	732	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (ft)	20	20		100	100	
Trailing Detector (ft)	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	
Detector 1 Size(ft)	20	20		6	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type		Perm				
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						
Minimum Initial (s)	7.0	7.0		12.0	12.0	

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Minimum Split (s)	14.0	14.0		19.0	19.0	
Total Split (s)	43.0	43.0	0.0	67.0	67.0	0.0
Total Split (%)	39.1%	39.1%	0.0%	60.9%	60.9%	0.0%
Maximum Green (s)	36.0	36.0		60.0	60.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		C-Max	C-Max	
Act Effct Green (s)	38.0	38.0		62.0	62.0	
Actuated g/C Ratio	0.35	0.35		0.56	0.56	
v/c Ratio	0.33	0.29		0.39	0.39	
Control Delay	27.6	28.1		14.2	14.2	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	27.6	28.1		14.2	14.2	
LOS	C	C		B	B	
Approach Delay	27.7			14.2	14.2	
Approach LOS	C			B	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 2:NET and 6:SWT, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.39			
Intersection Signal Delay: 17.8		Intersection LOS: B	
Intersection Capacity Utilization 36.4%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 119: EB US 74 Off Ramp & US 601



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	10	10	10	150	10	0	10	560	120	170	695	339
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.955							0.850			0.850
Flt Protected		0.984		0.950			0.950			0.950		
Satd. Flow (prot)	0	1700	0	1719	1810	0	1671	3343	1495	1671	3343	1495
Flt Permitted		0.984		0.950			0.950			0.950		
Satd. Flow (perm)	0	1700	0	1719	1810	0	1671	3343	1495	1671	3343	1495
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		412			451			446			441	
Travel Time (s)		8.0			8.8			6.8			6.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	8%	8%	8%	8%	8%	8%
Adj. Flow (vph)	11	11	11	167	11	0	11	622	133	189	772	377
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	33	0	167	11	0	11	622	133	189	772	377
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split			Prot		Perm	Prot		pm+ov
Protected Phases	4	4		8	8		5	2		1	6	4
Permitted Phases									2			6
Detector Phase	4	4		8	8		5	2	2	1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	14.0
Total Split (s)	19.0	19.0	0.0	25.0	25.0	0.0	14.0	39.0	39.0	27.0	52.0	19.0
Total Split (%)	17.3%	17.3%	0.0%	22.7%	22.7%	0.0%	12.7%	35.5%	35.5%	24.5%	47.3%	17.3%
Maximum Green (s)	12.0	12.0		18.0	18.0		7.0	32.0	32.0	20.0	45.0	12.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		Max	Max		None	C-Max	C-Max	None	None	None
Act Effct Green (s)		10.2		23.8	23.8		9.0	37.3	37.3	18.7	58.2	73.4
Actuated g/C Ratio		0.09		0.22	0.22		0.08	0.34	0.34	0.17	0.53	0.67
v/c Ratio		0.21		0.45	0.03		0.08	0.55	0.26	0.66	0.44	0.38
Control Delay		48.7		42.5	35.6		48.2	32.5	29.3	53.9	17.7	10.1
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		48.7		42.5	35.6		48.2	32.5	29.3	53.9	17.7	10.1
LOS		D		D	D		D	C	C	D	B	B
Approach Delay		48.7			42.1			32.2			20.7	
Approach LOS		D			D			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 2:NET, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 26.5		Intersection LOS: C	
Intersection Capacity Utilization 52.5%		ICU Level of Service A	
Analysis Period (min) 15			

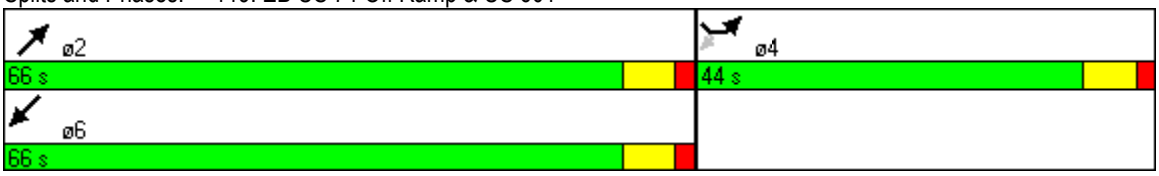
Splits and Phases: 118: US 74 Ramps & US 601

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (vph)	329	190	0	491	779	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	3335	1538	0	3343	3343	0
Flt Permitted	0.950					
Satd. Flow (perm)	3335	1538	0	3343	3343	0
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	35			45	45	
Link Distance (ft)	529			486	575	
Travel Time (s)	10.3			7.4	8.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	8%	8%	8%	8%
Adj. Flow (vph)	366	211	0	546	866	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	366	211	0	546	866	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (ft)	20	20		100	100	
Trailing Detector (ft)	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	
Detector 1 Size(ft)	20	20		6	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type		Perm				
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						
Minimum Initial (s)	7.0	7.0		12.0	12.0	

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Minimum Split (s)	14.0	14.0		19.0	19.0	
Total Split (s)	44.0	44.0	0.0	66.0	66.0	0.0
Total Split (%)	40.0%	40.0%	0.0%	60.0%	60.0%	0.0%
Maximum Green (s)	37.0	37.0		59.0	59.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		None	None	
Act Effct Green (s)	39.2	39.2		28.6	28.6	
Actuated g/C Ratio	0.50	0.50		0.37	0.37	
v/c Ratio	0.22	0.27		0.44	0.70	
Control Delay	12.1	13.6		19.5	24.3	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	12.1	13.6		19.5	24.3	
LOS	B	B		B	C	
Approach Delay	12.7			19.5	24.3	
Approach LOS	B			B	C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 77.8			
Natural Cycle: 40			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay: 19.6		Intersection LOS: B	
Intersection Capacity Utilization 41.6%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 119: EB US 74 Off Ramp & US 601



Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB off to US 601
Junction:	310
Jurisdiction:	
Analysis Year:	2035 Build Alternative 1D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1712	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	479	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	279	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	700	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1712	479	279	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	476	133	78	v
Trucks and buses	5	5	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2045	572	347	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.683 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1577 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2045	6750	No
v_{12}	1577	4400	No
$v_{FO} = v_F - v_R$	1473	6750	No
v_R	572	2100	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 16.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.414

Space mean speed in ramp influence area, S_R = 49.6 mph

Space mean speed in outer lanes, S_0 = 60.3 mph

Space mean speed for all vehicles, S = 51.7 mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB off to US 601
Junction:	310
Jurisdiction:	
Analysis Year:	2035 Build Alternative 1D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2109	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	519	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	370	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	700	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2109	519	370	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	586	144	103	v
Trucks and buses	5	5	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2519	620	460	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.669 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1889 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2519	6750	No
v_{12}	1889	4400	No
$v_{FO} = v_F - v_R$	1899	6750	No
v_R	620	2100	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 18.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.419	
Space mean speed in ramp influence area,	S_R = 49.6	mph
Space mean speed in outer lanes,	S_0 = 60.3	mph
Space mean speed for all vehicles,	S = 51.9	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB on from US 601
Junction:	311
Jurisdiction:	
Analysis Year:	2035 Build Alternative 1D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1777	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	40.0	mph
Volume on ramp	339	vph
Length of first accel/decel lane	250	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	428	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1777	339	428	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	494	94	119	v
Trucks and buses	5	8	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2123	422	511	pcph

Estimation of V12 Merge Areas

L_{EQ} = 345.43 (Equation 25-2 or 25-3)

P_{FM} = 0.585 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1241 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2545	6750	No
v_{R12}	1663	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 16.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.322	
Space mean speed in ramp influence area,	S_R = 50.8	mph
Space mean speed in outer lanes,	S_O = 53.6	mph
Space mean speed for all vehicles,	S = 51.8	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB on from US 601
Junction:	311
Jurisdiction:	
Analysis Year:	2035 Build Alternative1D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1373	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	40.0	mph
Volume on ramp	349	vph
Length of first accel/decel lane	250	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	454	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1373	349	454	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	381	97	126	v
Trucks and buses	5	8	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1640	434	542	pcph

Estimation of V12 Merge Areas

L_{EQ} = 244.64 (Equation 25-2 or 25-3)

P_{FM} = 0.585 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 959 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2074	6750	No
v_{R12}	1393	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 14.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.317

Space mean speed in ramp influence area, S_R = 50.9 mph

Space mean speed in outer lanes, S_O = 54.3 mph

Space mean speed for all vehicles, S = 52.0 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB on from US 601 SB
Junction:	312
Jurisdiction:	
Analysis Year:	2035 Build Alternative 1D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1233	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	279	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	479	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	700	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1233	279	479	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	343	78	133	v
Trucks and buses	5	8	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1473	347	572	pcph

Estimation of V12 Merge Areas

L_{EQ} = -572.32 (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 863 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	1820	6750	No
v_{R12}	1210	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 12.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.319

Space mean speed in ramp influence area, S_R = 50.9 mph

Space mean speed in outer lanes, S_O = 54.6 mph

Space mean speed for all vehicles, S = 52.1 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB on from US 601 SB
Junction:	312
Jurisdiction:	
Analysis Year:	2035 Build Alternative 1D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1587	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	370	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	519	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	700	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1587	370	519	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	441	103	144	v
Trucks and buses	5	8	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1896	460	620	pcph

Estimation of V12 Merge Areas

L_{EQ} = -457.62 (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1111 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2356	6750	No
v_{R12}	1571	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A$ = 15.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.325

Space mean speed in ramp influence area, S_R = 50.8 mph

Space mean speed in outer lanes, S_O = 54.0 mph

Space mean speed for all vehicles, S = 51.8 mph

FREEWAY WEAVING WORKSHEET

General Information

Analyst	OSR
Agency/Company	PBSJ
Date Performed	4/30/08
Analysis Time Period	AM Peak

Site Information

Freeway/Dir of Travel	US 74 WB
Weaving Seg Location	313
Jurisdiction	
Analysis Year	2035 Build Alternative 1D

Inputs

Freeway free-flow speed, S_{FF} (mi/h)	55	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.28
Weaving seg length, L (ft)	550	Weaving ratio, R	0.32
Terrain	Rolling		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	1587	0.90	5	0	2.5	2.0	0.930	1.00	1895
Vo2	0	0.90	0	0	2.5	2.0	1.000	1.00	0
Vw1	428	0.90	5	0	2.5	2.0	0.930	1.00	511
Vw2	190	0.90	8	0	2.5	2.0	0.893	1.00	236
Vw				747	Vnw				1895
V									2642

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.15	0.00		
b (Exhibit 24-6)	2.20	4.00		
c (Exhibit 24-6)	0.97	1.30		
d (Exhibit 24-6)	0.80	0.75		
Weaving intensity factor, Wi	0.91	0.39		
Weaving and non-weaving speeds, Si (mi/h)	38.61	47.46		

Number of lanes required for unconstrained operation, Nw 1.27
Maximum number of lanes, Nw (max) 1.40

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	44.57
Weaving segment density, D (pc/mi/ln)	14.82
Level of service, LOS	B
Capacity of base condition, c_b (pc/h)	5865
Capacity as a 15-minute flow rate, c (veh/h)	5456
Capacity as a full-hour volume, c_h (veh/h)	4910

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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FREEWAY WEAVING WORKSHEET

General Information

Analyst	OSR
Agency/Company	PBSJ
Date Performed	4/30/08
Analysis Time Period	PM Peak

Site Information

Freeway/Dir of Travel	US 74 WB
Weaving Seg Location	313
Jurisdiction	
Analysis Year	2035 Build Alternative 1D

Inputs

Freeway free-flow speed, SFF (mi/h)	55	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.33
Weaving seg length, L (ft)	550	Weaving ratio, R	0.24
Terrain	Rolling		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	1233	0.90	5	0	2.5	2.0	0.930	1.00	1472
Vo2	0	0.90	0	0	2.5	2.0	1.000	1.00	0
Vw1	454	0.90	5	0	2.5	2.0	0.930	1.00	542
Vw2	140	0.90	8	0	2.5	2.0	0.893	1.00	174
Vw				716	Vnw				1472
V									2188

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.15	0.00		
b (Exhibit 24-6)	2.20	4.00		
c (Exhibit 24-6)	0.97	1.30		
d (Exhibit 24-6)	0.80	0.75		
Weaving intensity factor, Wi	0.81	0.35		
Weaving and non-weaving speeds, Si (mi/h)	39.82	48.41		

Number of lanes required for unconstrained operation, Nw 1.36
Maximum number of lanes, Nw (max) 1.40

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	45.22
Weaving segment density, D (pc/mi/ln)	12.10
Level of service, LOS	B
Capacity of base condition, c_b (pc/h)	5629
Capacity as a 15-minute flow rate, c (veh/h)	5236
Capacity as a full-hour volume, c_h (veh/h)	4712

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB on from US 601 NB
Junction:	314
Jurisdiction:	
Analysis Year:	2035 Build Alternative 1D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1512	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	40.0	mph
Volume on ramp	454	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	279	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1512	454	279	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	420	126	78	v
Trucks and buses	5	8	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1806	565	347	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1058 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2371	6750	No
v_{R12}	1623	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 16.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.317	
Space mean speed in ramp influence area,	S_R = 50.9	mph
Space mean speed in outer lanes,	S_O = 54.1	mph
Space mean speed for all vehicles,	S = 51.9	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB on from US 601 NB
Junction:	314
Jurisdiction:	
Analysis Year:	2035 Build Alternative1D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1957	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	40.0	mph
Volume on ramp	428	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	370	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1957	428	370	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	544	119	103	v
Trucks and buses	5	8	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2338	533	460	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1370 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2871	6750	No
v_{R12}	1903	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A$ = 18.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.323

Space mean speed in ramp influence area, S_R = 50.8 mph

Space mean speed in outer lanes, S_O = 53.3 mph

Space mean speed for all vehicles, S = 51.6 mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB off to US 601
Junction:	315
Jurisdiction:	
Analysis Year:	2035 Build Alternative 1D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2385	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	370	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	190	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	400	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2385	370	190	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	663	103	53	v
Trucks and buses	5	5	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2849	442	236	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.668 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2051 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2849	6750	No
v_{12}	2051	4400	No
$v_{FO} = v_F - v_R$	2407	6750	No
v_R	442	2100	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 19.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.403

Space mean speed in ramp influence area, S_R = 49.8 mph

Space mean speed in outer lanes, S_0 = 60.3 mph

Space mean speed for all vehicles, S = 52.3 mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB off to US 601
Junction:	315
Jurisdiction:	
Analysis Year:	2035 Build Alternative 1D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1966	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	279	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	140	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	400	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	1966		279		140		vph
Peak-hour factor, PHF	0.90		0.90		0.90		
Peak 15-min volume, v15	546		78		39		v
Trucks and buses	5		5		8		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		

Heavy vehicle adjustment, fHV	0.930	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2348	333	174	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.686 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1715 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2348	6750	No
v_{12}	1715	4400	No
$v_{FO} = v_F - v_R$	2015	6750	No
v_R	333	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 16.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.393

Space mean speed in ramp influence area, S_R = 49.9 mph

Space mean speed in outer lanes, S_0 = 60.3 mph

Space mean speed for all vehicles, S = 52.3 mph

E-5

Alternative 2A

E-5-1

Business US 74 Intersections

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*OSR*
Agency/Co.	*PBS&J*
Date Performed	*4/30/08*
Analysis Time Period	*AM Peak*

Site Information

Intersection	*US 74 and Bivens Road*
Jurisdiction	
Analysis Year	*2035 Build Toll Alternative 2A*

Project Description *Monroe Connector/Bypass*

East/West Street: *US 74* | North/South Street: *Bivens Road*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*120*	*1200*	*10*	*10*	*1479*	*135*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*133*	*1333*	*11*	*11*	*1643*	*150*
Proportion of heavy vehicles, P_{HV}	*5*	--	--	*5*	--	--
Median type	*Undivided*					
RT Channelized?			*0*			*1*
Lanes	*1*	*2*	*1*	*1*	*2*	*1*
Configuration	*L*	*T*	*R*	*L*	*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*10*	*10*	*10*	*101*	*10*	*111*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*11*	*11*	*11*	*112*	*11*	*123*
Proportion of heavy vehicles, P_{HV}	*2*	*2*	*2*	*2*	*2*	*2*
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
Volume, v (vph)	*133*	*11*		*33*			*246*	
Capacity, c_m (vph)	*376*	*493*		*0*			*0*	
v/c ratio	*0.35*	*0.02*						
Queue length (95%)	*1.56*	*0.07*						
Control Delay (s/veh)	*19.7*	*12.5*						
LOS	*C*	*B*		*F*			*F*	
Approach delay (s/veh)	--	--						
Approach LOS	--	--						

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*OSR*
Agency/Co.	*PBS&J*
Date Performed	*4/30/08*
Analysis Time Period	*PM Peak*

Site Information

Intersection	*US 74 and Bivens Road*
Jurisdiction	
Analysis Year	*2035 Build Toll Alternative 2A*

Project Description *Monroe Connector/Bypass*

East/West Street: *US 74* | North/South Street: *Bivens Road*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*111*	*1479*	*10*	*10*	*1200*	*101*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*123*	*1643*	*11*	*11*	*1333*	*112*
Proportion of heavy vehicles, P_{HV}	*5*	--	--	*5*	--	--
Median type	*Undivided*					
RT Channelized?			*0*			*1*
Lanes	*1*	*2*	*1*	*1*	*2*	*1*
Configuration	*L*	*T*	*R*	*L*	*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*10*	*10*	*10*	*135*	*10*	*121*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*11*	*11*	*11*	*150*	*11*	*134*
Proportion of heavy vehicles, P_{HV}	*2*	*2*	*2*	*2*	*2*	*2*
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
Volume, v (vph)	*123*	*11*		*33*			*295*	
Capacity, c_m (vph)	*498*	*373*		*0*			*0*	
v/c ratio	*0.25*	*0.03*						
Queue length (95%)	*0.96*	*0.09*						
Control Delay (s/veh)	*14.6*	*14.9*						
LOS	*B*	*B*		*F*			*F*	
Approach delay (s/veh)	--	--						
Approach LOS	--	--						

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*OSR*
Agency/Co.	*PBS&J*
Date Performed	*4/30/08*
Analysis Time Period	*AM Peak*

Site Information

Intersection	*US 74 and Seacrest Shortcut*
Jurisdiction	
Analysis Year	*2035 Build Toll Alternative 2A*

Project Description *Monroe Connector/Bypass*

East/West Street: *US 74* | North/South Street: *Seacrest Shortcut RIRO*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*0*	*916*	*306*	*0*	*1417*	*0*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*0*	*1017*	*340*	*0*	*1574*	*0*
Proportion of heavy vehicles, P_{HV}		--	--		--	--
Median type	*Undivided*					
RT Channelized?			*0*			*1*
Lanes	*0*	*2*	*1*	*0*	*2*	*0*
Configuration		*T*	*R*		*T*	
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*428*	*0*	*0*	*0*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*0*	*0*	*475*	*0*	*0*	*0*
Proportion of heavy vehicles, P_{HV}			*4*			
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					*R*			
Volume, v (vph)					*475*			
Capacity, c_m (vph)					*505*			
v/c ratio					*0.94*			
Queue length (95%)					*11.60*			
Control Delay (s/veh)					*55.3*			
LOS					*F*			
Approach delay (s/veh)	--	--	*55.3*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*OSR*
Agency/Co.	*PBS&J*
Date Performed	*4/30/08*
Analysis Time Period	*PM Peak*

Site Information

Intersection	*US 74 and Seacrest Shortcut*
Jurisdiction	
Analysis Year	*2035 Build Toll Alternative 2A*

Project Description *Monroe Connector/Bypass*

East/West Street: *US 74* | North/South Street: *Seacrest Shortcut RIRO*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*0*	*1174*	*430*	*0*	*1160*	*0*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*0*	*1304*	*477*	*0*	*1288*	*0*
Proportion of heavy vehicles, P_{HV}		--	--		--	--
Median type	*Undivided*					
RT Channelized?			*0*			*1*
Lanes	*0*	*2*	*1*	*0*	*2*	*0*
Configuration		*T*	*R*		*T*	
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*304*	*0*	*0*	*0*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*0*	*0*	*337*	*0*	*0*	*0*
Proportion of heavy vehicles, P_{HV}			*4*			
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					*R*			
Volume, v (vph)					*337*			
Capacity, c_m (vph)					*406*			
v/c ratio					*0.83*			
Queue length (95%)					*7.73*			
Control Delay (s/veh)					*44.7*			
LOS					*E*			
Approach delay (s/veh)	--	--	*44.7*					
Approach LOS	--	--	*E*					

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	436	158	42	43	252	97	64	2356	459	55	2936	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1719	3438	1538	1719	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	1719	3438	1538	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			45			55			55	
Link Distance (ft)		1096			1168			1536			3465	
Travel Time (s)		21.4			17.7			19.0			43.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	484	176	47	48	280	108	71	2618	510	61	3262	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	484	176	47	48	280	108	71	2618	510	61	3262	39
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	1	6	7	5	2	3
Permitted Phases			4			8			6			2
Detector Phase	7	4	5	3	8	1	1	6	7	5	2	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	14.0	7.0	7.0	14.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0	14.0	14.0	21.0	14.0	14.0	21.0	14.0
Total Split (s)	19.0	19.0	14.0	14.0	14.0	14.0	14.0	93.0	19.0	14.0	93.0	14.0
Total Split (%)	13.6%	13.6%	10.0%	10.0%	10.0%	10.0%	10.0%	66.4%	13.6%	10.0%	66.4%	10.0%
Maximum Green (s)	12.0	12.0	7.0	7.0	7.0	7.0	7.0	86.0	12.0	7.0	86.0	7.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	14.0	16.8	30.8	9.0	9.0	23.0	9.0	90.8	109.8	9.0	88.0	102.0
Actuated g/C Ratio	0.10	0.12	0.22	0.06	0.06	0.16	0.06	0.65	0.78	0.06	0.63	0.73
v/c Ratio	1.41	0.41	0.13	0.22	1.23	0.42	0.64	1.17	0.42	0.55	1.51	0.03
Control Delay	245.5	61.7	47.5	64.7	187.2	58.0	89.2	108.8	6.6	82.5	256.5	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	245.5	61.7	47.5	64.7	187.2	58.0	89.2	108.8	6.6	82.5	256.5	5.4
LOS	F	E	D	E	F	E	F	F	A	F	F	A
Approach Delay		186.6			141.7			92.1			250.5	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.51			
Intersection Signal Delay: 172.7		Intersection LOS: F	
Intersection Capacity Utilization 113.1%		ICU Level of Service H	
Analysis Period (min) 15			

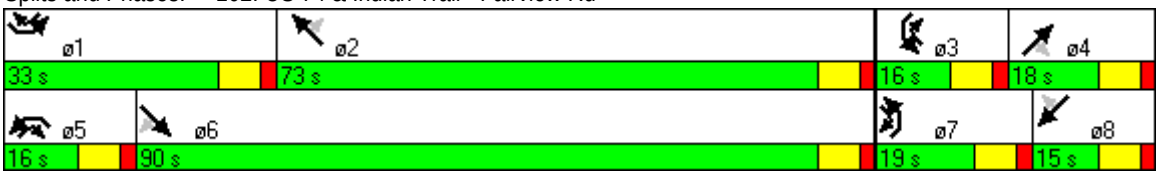
Splits and Phases: 101: Stallings Road & US 74

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	332	1650	439	117	2019	91	424	150	92	137	284	610
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3335	3438	1538	1719	3438	1538	3335	3438	1538	3335	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3438	1538	1719	3438	1538	3335	3438	1538	3335	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			35			35	
Link Distance (ft)		2103			2380			902			1112	
Travel Time (s)		26.1			29.5			17.6			21.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	369	1833	488	130	2243	101	471	167	102	152	316	678
Shared Lane Traffic (%)												
Lane Group Flow (vph)	369	1833	488	130	2243	101	471	167	102	152	316	678
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	7.0	14.0	7.0	7.0	14.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.5	21.0	14.0	14.0	21.0	14.0	14.0	14.0	14.0	14.0	14.0	14.5
Total Split (s)	33.0	90.0	19.0	16.0	73.0	16.0	19.0	18.0	16.0	16.0	15.0	33.0
Total Split (%)	23.6%	64.3%	13.6%	11.4%	52.1%	11.4%	13.6%	12.9%	11.4%	11.4%	10.7%	23.6%
Maximum Green (s)	26.0	83.0	12.0	9.0	66.0	9.0	12.0	11.0	9.0	9.0	8.0	26.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	28.0	85.0	104.0	11.0	68.0	83.9	14.0	13.1	29.1	10.9	10.0	43.0
Actuated g/C Ratio	0.20	0.61	0.74	0.08	0.49	0.60	0.10	0.09	0.21	0.08	0.07	0.31
v/c Ratio	0.55	0.88	0.43	0.96	1.34	0.11	1.41	0.52	0.32	0.59	1.28	1.44
Control Delay	54.0	29.4	8.1	131.4	189.9	12.4	245.6	66.7	50.4	72.1	204.8	244.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.0	29.4	8.1	131.4	189.9	12.4	245.6	66.7	50.4	72.1	204.8	244.4
LOS	D	C	A	F	F	B	F	E	D	E	F	F
Approach Delay		28.9			179.6			178.3			210.6	
Approach LOS		C			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.44			
Intersection Signal Delay: 127.0		Intersection LOS: F	
Intersection Capacity Utilization 118.2%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 102: US 74 & Indian Trail - Fairview Rd

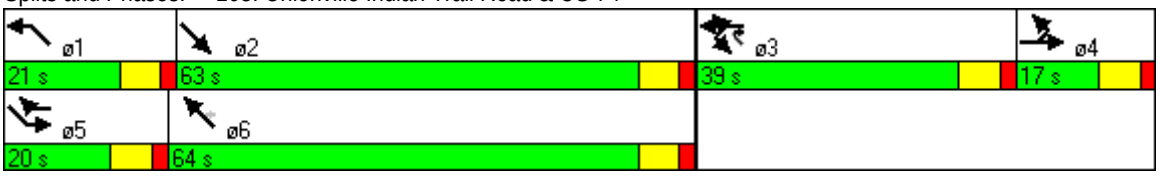


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	40	151	139	453	364	682	397	1332	56	238	1626	322
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.91	0.91	0.95	0.95	0.95	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Frt		0.929				0.850		0.994				0.850
Flt Protected	0.950	0.999		0.950	0.994		0.950			0.950		
Satd. Flow (prot)	1595	3116	0	1665	1742	1568	3335	3417	0	1719	3438	1538
Flt Permitted	0.950	0.999		0.950	0.994		0.950			0.950		
Satd. Flow (perm)	1595	3116	0	1665	1742	1568	3335	3417	0	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			45			55			55	
Link Distance (ft)		795			1304			1032			1062	
Travel Time (s)		15.5			19.8			12.8			13.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	44	168	154	503	404	758	441	1480	62	264	1807	358
Shared Lane Traffic (%)	10%			12%								
Lane Group Flow (vph)	40	326	0	443	464	758	441	1542	0	264	1807	358
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	5	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	5	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pt+ov	Prot			Prot		pm+ov
Protected Phases	4	4		3	3	3 5	5	2		1	6	3
Permitted Phases												6
Detector Phase	4	4		3	3	3 5	5	2		1	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	14.0		7.0	14.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	21.0		14.0	21.0	14.0
Total Split (s)	17.0	17.0	0.0	39.0	39.0	59.0	20.0	63.0	0.0	21.0	64.0	39.0
Total Split (%)	12.1%	12.1%	0.0%	27.9%	27.9%	42.1%	14.3%	45.0%	0.0%	15.0%	45.7%	27.9%
Maximum Green (s)	10.0	10.0		32.0	32.0		13.0	56.0		14.0	57.0	32.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	None
Act Effct Green (s)	12.0	12.0		34.0	34.0	49.0	15.0	58.0		16.0	59.0	98.0
Actuated g/C Ratio	0.09	0.09		0.24	0.24	0.35	0.11	0.41		0.11	0.42	0.70
v/c Ratio	0.29	1.22		1.10	1.10	1.38	1.24	1.09		1.35	1.25	0.33
Control Delay	66.1	179.9		122.0	121.2	210.3	177.8	91.0		231.5	152.7	9.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	66.1	179.9		122.0	121.2	210.3	177.8	91.0		231.5	152.7	9.2
LOS	E	F		F	F	F	F	F		F	F	A
Approach Delay		167.4			162.0			110.3			140.1	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.38			
Intersection Signal Delay: 138.1		Intersection LOS: F	
Intersection Capacity Utilization 106.2%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 103: Unionville Indian Trail Road & US 74

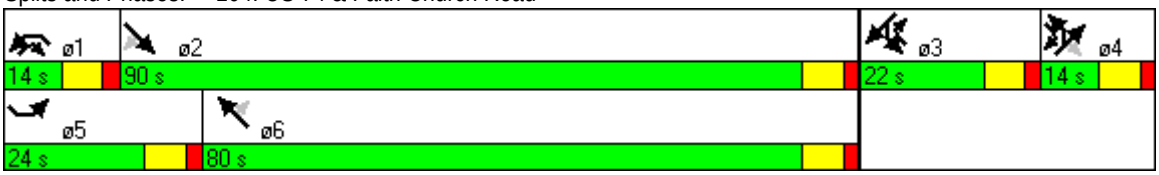


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	256	1605	24	39	1990	320	40	14	53	201	7	199
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.855	
Flt Protected	0.950			0.950				0.965		0.950		
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	0	1682	1482	1770	1593	0
Flt Permitted	0.950			0.950				0.965		0.950		
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	0	1682	1482	1770	1593	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			15			35	
Link Distance (ft)		1177			2588			625			368	
Travel Time (s)		14.6			32.1			28.4			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	9%	9%	9%	2%	2%	2%
Adj. Flow (vph)	284	1783	27	43	2211	356	44	16	59	223	8	221
Shared Lane Traffic (%)												
Lane Group Flow (vph)	284	1783	27	43	2211	356	0	60	59	223	229	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Split		pm+ov	Split		
Protected Phases	5	2	4	1	6	3	4	4	1	3	3	
Permitted Phases			2			6			4			
Detector Phase	5	2	4	1	6	3	4	4	1	3	3	
Switch Phase												
Minimum Initial (s)	7.0	14.0	7.0	7.0	14.0	7.0	7.0	7.0	7.0	7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	21.0	14.0	14.0	21.0	14.0	14.0	14.0	14.0	14.0	14.0	
Total Split (s)	24.0	90.0	14.0	14.0	80.0	22.0	14.0	14.0	14.0	22.0	22.0	0.0
Total Split (%)	17.1%	64.3%	10.0%	10.0%	57.1%	15.7%	10.0%	10.0%	10.0%	15.7%	15.7%	0.0%
Maximum Green (s)	17.0	83.0	7.0	7.0	73.0	15.0	7.0	7.0	7.0	15.0	15.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	
Act Effct Green (s)	21.8	90.6	97.8	9.0	75.0	97.0		9.0	20.2	17.0	17.0	
Actuated g/C Ratio	0.16	0.65	0.70	0.06	0.54	0.69		0.06	0.14	0.12	0.12	
v/c Ratio	1.06	0.80	0.03	0.39	1.20	0.33		0.56	0.28	1.04	1.19	
Control Delay	127.5	23.7	4.0	73.5	126.6	9.6		83.3	55.2	130.0	175.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	127.5	23.7	4.0	73.5	126.6	9.6		83.3	55.2	130.0	175.3	
LOS	F	C	A	E	F	A		F	E	F	F	
Approach Delay		37.5			109.7			69.4			152.9	
Approach LOS		D			F			E			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.20			
Intersection Signal Delay: 83.9		Intersection LOS: F	
Intersection Capacity Utilization 104.4%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 104: US 74 & Faith Church Road



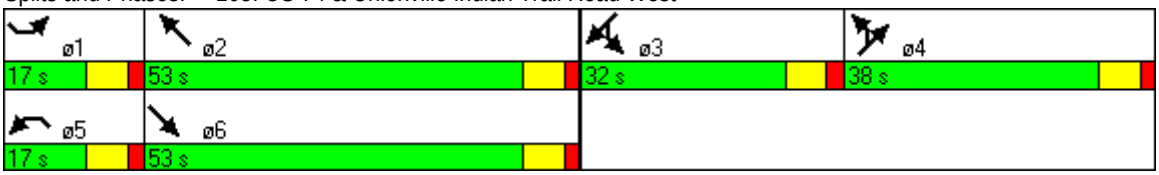
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	187	932	780	190	1256	251	728	121	131	313	218	315
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.932			0.975			0.922			0.911	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3204	0	1719	3352	0	1770	1717	0	1770	1697	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3204	0	1719	3352	0	1770	1717	0	1770	1697	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		606			973			698			813	
Travel Time (s)		7.5			12.1			10.6			12.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	208	1036	867	211	1396	279	809	134	146	348	242	350
Shared Lane Traffic (%)												
Lane Group Flow (vph)	208	1903	0	211	1675	0	809	280	0	348	592	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Split			Split		
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases												
Detector Phase	1	6		5	2		4	4		3	3	
Switch Phase												
Minimum Initial (s)	7.0	14.0		7.0	14.0		7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	21.0		14.0	21.0		14.0	14.0		14.0	14.0	
Total Split (s)	17.0	53.0	0.0	17.0	53.0	0.0	38.0	38.0	0.0	32.0	32.0	0.0
Total Split (%)	12.1%	37.9%	0.0%	12.1%	37.9%	0.0%	27.1%	27.1%	0.0%	22.9%	22.9%	0.0%
Maximum Green (s)	10.0	46.0		10.0	46.0		31.0	31.0		25.0	25.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	12.0	48.0		12.0	48.0		33.0	33.0		27.0	27.0	
Actuated g/C Ratio	0.09	0.34		0.09	0.34		0.24	0.24		0.19	0.19	
v/c Ratio	1.41	1.73		1.44	1.46		1.94	0.69		1.02	1.81	
Control Delay	266.1	363.0		273.8	245.4		460.9	59.0		109.0	408.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	266.1	363.0		273.8	245.4		460.9	59.0		109.0	408.6	
LOS	F	F		F	F		F	E		F	F	
Approach Delay		353.5			248.6			357.6			297.7	
Approach LOS		F			F			F			F	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 180
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.94
Intersection Signal Delay: 312.7 Intersection LOS: F
Intersection Capacity Utilization 149.1% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 105: US 74 & Unionville Indian Trail Road West

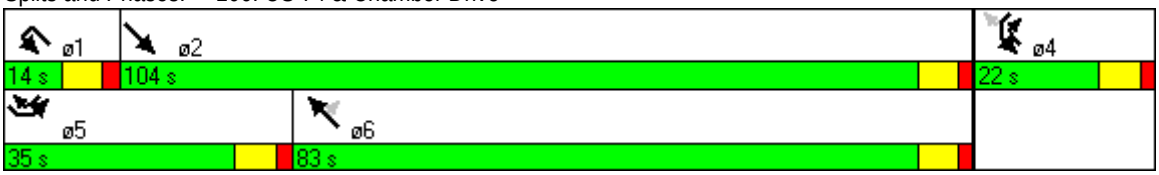


Lane Group	SEL	SET	NWU	NWT	NWR	SWL	SWR
Lane Configurations							
Volume (vph)	130	1188	10	1405	52	125	371
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Frt					0.850		0.850
Flt Protected	0.950		0.950			0.950	
Satd. Flow (prot)	1719	3438	1719	3438	1538	1770	1583
Flt Permitted	0.950		0.950			0.950	
Satd. Flow (perm)	1719	3438	1719	3438	1538	1770	1583
Right Turn on Red					No		No
Satd. Flow (RTOR)							
Link Speed (mph)		55		55		35	
Link Distance (ft)		2407		1378		1258	
Travel Time (s)		29.8		17.1		24.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	2%	2%
Adj. Flow (vph)	144	1320	11	1561	58	139	412
Shared Lane Traffic (%)							
Lane Group Flow (vph)	144	1320	11	1561	58	139	412
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Left	R NA	Left	Right	Left	Right
Median Width(ft)		12		12		12	
Link Offset(ft)		0		0		0	
Crosswalk Width(ft)		0		0		0	
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9		9	15	9
Number of Detectors	1	2	1	2	1	1	1
Detector Template	Left	Thru	Left	Thru	Right	Left	Right
Leading Detector (ft)	20	100	20	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94		94			
Detector 2 Size(ft)		6		6			
Detector 2 Type		Cl+Ex		Cl+Ex			
Detector 2 Channel							
Detector 2 Extend (s)		0.0		0.0			
Turn Type	Prot		Prot		pm+ov		pm+ov
Protected Phases	5	2	1	6	4	4	5
Permitted Phases					6		4
Detector Phase	5	2	1	6	4	4	5
Switch Phase							
Minimum Initial (s)	7.0	14.0	7.0	14.0	7.0	7.0	7.0

Lane Group	SEL	SET	NWU	NWT	NWR	SWL	SWR
Minimum Split (s)	14.0	21.0	14.0	21.0	14.0	14.0	14.0
Total Split (s)	35.0	104.0	14.0	83.0	22.0	22.0	35.0
Total Split (%)	25.0%	74.3%	10.0%	59.3%	15.7%	15.7%	25.0%
Maximum Green (s)	28.0	97.0	7.0	76.0	15.0	15.0	28.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag			Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	C-Max	None	None	None
Act Effct Green (s)	26.3	108.6	9.0	82.9	103.7	15.8	47.1
Actuated g/C Ratio	0.19	0.78	0.06	0.59	0.74	0.11	0.34
v/c Ratio	0.45	0.50	0.10	0.77	0.05	0.70	0.77
Control Delay	54.4	7.4	63.9	25.5	5.6	78.0	51.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.4	7.4	63.9	25.5	5.6	78.0	51.9
LOS	D	A	E	C	A	E	D
Approach Delay		12.0		25.0		58.5	
Approach LOS		B		C		E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 24.9		Intersection LOS: C	
Intersection Capacity Utilization 70.1%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 106: US 74 & Chamber Drive

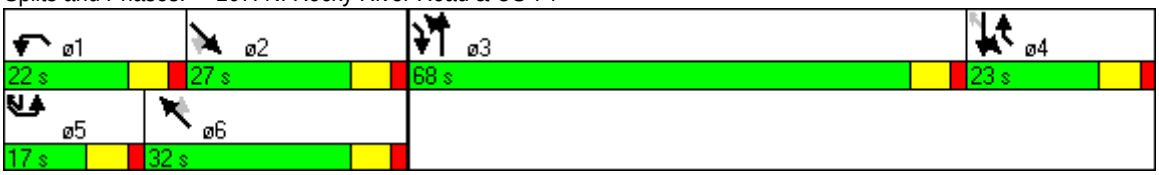


Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	718	121	394	222	105	279	184	544	412	288	693	186
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.957				0.850			0.850			0.850
Flt Protected		0.972			0.967		0.950			0.950		
Satd. Flow (prot)	0	1733	0	0	1801	1583	1719	3438	1538	1719	3438	1538
Flt Permitted		0.972			0.967		0.950			0.950		
Satd. Flow (perm)	0	1733	0	0	1801	1583	1719	3438	1538	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		1176			418			3021			3350	
Travel Time (s)		17.8			6.3			37.5			41.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	798	134	438	247	117	310	204	604	458	320	770	207
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1370	0	0	364	310	204	604	458	320	770	207
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	3	3		4	4	5	5	2	3	1	6	4
Permitted Phases						4			2			6
Detector Phase	3	3		4	4	5	5	2	3	1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	14.0	7.0	7.0	14.0	7.0

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0	14.0	14.0	21.0	14.0	14.0	21.0	14.0
Total Split (s)	68.0	68.0	0.0	23.0	23.0	17.0	17.0	27.0	68.0	22.0	32.0	23.0
Total Split (%)	48.6%	48.6%	0.0%	16.4%	16.4%	12.1%	12.1%	19.3%	48.6%	15.7%	22.9%	16.4%
Maximum Green (s)	61.0	61.0		16.0	16.0	10.0	10.0	20.0	61.0	15.0	25.0	16.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead		Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)		63.0			18.0	35.0	12.0	22.0	90.0	17.0	27.0	45.0
Actuated g/C Ratio		0.45			0.13	0.25	0.09	0.16	0.64	0.12	0.19	0.32
v/c Ratio		1.76			1.57	0.78	1.39	1.12	0.46	1.53	1.16	0.42
Control Delay		372.9			314.5	64.0	255.8	128.1	14.6	301.5	137.5	27.0
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		372.9			314.5	64.0	255.8	128.1	14.6	301.5	137.5	27.0
LOS		F			F	E	F	F	B	F	F	C
Approach Delay		372.9			199.3			107.6			160.3	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.76			
Intersection Signal Delay: 214.8		Intersection LOS: F	
Intersection Capacity Utilization 120.4%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 107: N. Rocky River Road & US 74



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	54	947	33	83	1183	138	29	66	58	173	120	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.984			0.949			0.970	
Flt Protected	0.950			0.950				0.991			0.978	
Satd. Flow (prot)	1719	3421	0	1719	3383	0	0	1752	0	0	1767	0
Flt Permitted	0.950			0.950				0.871			0.727	
Satd. Flow (perm)	1719	3421	0	1719	3383	0	0	1540	0	0	1314	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		2601			2354			277			1205	
Travel Time (s)		39.4			35.7			5.4			18.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	60	1052	37	92	1314	153	32	73	64	192	133	94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	60	1089	0	92	1467	0	0	169	0	0	419	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		
Detector Phase	1	6		5	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		21.0	21.0	
Total Split (s)	14.0	65.0	0.0	20.0	71.0	0.0	55.0	55.0	0.0	55.0	55.0	0.0
Total Split (%)	10.0%	46.4%	0.0%	14.3%	50.7%	0.0%	39.3%	39.3%	0.0%	39.3%	39.3%	0.0%
Maximum Green (s)	7.0	58.0		13.0	64.0		48.0	48.0		48.0	48.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	9.3	63.8		13.5	70.7			47.8			47.8	
Actuated g/C Ratio	0.07	0.46		0.10	0.50			0.34			0.34	
v/c Ratio	0.52	0.70		0.56	0.86			0.32			0.94	
Control Delay	80.0	34.3		73.2	38.1			35.5			73.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	80.0	34.3		73.2	38.1			35.5			73.5	
LOS	F	C		E	D			D			E	
Approach Delay		36.7			40.1			35.5			73.5	
Approach LOS		D			D			D			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 42.9		Intersection LOS: D	
Intersection Capacity Utilization 89.3%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 108: US 74 & Fowler-Secrest Rd

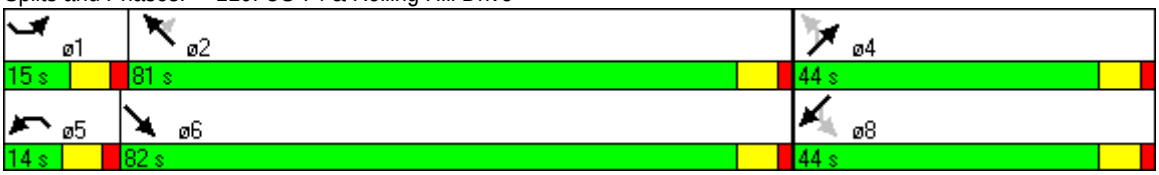
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	47	1043	124	16	1269	7	157	11	16	9	13	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.984				0.850		0.988			0.896	
Flt Protected	0.950			0.950				0.959			0.995	
Satd. Flow (prot)	1719	3383	0	1719	3438	1538	0	1765	0	0	1661	0
Flt Permitted	0.950			0.950				0.626			0.966	
Satd. Flow (perm)	1719	3383	0	1719	3438	1538	0	1152	0	0	1612	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		309			978			474			425	
Travel Time (s)		4.7			14.8			12.9			11.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	52	1159	138	18	1410	8	174	12	18	10	14	82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	52	1297	0	18	1410	8	0	204	0	0	106	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot		Perm	Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases						2	4			8		
Detector Phase	1	6		5	2	2	4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	12.0	7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0		14.0	19.0	19.0	14.0	14.0		14.0	14.0	
Total Split (s)	15.0	82.0	0.0	14.0	81.0	81.0	44.0	44.0	0.0	44.0	44.0	0.0
Total Split (%)	10.7%	58.6%	0.0%	10.0%	57.9%	57.9%	31.4%	31.4%	0.0%	31.4%	31.4%	0.0%
Maximum Green (s)	8.0	75.0		7.0	74.0	74.0	37.0	37.0		37.0	37.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		None	None	
Act Effct Green (s)	10.8	93.8		9.2	86.6	86.6		30.5			30.5	
Actuated g/C Ratio	0.08	0.67		0.07	0.62	0.62		0.22			0.22	
v/c Ratio	0.39	0.57		0.16	0.66	0.01		0.81			0.30	
Control Delay	70.4	16.0		65.2	21.5	14.3		75.5			46.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	
Total Delay	70.4	16.0		65.2	21.5	14.3		75.5			46.3	
LOS	E	B		E	C	B		E			D	
Approach Delay		18.1			22.0			75.5			46.3	
Approach LOS		B			C			E			D	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 24.6 Intersection LOS: C
Intersection Capacity Utilization 64.3% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 110: US 74 & Rolling Hill Drive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	125	10	113	72	10	79	84	861	133	150	1074	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.862			0.934			0.980				0.850
Flt Protected	0.950				0.978		0.950			0.950		
Satd. Flow (prot)	1770	1606	0	0	1702	0	1719	3369	0	1719	3438	1538
Flt Permitted	0.588				0.729		0.950			0.950		
Satd. Flow (perm)	1095	1606	0	0	1268	0	1719	3369	0	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		510			371			748			991	
Travel Time (s)		13.9			10.1			11.3			15.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	139	11	126	80	11	88	93	957	148	167	1193	106
Shared Lane Traffic (%)												
Lane Group Flow (vph)	139	137	0	0	179	0	93	1105	0	167	1193	106
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm			Perm			Prot			Prot		Perm
Protected Phases		3			8		1	6		5	2	
Permitted Phases	3			8								2
Detector Phase	3	3		8	8		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	12.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0		14.0	19.0	19.0
Total Split (s)	40.0	40.0	0.0	40.0	40.0	0.0	21.0	71.0	0.0	29.0	79.0	79.0
Total Split (%)	28.6%	28.6%	0.0%	28.6%	28.6%	0.0%	15.0%	50.7%	0.0%	20.7%	56.4%	56.4%
Maximum Green (s)	33.0	33.0		33.0	33.0		14.0	64.0		22.0	72.0	72.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?								Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	Max		None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	35.0	35.0			35.0		13.9	69.9		20.1	76.1	76.1
Actuated g/C Ratio	0.25	0.25			0.25		0.10	0.50		0.14	0.54	0.54
v/c Ratio	0.51	0.34			0.56		0.55	0.66		0.68	0.64	0.13
Control Delay	52.7	46.0			53.9		71.8	29.1		70.4	24.6	16.7
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	52.7	46.0			53.9		71.8	29.1		70.4	24.6	16.7
LOS	D	D			D		E	C		E	C	B
Approach Delay		49.4			53.9			32.4			29.3	
Approach LOS		D			D			C			C	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 33.7 Intersection LOS: C
Intersection Capacity Utilization 69.9% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 111: Roland Drive & US 74

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	86	931	50	237	1125	96	33	22	129	123	51	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992				0.850		0.872				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3411	0	1719	3438	1538	1805	1624	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3411	0	1719	3438	1538	1805	1624	0	1770	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		822			734			281			279	
Travel Time (s)		12.5			11.1			5.5			7.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	0%	2%	2%	2%	2%	2%
Adj. Flow (vph)	96	1034	56	263	1250	107	37	24	143	137	57	149
Shared Lane Traffic (%)												
Lane Group Flow (vph)	96	1090	0	263	1250	107	37	167	0	137	57	149
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot		pm+ov	Split			Split		pm+ov
Protected Phases	1	6		5	2	8	4	4		8	8	1
Permitted Phases						2						8
Detector Phase	1	6		5	2	8	4	4		8	8	1
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	7.0	7.0	7.0		7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0		14.0	19.0	14.0	14.0	14.0		14.0	14.0	14.0
Total Split (s)	20.0	60.0	0.0	34.0	74.0	21.0	25.0	25.0	0.0	21.0	21.0	20.0
Total Split (%)	14.3%	42.9%	0.0%	24.3%	52.9%	15.0%	17.9%	17.9%	0.0%	15.0%	15.0%	14.3%
Maximum Green (s)	13.0	53.0		27.0	67.0	14.0	18.0	18.0		14.0	14.0	13.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	C-Max		None	C-Max	Max	None	None		Max	Max	Max
Act Effct Green (s)	15.0	57.5		26.5	69.0	86.2	18.8	18.8		17.2	17.2	37.2
Actuated g/C Ratio	0.11	0.41		0.19	0.49	0.62	0.13	0.13		0.12	0.12	0.27
v/c Ratio	0.52	0.78		0.81	0.74	0.11	0.15	0.77		0.63	0.25	0.35
Control Delay	70.0	41.0		73.4	31.6	6.1	54.5	80.8		72.7	59.6	45.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	70.0	41.0		73.4	31.6	6.1	54.5	80.8		72.7	59.6	45.1
LOS	E	D		E	C	A	D	F		E	E	D
Approach Delay		43.4			36.7			76.0			58.5	
Approach LOS		D			D			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 43.7		Intersection LOS: D	
Intersection Capacity Utilization 73.1%		ICU Level of Service D	
Analysis Period (min) 15			

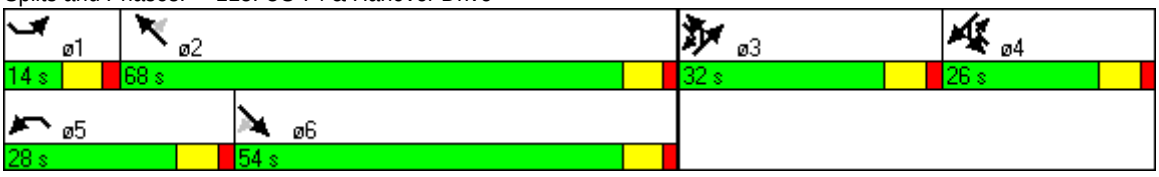
Splits and Phases: 112: US 74 & Williams Road

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	16	1075	110	257	1320	589	101	103	193	467	109	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850			0.850		0.902			0.982	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	1752	1664	0	3400	1811	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	1752	1664	0	3400	1811	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		338			529			376			313	
Travel Time (s)		5.1			8.0			7.3			8.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	18	1194	122	286	1467	654	112	114	214	519	121	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	18	1194	122	286	1467	654	112	328	0	519	138	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Split			Split		
Protected Phases	1	6	3	5	2	4	3	3		4	4	
Permitted Phases			6			2						
Detector Phase	1	6	3	5	2	4	3	3		4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0		14.0	14.0	
Total Split (s)	14.0	54.0	32.0	28.0	68.0	26.0	32.0	32.0	0.0	26.0	26.0	0.0
Total Split (%)	10.0%	38.6%	22.9%	20.0%	48.6%	18.6%	22.9%	22.9%	0.0%	18.6%	18.6%	0.0%
Maximum Green (s)	7.0	47.0	25.0	21.0	61.0	19.0	25.0	25.0		19.0	19.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Act Effct Green (s)	9.0	49.0	81.0	23.0	71.4	95.4	27.0	27.0		21.0	21.0	
Actuated g/C Ratio	0.06	0.35	0.58	0.16	0.51	0.68	0.19	0.19		0.15	0.15	
v/c Ratio	0.16	0.99	0.14	1.01	0.84	0.62	0.33	1.02		1.02	0.51	
Control Delay	65.6	69.3	14.0	114.3	35.7	15.0	52.0	110.8		102.3	62.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	65.6	69.3	14.0	114.3	35.7	15.0	52.0	110.8		102.3	62.0	
LOS	E	E	B	F	D	B	D	F		F	E	
Approach Delay		64.2			39.4			95.8			93.9	
Approach LOS		E			D			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.02			
Intersection Signal Delay: 58.8		Intersection LOS: E	
Intersection Capacity Utilization 91.2%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 113: US 74 & Hanover Drive

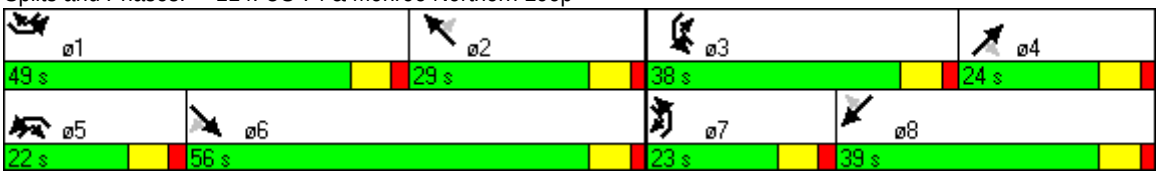


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	745	546	482	227	753	715	394	507	134	676	810	972
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3335	4940	1538	3335	4940	1538	3335	3438	1538	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	4940	1538	3335	4940	1538	3335	3438	1538	3433	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		858			915			405			209	
Travel Time (s)		13.0			13.9			7.9			3.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	2%	2%	2%
Adj. Flow (vph)	828	607	536	252	837	794	438	563	149	751	900	1080
Shared Lane Traffic (%)												
Lane Group Flow (vph)	828	607	536	252	837	794	438	563	149	751	900	1080
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	49.0	56.0	23.0	22.0	29.0	38.0	23.0	24.0	22.0	38.0	39.0	49.0
Total Split (%)	35.0%	40.0%	16.4%	15.7%	20.7%	27.1%	16.4%	17.1%	15.7%	27.1%	27.9%	35.0%
Maximum Green (s)	42.0	49.0	16.0	15.0	22.0	31.0	16.0	17.0	15.0	31.0	32.0	42.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	44.0	51.9	74.9	16.1	24.0	62.0	18.0	19.0	40.1	33.0	34.0	83.0
Actuated g/C Ratio	0.31	0.37	0.54	0.12	0.17	0.44	0.13	0.14	0.29	0.24	0.24	0.59
v/c Ratio	0.79	0.33	0.65	0.65	0.99	1.17	1.02	1.21	0.34	0.93	1.05	1.15
Control Delay	50.3	32.4	28.2	67.8	85.6	126.0	108.0	161.3	41.8	70.7	94.5	108.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.3	32.4	28.2	67.8	85.6	126.0	108.0	161.3	41.8	70.7	94.5	108.8
LOS	D	C	C	E	F	F	F	F	D	E	F	F
Approach Delay		38.8			100.3			125.5			93.6	
Approach LOS		D			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.21			
Intersection Signal Delay: 86.0		Intersection LOS: F	
Intersection Capacity Utilization 98.5%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 114: US 74 & Monroe Northern Loop

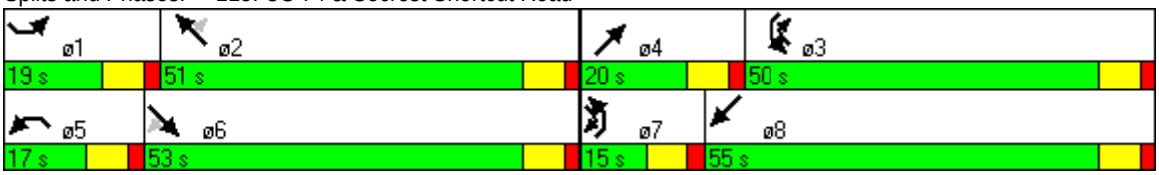


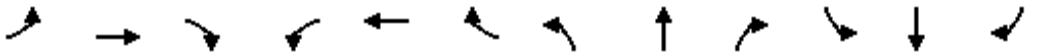
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	151	1136	57	157	1447	479	55	46	119	519	66	209
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.892			0.886	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	3335	4940	1538	1770	1662	0	1770	1650	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	3335	4940	1538	1770	1662	0	1770	1650	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		413			1354			238			233	
Travel Time (s)		6.3			20.5			6.5			4.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	168	1262	63	174	1608	532	61	51	132	577	73	232
Shared Lane Traffic (%)												
Lane Group Flow (vph)	168	1262	63	174	1608	532	61	183	0	577	305	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot			Prot		
Protected Phases	1	6	7	5	2	3	7	4		3	8	
Permitted Phases			6			2						
Detector Phase	1	6	7	5	2	3	7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0		14.0	14.0	
Total Split (s)	19.0	53.0	15.0	17.0	51.0	50.0	15.0	20.0	0.0	50.0	55.0	0.0
Total Split (%)	13.6%	37.9%	10.7%	12.1%	36.4%	35.7%	10.7%	14.3%	0.0%	35.7%	39.3%	0.0%
Maximum Green (s)	12.0	46.0	8.0	10.0	44.0	43.0	8.0	13.0		43.0	48.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Act Effct Green (s)	14.0	48.2	63.0	11.8	46.0	91.0	9.8	15.0		45.0	50.2	
Actuated g/C Ratio	0.10	0.34	0.45	0.08	0.33	0.65	0.07	0.11		0.32	0.36	
v/c Ratio	0.98	0.74	0.09	0.62	0.99	0.53	0.49	1.03		1.01	0.52	
Control Delay	124.8	43.7	22.6	72.0	66.8	8.8	76.7	134.9		88.0	39.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	124.8	43.7	22.6	72.0	66.8	8.8	76.7	134.9		88.0	39.2	
LOS	F	D	C	E	E	A	E	F		F	D	
Approach Delay		52.0			53.9			120.3			71.2	
Approach LOS		D			D			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 120			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.03			
Intersection Signal Delay: 59.7		Intersection LOS: E	
Intersection Capacity Utilization 91.5%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 115: US 74 & Secrest Shortcut Road



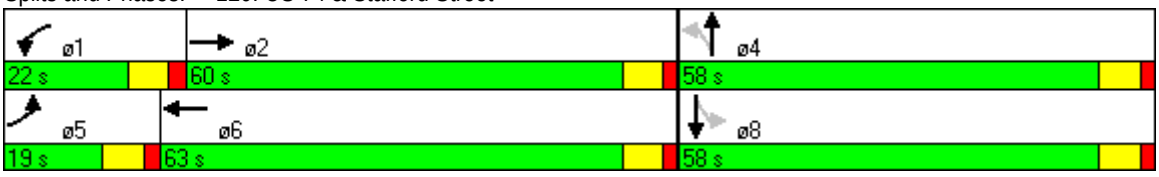


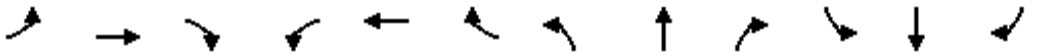
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	185	1693	151	225	2116	138	253	136	303	155	114	260
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.988			0.991			0.896			0.896	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4881	0	1719	4896	0	1770	1669	0	1770	1669	0
Flt Permitted	0.950			0.950			0.312			0.235		
Satd. Flow (perm)	1719	4881	0	1719	4896	0	581	1669	0	438	1669	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		443			590			549			636	
Travel Time (s)		6.7			8.9			15.0			12.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	206	1881	168	250	2351	153	281	151	337	172	127	289
Shared Lane Traffic (%)												
Lane Group Flow (vph)	206	2049	0	250	2504	0	281	488	0	172	416	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	19.0	60.0	0.0	22.0	63.0	0.0	58.0	58.0	0.0	58.0	58.0	0.0
Total Split (%)	13.6%	42.9%	0.0%	15.7%	45.0%	0.0%	41.4%	41.4%	0.0%	41.4%	41.4%	0.0%
Maximum Green (s)	12.0	53.0		15.0	56.0		51.0	51.0		51.0	51.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	14.0	55.0		17.0	58.0		53.0	53.0		53.0	53.0	
Actuated g/C Ratio	0.10	0.39		0.12	0.41		0.38	0.38		0.38	0.38	
v/c Ratio	1.20	1.07		1.20	1.23		1.28	0.77		1.04	0.66	
Control Delay	183.6	82.3		176.2	146.2		191.9	48.0		122.7	42.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	183.6	82.3		176.2	146.2		191.9	48.0		122.7	42.1	
LOS	F	F		F	F		F	D		F	D	
Approach Delay		91.6			148.9			100.6			65.6	
Approach LOS		F			F			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.28			
Intersection Signal Delay: 115.1		Intersection LOS: F	
Intersection Capacity Utilization 106.9%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 120: US 74 & Stafford Street





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	78	1841	159	195	2252	53	117	10	117	107	10	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.988			0.997			0.862			0.857	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4881	0	1719	4925	0	1770	1606	0	1770	1596	0
Flt Permitted	0.950			0.950			0.371			0.561		
Satd. Flow (perm)	1719	4881	0	1719	4925	0	691	1606	0	1045	1596	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			20	
Link Distance (ft)		493			536			238			211	
Travel Time (s)		7.5			8.1			6.5			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	87	2046	177	217	2502	59	130	11	130	119	11	217
Shared Lane Traffic (%)												
Lane Group Flow (vph)	87	2223	0	217	2561	0	130	141	0	119	228	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	15.0	77.0	0.0	27.0	89.0	0.0	36.0	36.0	0.0	36.0	36.0	0.0
Total Split (%)	10.7%	55.0%	0.0%	19.3%	63.6%	0.0%	25.7%	25.7%	0.0%	25.7%	25.7%	0.0%
Maximum Green (s)	8.0	70.0		20.0	82.0		29.0	29.0		29.0	29.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	10.6	75.5		21.3	86.2		28.2	28.2		28.2	28.2	
Actuated g/C Ratio	0.08	0.54		0.15	0.62		0.20	0.20		0.20	0.20	
v/c Ratio	0.67	0.84		0.83	0.84		0.94	0.44		0.57	0.71	
Control Delay	87.4	32.0		82.9	25.5		115.0	52.7		60.8	64.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	87.4	32.0		82.9	25.5		115.0	52.7		60.8	64.4	
LOS	F	C		F	C		F	D		E	E	
Approach Delay		34.1			30.0			82.6			63.2	
Approach LOS		C			C			F			E	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 36.2 Intersection LOS: D
Intersection Capacity Utilization 86.3% ICU Level of Service E
Analysis Period (min) 15

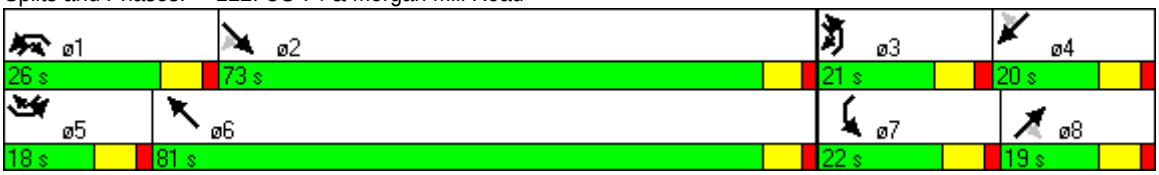
Splits and Phases: 121: US 74 & Boyte Street

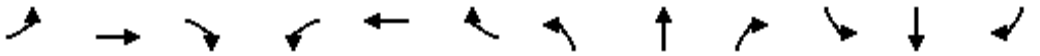
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	125	1756	161	138	2174	117	159	96	110	150	153	197
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.992				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	1719	4900	0	1687	1776	1509	1687	1776	1509
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	1719	4900	0	1687	1776	1509	1687	1776	1509
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		515			499			502			475	
Travel Time (s)		7.8			7.6			9.8			9.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	7%	7%	7%	7%	7%	7%
Adj. Flow (vph)	139	1951	179	153	2416	130	177	107	122	167	170	219
Shared Lane Traffic (%)												
Lane Group Flow (vph)	139	1951	179	153	2546	0	177	107	122	167	170	219
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot			Prot		pm+ov	Prot		pm+ov
Protected Phases	5	2	3	1	6		3	8	1	7	4	5
Permitted Phases			2						8			4
Detector Phase	5	2	3	1	6		3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0		7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0		14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	18.0	73.0	21.0	26.0	81.0	0.0	21.0	19.0	26.0	22.0	20.0	18.0
Total Split (%)	12.9%	52.1%	15.0%	18.6%	57.9%	0.0%	15.0%	13.6%	18.6%	15.7%	14.3%	12.9%
Maximum Green (s)	11.0	66.0	14.0	19.0	74.0		14.0	12.0	19.0	15.0	13.0	11.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max		None	None	None	None	None	None
Act Effct Green (s)	13.0	70.6	91.6	18.4	76.0		16.0	14.3	37.7	16.7	15.0	33.0
Actuated g/C Ratio	0.09	0.50	0.65	0.13	0.54		0.11	0.10	0.27	0.12	0.11	0.24
v/c Ratio	0.87	0.78	0.18	0.68	0.96		0.92	0.59	0.30	0.83	0.89	0.62
Control Delay	105.4	31.7	10.4	72.9	40.6		107.1	74.1	42.4	91.4	103.8	56.4
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	105.4	31.7	10.4	72.9	40.6		107.1	74.1	42.4	91.4	103.8	56.4
LOS	F	C	B	E	D		F	E	D	F	F	E
Approach Delay		34.5			42.5			78.9			81.4	
Approach LOS		C			D			E			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay: 45.6		Intersection LOS: D	
Intersection Capacity Utilization 85.1%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 122: US 74 & Morgan Mill Road



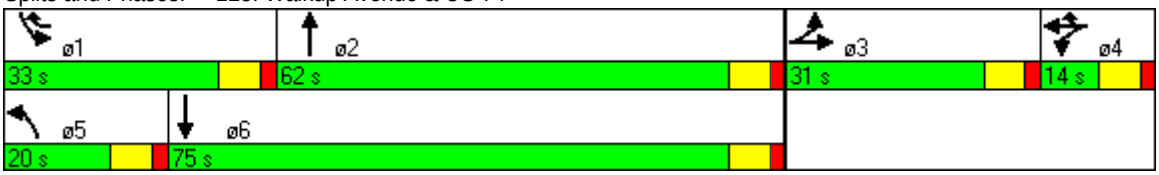


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	89	188	92	31	135	348	91	1983	43	382	1572	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.966				0.850		0.997			0.994	
Flt Protected		0.988		0.950			0.950			0.950		
Satd. Flow (prot)	0	1778	0	1770	1863	1583	1719	4925	0	1719	4910	0
Flt Permitted		0.988		0.950			0.950			0.950		
Satd. Flow (perm)	0	1778	0	1770	1863	1583	1719	4925	0	1719	4910	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		443			502			602			356	
Travel Time (s)		12.1			9.8			9.1			5.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	99	209	102	34	150	387	101	2203	48	424	1747	78
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	410	0	34	150	387	101	2251	0	424	1825	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pt+ov	Prot			Prot		
Protected Phases	3	3		4	4	4 1	5	2		1	6	
Permitted Phases												
Detector Phase	3	3		4	4	4 1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0		14.0	19.0	
Total Split (s)	31.0	31.0	0.0	14.0	14.0	47.0	20.0	62.0	0.0	33.0	75.0	0.0
Total Split (%)	22.1%	22.1%	0.0%	10.0%	10.0%	33.6%	14.3%	44.3%	0.0%	23.6%	53.6%	0.0%
Maximum Green (s)	24.0	24.0		7.0	7.0		13.0	55.0		26.0	68.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lead		Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)		26.0		9.0	9.0	42.0	13.7	57.0		28.0	71.3	
Actuated g/C Ratio		0.19		0.06	0.06	0.30	0.10	0.41		0.20	0.51	
v/c Ratio		1.24		0.30	1.25	0.81	0.60	1.12		1.23	0.73	
Control Delay		178.3		69.7	215.0	60.4	75.3	101.2		173.3	29.3	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		178.3		69.7	215.0	60.4	75.3	101.2		173.3	29.3	
LOS		F		E	F	E	E	F		F	C	
Approach Delay		178.3			101.6			100.1			56.4	
Approach LOS		F			F			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 170			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.25			
Intersection Signal Delay: 88.4		Intersection LOS: F	
Intersection Capacity Utilization 104.6%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 123: Walkup Avenue & US 74

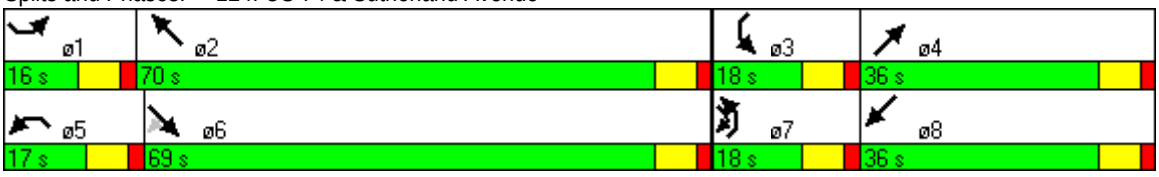


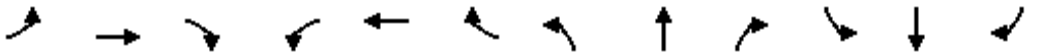
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	118	1444	192	66	1801	209	151	254	42	137	264	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.984			0.979			0.960	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	1719	4861	0	1752	1806	0	1752	1771	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	1719	4861	0	1752	1806	0	1752	1771	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		425			487			426			331	
Travel Time (s)		6.4			7.4			11.6			6.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	131	1604	213	73	2001	232	168	282	47	152	293	107
Shared Lane Traffic (%)												
Lane Group Flow (vph)	131	1604	213	73	2233	0	168	329	0	152	400	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot			Prot			Prot		
Protected Phases	1	6	7	5	2		7	4		3	8	
Permitted Phases			6									
Detector Phase	1	6	7	5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	16.0	69.0	18.0	17.0	70.0	0.0	18.0	36.0	0.0	18.0	36.0	0.0
Total Split (%)	11.4%	49.3%	12.9%	12.1%	50.0%	0.0%	12.9%	25.7%	0.0%	12.9%	25.7%	0.0%
Maximum Green (s)	9.0	62.0	11.0	10.0	63.0		11.0	29.0		11.0	29.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes			Yes			Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max		None	None		None	None	
Act Effct Green (s)	11.0	67.5	85.5	11.3	65.0		13.0	31.0		13.0	31.0	
Actuated g/C Ratio	0.08	0.48	0.61	0.08	0.46		0.09	0.22		0.09	0.22	
v/c Ratio	0.97	0.67	0.23	0.53	0.99		1.03	0.82		0.93	1.02	
Control Delay	133.2	30.4	14.0	75.7	53.7		139.4	69.5		117.0	103.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	133.2	30.4	14.0	75.7	53.7		139.4	69.5		117.0	103.8	
LOS	F	C	B	E	D		F	E		F	F	
Approach Delay		35.5			54.4			93.1			107.4	
Approach LOS		D			D			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 120			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.03			
Intersection Signal Delay: 56.6		Intersection LOS: E	
Intersection Capacity Utilization 90.8%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 124: US 74 & Sutherland Avenue





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	34	26	20	48	115	61	1885	32	151	1530	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.935			0.894				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1742	0	1770	1665	0	1719	4940	1538	1719	4940	1538
Flt Permitted	0.399			0.713			0.950			0.950		
Satd. Flow (perm)	743	1742	0	1328	1665	0	1719	4940	1538	1719	4940	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		163			218			356			257	
Travel Time (s)		5.6			4.2			5.4			3.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	4	38	29	22	53	128	68	2094	36	168	1700	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	67	0	22	181	0	68	2094	36	168	1700	4
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm			Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	12.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	19.0
Total Split (s)	31.0	31.0	0.0	31.0	31.0	0.0	17.0	80.0	80.0	29.0	92.0	92.0
Total Split (%)	22.1%	22.1%	0.0%	22.1%	22.1%	0.0%	12.1%	57.1%	57.1%	20.7%	65.7%	65.7%
Maximum Green (s)	24.0	24.0		24.0	24.0		10.0	73.0	73.0	22.0	85.0	85.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	21.7	21.7		21.7	21.7		11.5	83.2	83.2	20.2	94.6	94.6
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.08	0.59	0.59	0.14	0.68	0.68
v/c Ratio	0.03	0.25		0.11	0.70		0.48	0.71	0.04	0.68	0.51	0.00
Control Delay	48.2	53.0		50.0	70.5		72.8	23.0	14.4	70.4	13.1	10.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.2	53.0		50.0	70.5		72.8	23.0	14.4	70.4	13.1	10.0
LOS	D	D		D	E		E	C	B	E	B	A
Approach Delay		52.7			68.3			24.4			18.2	
Approach LOS		D			E			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 24.2		Intersection LOS: C	
Intersection Capacity Utilization 66.9%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 125: Dove Street & US 74

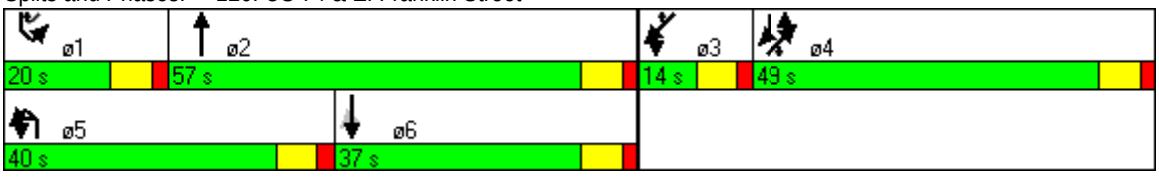
Lane Group	NBU	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT
Lane Configurations												
Volume (vph)	19	983	1511	127	128	1153	255	355	83	1045	129	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.86	0.97	0.86	0.86	1.00	0.91	1.00	1.00	1.00	0.88	1.00	1.00
Frt			0.988				0.850			0.850		
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	3335	6150	0	1719	4940	1538	1752	1845	2760	1752	1845
Flt Permitted		0.950			0.950			0.950			0.950	
Satd. Flow (perm)	0	3335	6150	0	1719	4940	1538	1752	1845	2760	1752	1845
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			45			35			20
Link Distance (ft)			341			436			391			335
Travel Time (s)			5.2			6.6			7.6			11.4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%
Adj. Flow (vph)	21	1092	1679	141	142	1281	283	394	92	1161	143	89
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1113	1820	0	142	1281	283	394	92	1161	143	89
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			24			24			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1	1	2		1	2	1	1	2	1	1	2
Detector Template	Left	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru
Leading Detector (ft)	20	20	100		20	100	20	20	100	20	20	100
Trailing Detector (ft)	0	0	0		0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0		0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	6		20	6	20	20	6	20	20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94			94			94			94
Detector 2 Size(ft)			6			6			6			6
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			0.0
Turn Type	Prot	Prot			Prot		pm+ov	Split		Prot	Split	
Protected Phases	5	5	2		1	6	4	4	4	4	3	3
Permitted Phases							6					
Detector Phase	5	5	2		1	6	4	4	4	4	3	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	12.0		7.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SWR
Lane Configurations	
Volume (vph)	171
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1568
Flt Permitted	
Satd. Flow (perm)	1568
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	3%
Adj. Flow (vph)	190
Shared Lane Traffic (%)	
Lane Group Flow (vph)	190
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	pt+ov
Protected Phases	3 1
Permitted Phases	
Detector Phase	3 1
Switch Phase	
Minimum Initial (s)	

Lane Group	NBU	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT
Minimum Split (s)	14.0	14.0	19.0		14.0	19.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	40.0	40.0	57.0	0.0	20.0	37.0	49.0	49.0	49.0	49.0	14.0	14.0
Total Split (%)	28.6%	28.6%	40.7%	0.0%	14.3%	26.4%	35.0%	35.0%	35.0%	35.0%	10.0%	10.0%
Maximum Green (s)	33.0	33.0	50.0		13.0	30.0	42.0	42.0	42.0	42.0	7.0	7.0
Yellow Time (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag		Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max		None	C-Max	None	None	None	None	None	None
Act Effct Green (s)		35.0	52.3		14.7	32.0	76.0	44.0	44.0	44.0	9.0	9.0
Actuated g/C Ratio		0.25	0.37		0.10	0.23	0.54	0.31	0.31	0.31	0.06	0.06
v/c Ratio		1.33	0.79		0.79	1.13	0.34	0.72	0.16	1.34	1.27	0.75
Control Delay		199.5	42.2		90.0	120.0	11.7	51.0	35.6	198.5	222.6	98.8
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		199.5	42.2		90.0	120.0	11.7	51.0	35.6	198.5	222.6	98.8
LOS		F	D		F	F	B	D	D	F	F	F
Approach Delay			101.9			99.5			154.1			117.4
Approach LOS			F			F			F			F

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 160			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.34			
Intersection Signal Delay: 115.1		Intersection LOS: F	
Intersection Capacity Utilization 111.2%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 126: US 74 & E. Franklin Street



Lane Group	SWR
Minimum Split (s)	
Total Split (s)	34.0
Total Split (%)	24.3%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Act Effct Green (s)	23.7
Actuated g/C Ratio	0.17
v/c Ratio	0.72
Control Delay	47.0
Queue Delay	0.0
Total Delay	47.0
LOS	D
Approach Delay	
Approach LOS	

Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	10	0	1184	928	228	1370	25	1537	0	335	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.91	0.91	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.997			0.945			
Flt Protected	0.950				0.950			0.950	0.969			
Satd. Flow (prot)	1719	0	4940	1538	1736	4973	0	1504	1450	0	0	0
Flt Permitted	0.950				0.950			0.950	0.969			
Satd. Flow (perm)	1719	0	4940	1538	1736	4973	0	1504	1450	0	0	0
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			55			45			25
Link Distance (ft)			239			375			459			142
Travel Time (s)			3.6			4.6			7.0			3.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	4%	4%	4%	14%	14%	14%	2%	2%
Adj. Flow (vph)	11	0	1316	1031	253	1522	28	1708	0	372	0	0
Shared Lane Traffic (%)								38%				
Lane Group Flow (vph)	11	0	1316	1031	253	1550	0	1059	1021	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			12			12			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1		2	1	1	2		1	2			
Detector Template	Left		Thru	Right	Left	Thru		Left	Thru			
Leading Detector (ft)	20		100	20	20	100		20	100			
Trailing Detector (ft)	0		0	0	0	0		0	0			
Detector 1 Position(ft)	0		0	0	0	0		0	0			
Detector 1 Size(ft)	20		6	20	20	6		20	6			
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 2 Position(ft)			94			94			94			
Detector 2 Size(ft)			6			6			6			
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			
Turn Type	Prot			pm+ov	Prot			Split				
Protected Phases	5		2	8	1	6		8	8			
Permitted Phases				2								
Detector Phase	5		2	8	1	6		8	8			
Switch Phase												
Minimum Initial (s)	7.0		12.0	12.0	7.0	14.0		12.0	12.0			

Lane Group	SBR
Lane Configurations	
Volume (vph)	35
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.865
Flt Protected	
Satd. Flow (prot)	1611
Flt Permitted	
Satd. Flow (perm)	1611
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	2%
Adj. Flow (vph)	39
Shared Lane Traffic (%)	
Lane Group Flow (vph)	39
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Detector Phase	
Switch Phase	
Minimum Initial (s)	

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Minimum Split (s)	14.0		19.0	19.0	14.0	21.0		19.0	19.0			
Total Split (s)	14.0	0.0	37.0	81.0	22.0	45.0	0.0	81.0	81.0	0.0	0.0	0.0
Total Split (%)	10.0%	0.0%	26.4%	57.9%	15.7%	32.1%	0.0%	57.9%	57.9%	0.0%	0.0%	0.0%
Maximum Green (s)	7.0		30.0	74.0	15.0	38.0		74.0	74.0			
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0		5.0	5.0			
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0		2.0	2.0			
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	2.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	2.0	2.0
Lead/Lag	Lead		Lag		Lead	Lag						
Lead-Lag Optimize?			Yes			Yes						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0		3.0	3.0			
Recall Mode	None		C-Max	None	None	C-Max		None	None			
Act Effct Green (s)	9.0		32.0	113.0	17.0	48.4		76.0	76.0			
Actuated g/C Ratio	0.06		0.23	0.81	0.12	0.35		0.54	0.54			
v/c Ratio	0.10		1.17	0.83	1.20	0.90		1.30	1.30			
Control Delay	63.9		131.4	15.6	176.9	51.8		172.6	172.7			
Queue Delay	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Total Delay	63.9		131.4	15.6	176.9	51.8		172.6	172.7			
LOS	E		F	B	F	D		F	F			
Approach Delay			80.4			69.4			172.7			
Approach LOS			F			E			F			

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 170
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.30
Intersection Signal Delay: 107.3 Intersection LOS: F
Intersection Capacity Utilization 100.8% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 127: US 74 & Metro Medical Center

Lane Group	SBR
Minimum Split (s)	
Total Split (s)	0.0
Total Split (%)	0.0%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	2.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Act Effct Green (s)	140.0
Actuated g/C Ratio	1.00
v/c Ratio	0.02
Control Delay	0.0
Queue Delay	0.0
Total Delay	0.0
LOS	A
Approach Delay	
Approach LOS	

Intersection Summary

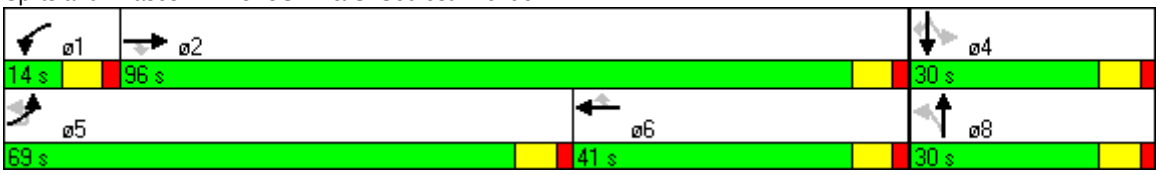
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	19	301	1133	36	9	1423	250	47	238	9	108	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850			0.850		0.996			
Flt Protected		0.950			0.950				0.992			0.975
Satd. Flow (prot)	0	1736	3471	1553	1736	3471	1553	0	1840	0	0	1816
Flt Permitted		0.062			0.950				0.511			0.336
Satd. Flow (perm)	0	113	3471	1553	1736	3471	1553	0	948	0	0	626
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			55			55			35			35
Link Distance (ft)			411			374			242			283
Travel Time (s)			5.1			4.6			4.7			5.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%
Adj. Flow (vph)	21	334	1259	40	10	1581	278	52	264	10	120	110
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	355	1259	40	10	1581	278	0	326	0	0	230
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			12			12			0			0
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1	1	2	1	1	2	1	1	2		1	2
Detector Template	Left	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru
Leading Detector (ft)	20	20	100	20	20	100	20	20	100		20	100
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0		0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0		0	0
Detector 1 Size(ft)	20	20	6	20	20	6	20	20	6		20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)			94			94			94			94
Detector 2 Size(ft)			6			6			6			6
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			0.0
Turn Type	custom	Prot		Perm	Prot		Perm	Perm			Perm	
Protected Phases		5	2		1	6			8			4
Permitted Phases	5			2			6	8			4	
Detector Phase	5	5	2	2	1	6	6	8	8		4	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	14.0	14.0	7.0	14.0	14.0	7.0	7.0		7.0	7.0

Lane Group	SBR
Lane Configurations	
Volume (vph)	164
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	2%
Adj. Flow (vph)	182
Shared Lane Traffic (%)	
Lane Group Flow (vph)	182
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Detector Phase	4
Switch Phase	
Minimum Initial (s)	7.0

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Minimum Split (s)	14.0	14.0	21.0	21.0	14.0	21.0	21.0	14.0	14.0		14.0	14.0
Total Split (s)	69.0	69.0	96.0	96.0	14.0	41.0	41.0	30.0	30.0	0.0	30.0	30.0
Total Split (%)	49.3%	49.3%	68.6%	68.6%	10.0%	29.3%	29.3%	21.4%	21.4%	0.0%	21.4%	21.4%
Maximum Green (s)	62.0	62.0	89.0	89.0	7.0	34.0	34.0	23.0	23.0		23.0	23.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Time Before Reduce (s)	0.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0	0.0		0.0	0.0
Time To Reduce (s)	0.0	0.0	50.0	50.0	0.0	50.0	50.0	0.0	0.0		0.0	0.0
Recall Mode	None	None	C-Min	C-Min	None	C-Min	C-Min	None	None		None	None
Act Effct Green (s)		64.0	102.2	102.2	9.0	36.0	36.0		25.0			25.0
Actuated g/C Ratio		0.46	0.73	0.73	0.06	0.26	0.26		0.18			0.18
v/c Ratio		6.83	0.50	0.04	0.09	1.77	0.70		1.93			2.05
Control Delay		2670.4	9.4	6.4	63.7	382.6	57.6		469.5			532.2
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0
Total Delay		2670.4	9.4	6.4	63.7	382.6	57.6		469.5			532.2
LOS		F	A	A	E	F	E		F			F
Approach Delay			580.5			332.6			469.5			325.8
Approach LOS			F			F			F			F

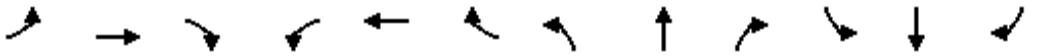
Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 6.83			
Intersection Signal Delay: 438.6		Intersection LOS: F	
Intersection Capacity Utilization 99.6%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 128: US 74 & S. Secrest Avenue



Lane Group	SBR
Minimum Split (s)	14.0
Total Split (s)	30.0
Total Split (%)	21.4%
Maximum Green (s)	23.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Minimum Gap (s)	3.0
Time Before Reduce (s)	0.0
Time To Reduce (s)	0.0
Recall Mode	None
Act Effct Green (s)	25.0
Actuated g/C Ratio	0.18
v/c Ratio	0.64
Control Delay	64.9
Queue Delay	0.0
Total Delay	64.9
LOS	E
Approach Delay	
Approach LOS	

Intersection Summary

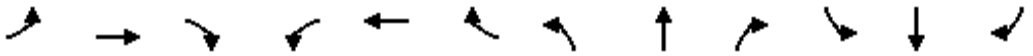


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	110	1192	32	6	1477	101	20	18	3	58	20	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.990			0.991				0.850
Flt Protected	0.950			0.950				0.976			0.964	
Satd. Flow (prot)	1736	3457	0	1736	3436	0	0	1802	0	0	1796	1583
Flt Permitted	0.950			0.950				0.737			0.793	
Satd. Flow (perm)	1736	3457	0	1736	3436	0	0	1360	0	0	1477	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			20			25	
Link Distance (ft)		245			259			179			276	
Travel Time (s)		4.8			5.0			6.1			7.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	122	1324	36	7	1641	112	22	20	3	64	22	88
Shared Lane Traffic (%)												
Lane Group Flow (vph)	122	1360	0	7	1753	0	0	45	0	0	86	88
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		pm+ov
Protected Phases	5	2		1	6			8			4	5
Permitted Phases							8			4		4
Detector Phase	5	2		1	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	17.0		14.0	17.0		14.0	14.0		14.0	14.0	14.0
Total Split (s)	23.0	107.0	0.0	14.0	98.0	0.0	19.0	19.0	0.0	19.0	19.0	23.0
Total Split (%)	16.4%	76.4%	0.0%	10.0%	70.0%	0.0%	13.6%	13.6%	0.0%	13.6%	13.6%	16.4%
Maximum Green (s)	16.0	100.0		7.0	91.0		12.0	12.0		12.0	12.0	16.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None
Act Effct Green (s)	15.9	113.8		9.0	95.7			13.4			13.4	34.3
Actuated g/C Ratio	0.11	0.81		0.06	0.68			0.10			0.10	0.24
v/c Ratio	0.62	0.48		0.06	0.75			0.34			0.61	0.23
Control Delay	72.9	5.3		63.0	17.5			66.2			78.8	42.8
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Delay	72.9	5.3		63.0	17.5			66.2			78.8	42.8
LOS	E	A		E	B			E			E	D
Approach Delay		10.9			17.7			66.3			60.6	
Approach LOS		B			B			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 17.6		Intersection LOS: B	
Intersection Capacity Utilization 71.5%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 129: US 74 & Bivens Street

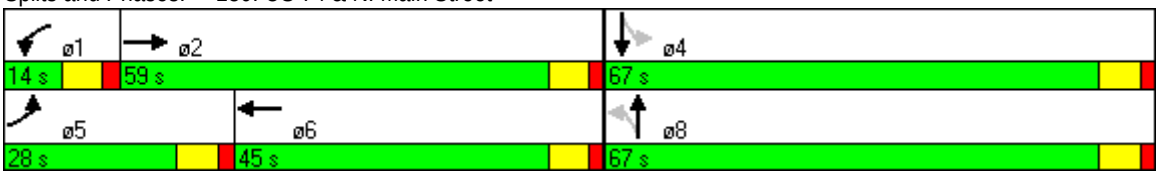


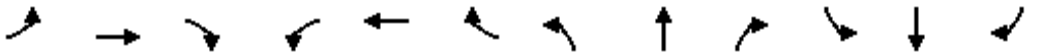
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	377	880	39	56	1122	102	50	358	55	77	271	360
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.994			0.988			0.984			0.914	
Flt Protected	0.950			0.950				0.995		0.950		
Satd. Flow (prot)	1736	3450	0	1736	3429	0	0	1824	0	1770	1703	0
Flt Permitted	0.950			0.950				0.390		0.365		
Satd. Flow (perm)	1736	3450	0	1736	3429	0	0	715	0	680	1703	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		282			333			173			197	
Travel Time (s)		5.5			6.5			3.4			3.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	419	978	43	62	1247	113	56	398	61	86	301	400
Shared Lane Traffic (%)												
Lane Group Flow (vph)	419	1021	0	62	1360	0	0	515	0	86	701	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	17.0		14.0	17.0		14.0	14.0		14.0	14.0	
Total Split (s)	28.0	59.0	0.0	14.0	45.0	0.0	67.0	67.0	0.0	67.0	67.0	0.0
Total Split (%)	20.0%	42.1%	0.0%	10.0%	32.1%	0.0%	47.9%	47.9%	0.0%	47.9%	47.9%	0.0%
Maximum Green (s)	21.0	52.0		7.0	38.0		60.0	60.0		60.0	60.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	None		None	None		None	None	
Act Effct Green (s)	23.0	56.8		9.0	40.0			62.0		62.0	62.0	
Actuated g/C Ratio	0.16	0.41		0.06	0.29			0.44		0.44	0.44	
v/c Ratio	1.47	0.73		0.55	1.39			1.62		0.29	0.93	
Control Delay	269.9	39.7		82.6	218.9			324.1		28.2	57.0	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	269.9	39.7		82.6	218.9			324.1		28.2	57.0	
LOS	F	D		F	F			F		C	E	
Approach Delay		106.6			212.9			324.1			53.8	
Approach LOS		F			F			F			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT, Start of Green			
Natural Cycle: 160			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.62			
Intersection Signal Delay: 159.9		Intersection LOS: F	
Intersection Capacity Utilization 132.4%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 130: US 74 & N. Main Street



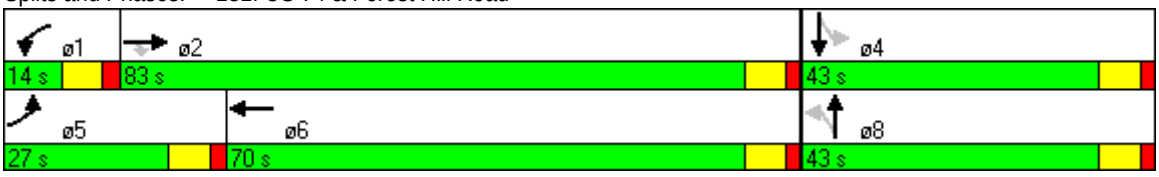


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	114	734	82	18	904	9	87	15	15	9	17	142
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.999			0.982			0.886	
Flt Protected	0.950			0.950				0.964			0.997	
Satd. Flow (prot)	1736	3471	1553	1736	3468	0	0	1681	0	0	1614	0
Flt Permitted	0.950			0.950				0.452			0.982	
Satd. Flow (perm)	1736	3471	1553	1736	3468	0	0	788	0	0	1590	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			35	
Link Distance (ft)		576			646			376			353	
Travel Time (s)		7.1			8.0			4.7			6.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	7%	7%	7%	4%	4%	4%
Adj. Flow (vph)	127	816	91	20	1004	10	97	17	17	10	19	158
Shared Lane Traffic (%)												
Lane Group Flow (vph)	127	816	91	20	1014	0	0	131	0	0	187	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		Perm	Prot			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8			4		
Detector Phase	5	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	14.0	14.0	7.0	14.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	21.0	21.0	14.0	21.0		14.0	14.0		14.0	14.0	
Total Split (s)	27.0	83.0	83.0	14.0	70.0	0.0	43.0	43.0	0.0	43.0	43.0	0.0
Total Split (%)	19.3%	59.3%	59.3%	10.0%	50.0%	0.0%	30.7%	30.7%	0.0%	30.7%	30.7%	0.0%
Maximum Green (s)	20.0	76.0	76.0	7.0	63.0		36.0	36.0		36.0	36.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	
Act Effct Green (s)	17.5	94.5	94.5	9.7	81.0			26.5			26.5	
Actuated g/C Ratio	0.12	0.68	0.68	0.07	0.58			0.19			0.19	
v/c Ratio	0.59	0.35	0.09	0.17	0.51			0.88			0.62	
Control Delay	68.1	12.3	11.2	64.3	20.6			101.3			60.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Delay	68.1	12.3	11.2	64.3	20.6			101.3			60.1	
LOS	E	B	B	E	C			F			E	
Approach Delay		19.1			21.4			101.3			60.1	
Approach LOS		B			C			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 27.8		Intersection LOS: C	
Intersection Capacity Utilization 64.9%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 131: US 74 & Forest Hill Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	459	252	55	35	158	64	97	2936	436	42	2355	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1719	3438	1538	1719	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	1719	3438	1538	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			45			55			55	
Link Distance (ft)		1096			1168			1536			3465	
Travel Time (s)		21.4			17.7			19.0			43.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	510	280	61	39	176	71	108	3262	484	47	2617	48
Shared Lane Traffic (%)												
Lane Group Flow (vph)	510	280	61	39	176	71	108	3262	484	47	2617	48
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	1	6	7	5	2	3
Permitted Phases			4			8			6			2
Detector Phase	7	4	5	3	8	1	1	6	7	5	2	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	14.0	7.0	7.0	14.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0	14.0	14.0	21.0	14.0	14.0	21.0	14.0
Total Split (s)	20.0	20.0	14.0	14.0	14.0	14.0	14.0	92.0	20.0	14.0	92.0	14.0
Total Split (%)	14.3%	14.3%	10.0%	10.0%	10.0%	10.0%	10.0%	65.7%	14.3%	10.0%	65.7%	10.0%
Maximum Green (s)	13.0	13.0	7.0	7.0	7.0	7.0	7.0	85.0	13.0	7.0	85.0	7.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	15.0	17.8	31.8	9.0	9.0	23.0	9.0	89.8	109.8	9.0	87.0	101.0
Actuated g/C Ratio	0.11	0.13	0.23	0.06	0.06	0.16	0.06	0.64	0.78	0.06	0.62	0.72
v/c Ratio	1.39	0.62	0.17	0.18	0.77	0.27	0.97	1.48	0.40	0.42	1.23	0.04
Control Delay	234.3	65.7	47.1	64.1	86.5	54.5	142.6	242.8	6.4	75.2	132.4	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	234.3	65.7	47.1	64.1	86.5	54.5	142.6	242.8	6.4	75.2	132.4	5.7
LOS	F	E	D	E	F	D	F	F	A	E	F	A
Approach Delay		165.4			75.5			210.3			129.1	
Approach LOS		F			E			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.48			
Intersection Signal Delay: 171.8		Intersection LOS: F	
Intersection Capacity Utilization 112.6%		ICU Level of Service H	
Analysis Period (min) 15			

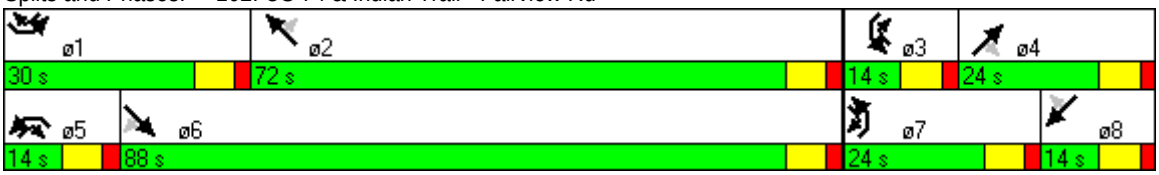
Splits and Phases: 101: Stallings Road & US 74

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	610	2019	424	92	1650	137	439	284	117	91	150	332
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3335	3438	1538	1719	3438	1538	3335	3438	1538	3335	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3438	1538	1719	3438	1538	3335	3438	1538	3335	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			35			35	
Link Distance (ft)		2103			2380			902			1112	
Travel Time (s)		26.1			29.5			17.6			21.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	678	2243	471	102	1833	152	488	316	130	101	167	369
Shared Lane Traffic (%)												
Lane Group Flow (vph)	678	2243	471	102	1833	152	488	316	130	101	167	369
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	7.0	14.0	7.0	7.0	14.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	21.0	14.0	14.0	21.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	30.0	88.0	24.0	14.0	72.0	14.0	24.0	24.0	14.0	14.0	14.0	30.0
Total Split (%)	21.4%	62.9%	17.1%	10.0%	51.4%	10.0%	17.1%	17.1%	10.0%	10.0%	10.0%	21.4%
Maximum Green (s)	23.0	81.0	17.0	7.0	65.0	7.0	17.0	17.0	7.0	7.0	7.0	23.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	25.0	83.0	107.0	9.0	67.0	81.0	19.0	19.0	33.0	9.0	9.0	39.0
Actuated g/C Ratio	0.18	0.59	0.76	0.06	0.48	0.58	0.14	0.14	0.24	0.06	0.06	0.28
v/c Ratio	1.14	1.10	0.40	0.92	1.11	0.17	1.08	0.68	0.36	0.47	0.76	0.86
Control Delay	131.6	81.9	6.8	129.9	95.3	14.4	120.3	65.6	48.1	70.9	85.5	68.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	131.6	81.9	6.8	129.9	95.3	14.4	120.3	65.6	48.1	70.9	85.5	68.4
LOS	F	F	A	F	F	B	F	E	D	E	F	E
Approach Delay		81.4			91.1			91.8			73.3	
Approach LOS		F			F			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 170			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.14			
Intersection Signal Delay: 84.9		Intersection LOS: F	
Intersection Capacity Utilization 98.0%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 102: US 74 & Indian Trail - Fairview Rd

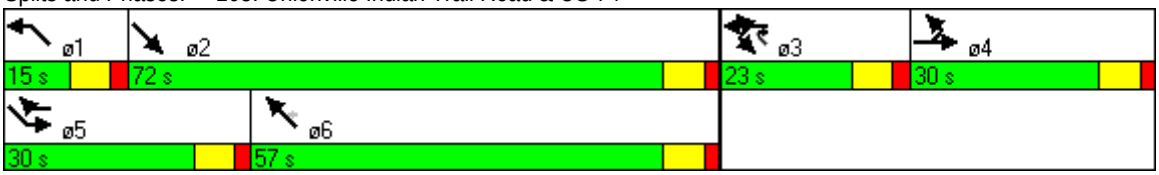


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	56	364	238	322	151	397	682	1626	40	139	1332	453
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Frt		0.946				0.850		0.996				0.850
Flt Protected		0.996		0.950	0.982		0.950			0.950		
Satd. Flow (prot)	0	3302	0	1665	1721	1568	3335	3424	0	1719	3438	1538
Flt Permitted		0.996		0.950	0.982		0.950			0.950		
Satd. Flow (perm)	0	3302	0	1665	1721	1568	3335	3424	0	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			45			55			55	
Link Distance (ft)		795			1304			1032			1062	
Travel Time (s)		15.5			19.8			12.8			13.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	62	404	264	358	168	441	758	1807	44	154	1480	503
Shared Lane Traffic (%)				28%								
Lane Group Flow (vph)	0	730	0	258	268	441	758	1851	0	154	1480	503
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	1	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	1	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pt+ov	Prot			Prot		pm+ov
Protected Phases	4	4		3	3	3 5	5	2		1	6	3
Permitted Phases												6
Detector Phase	4	4		3	3	3 5	5	2		1	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	14.0		7.0	14.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	21.0		14.0	21.0	14.0
Total Split (s)	30.0	30.0	0.0	23.0	23.0	53.0	30.0	72.0	0.0	15.0	57.0	23.0
Total Split (%)	21.4%	21.4%	0.0%	16.4%	16.4%	37.9%	21.4%	51.4%	0.0%	10.7%	40.7%	16.4%
Maximum Green (s)	23.0	23.0		16.0	16.0		23.0	65.0		8.0	50.0	16.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	None
Act Effct Green (s)		25.0		18.0	18.0	43.0	25.0	67.0		10.0	52.0	75.0
Actuated g/C Ratio		0.18		0.13	0.13	0.31	0.18	0.48		0.07	0.37	0.54
v/c Ratio		1.24		1.21	1.21	0.91	1.27	1.13		1.25	1.16	0.61
Control Delay		167.6		178.3	179.8	56.1	180.7	101.2		214.4	120.5	26.4
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay		167.6		178.3	179.8	56.1	180.7	101.2		214.4	120.5	26.4
LOS		F		F	F	E	F	F		F	F	C
Approach Delay		167.6			123.0			124.3			105.1	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 170			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.27			
Intersection Signal Delay: 122.7		Intersection LOS: F	
Intersection Capacity Utilization 105.1%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 103: Unionville Indian Trail Road & US 74

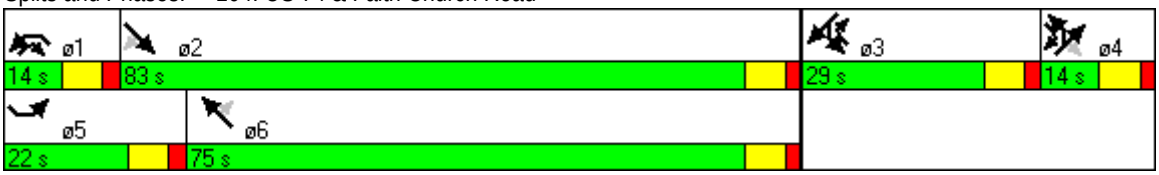


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	199	1990	40	53	1605	201	24	7	39	320	14	256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.858	
Flt Protected	0.950			0.950				0.963		0.950		
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	0	1679	1482	1770	1598	0
Flt Permitted	0.950			0.950				0.963		0.950		
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	0	1679	1482	1770	1598	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			15			35	
Link Distance (ft)		1177			2588			625			368	
Travel Time (s)		14.6			32.1			28.4			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	9%	9%	9%	2%	2%	2%
Adj. Flow (vph)	221	2211	44	59	1783	223	27	8	43	356	16	284
Shared Lane Traffic (%)												
Lane Group Flow (vph)	221	2211	44	59	1783	223	0	35	43	356	300	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Split		pm+ov	Split		
Protected Phases	5	2	4	1	6	3	4	4	1	3	3	
Permitted Phases			2			6			4			
Detector Phase	5	2	4	1	6	3	4	4	1	3	3	
Switch Phase												
Minimum Initial (s)	7.0	14.0	7.0	7.0	14.0	7.0	7.0	7.0	7.0	7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	21.0	14.0	14.0	21.0	14.0	14.0	14.0	14.0	14.0	14.0	
Total Split (s)	22.0	83.0	14.0	14.0	75.0	29.0	14.0	14.0	14.0	29.0	29.0	0.0
Total Split (%)	15.7%	59.3%	10.0%	10.0%	53.6%	20.7%	10.0%	10.0%	10.0%	20.7%	20.7%	0.0%
Maximum Green (s)	15.0	76.0	7.0	7.0	68.0	22.0	7.0	7.0	7.0	22.0	22.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	
Act Effct Green (s)	19.4	83.6	90.8	9.0	70.4	99.4		9.0	20.2	24.0	24.0	
Actuated g/C Ratio	0.14	0.60	0.65	0.06	0.50	0.71		0.06	0.14	0.17	0.17	
v/c Ratio	0.92	1.08	0.04	0.53	1.03	0.20		0.32	0.20	1.17	1.09	
Control Delay	101.4	73.2	5.7	81.2	64.6	7.5		71.1	53.2	157.2	134.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	101.4	73.2	5.7	81.2	64.6	7.5		71.1	53.2	157.2	134.8	
LOS	F	E	A	F	E	A		E	D	F	F	
Approach Delay		74.5			58.9			61.2			147.0	
Approach LOS		E			E			E			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.17			
Intersection Signal Delay: 77.2		Intersection LOS: E	
Intersection Capacity Utilization 97.7%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 104: US 74 & Faith Church Road



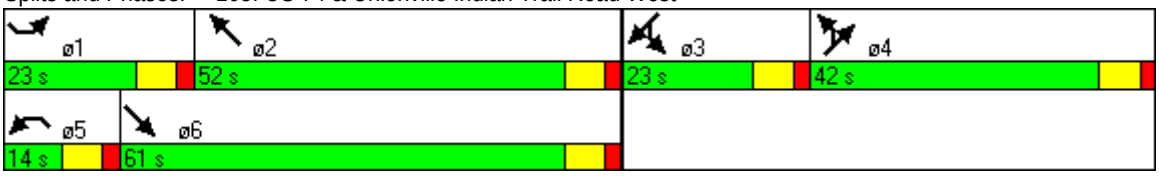
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	315	1256	728	131	932	313	780	218	190	251	121	187
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.945			0.962			0.930			0.909	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3249	0	1719	3307	0	1770	1732	0	1770	1693	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3249	0	1719	3307	0	1770	1732	0	1770	1693	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		606			973			698			813	
Travel Time (s)		7.5			12.1			10.6			12.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	350	1396	809	146	1036	348	867	242	211	279	134	208
Shared Lane Traffic (%)												
Lane Group Flow (vph)	350	2205	0	146	1384	0	867	453	0	279	342	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Split			Split		
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases												
Detector Phase	1	6		5	2		4	4		3	3	
Switch Phase												
Minimum Initial (s)	7.0	14.0		7.0	14.0		7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	21.0		14.0	21.0		14.0	14.0		14.0	14.0	
Total Split (s)	23.0	61.0	0.0	14.0	52.0	0.0	42.0	42.0	0.0	23.0	23.0	0.0
Total Split (%)	16.4%	43.6%	0.0%	10.0%	37.1%	0.0%	30.0%	30.0%	0.0%	16.4%	16.4%	0.0%
Maximum Green (s)	16.0	54.0		7.0	45.0		35.0	35.0		16.0	16.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	18.0	56.0		9.0	47.0		37.0	37.0		18.0	18.0	
Actuated g/C Ratio	0.13	0.40		0.06	0.34		0.26	0.26		0.13	0.13	
v/c Ratio	1.58	1.70		1.32	1.25		1.85	0.99		1.22	1.57	
Control Delay	321.4	345.7		240.3	158.2		421.8	90.5		182.7	315.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	321.4	345.7		240.3	158.2		421.8	90.5		182.7	315.7	
LOS	F	F		F	F		F	F		F	F	
Approach Delay		342.4			166.0			308.1			255.9	
Approach LOS		F			F			F			F	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 180
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.85
Intersection Signal Delay: 281.2 Intersection LOS: F
Intersection Capacity Utilization 143.0% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 105: US 74 & Unionville Indian Trail Road West



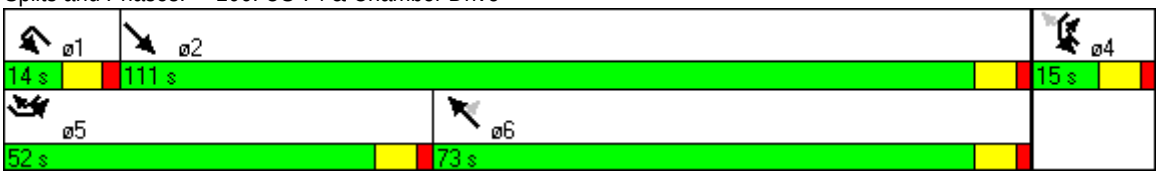
Lane Group	SEL	SET	NWU	NWT	NWR	SWL	SWR
Lane Configurations							
Volume (vph)	371	1405	10	1188	125	52	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Frt					0.850		0.850
Flt Protected	0.950		0.950			0.950	
Satd. Flow (prot)	1719	3438	1719	3438	1538	1770	1583
Flt Permitted	0.950		0.950			0.950	
Satd. Flow (perm)	1719	3438	1719	3438	1538	1770	1583
Right Turn on Red					No		No
Satd. Flow (RTOR)							
Link Speed (mph)		55		55		35	
Link Distance (ft)		2407		1378		1258	
Travel Time (s)		29.8		17.1		24.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	2%	2%
Adj. Flow (vph)	412	1561	11	1320	139	58	144
Shared Lane Traffic (%)							
Lane Group Flow (vph)	412	1561	11	1320	139	58	144
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Left	R NA	Left	Right	Left	Right
Median Width(ft)		12		12		12	
Link Offset(ft)		0		0		0	
Crosswalk Width(ft)		0		0		0	
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9		9	15	9
Number of Detectors	1	2	1	2	1	1	1
Detector Template	Left	Thru	Left	Thru	Right	Left	Right
Leading Detector (ft)	20	100	20	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94		94			
Detector 2 Size(ft)		6		6			
Detector 2 Type		Cl+Ex		Cl+Ex			
Detector 2 Channel							
Detector 2 Extend (s)		0.0		0.0			
Turn Type	Prot		Prot		pm+ov		pm+ov
Protected Phases	5	2	1	6	4	4	5
Permitted Phases					6		4
Detector Phase	5	2	1	6	4	4	5
Switch Phase							
Minimum Initial (s)	7.0	14.0	7.0	14.0	7.0	7.0	7.0

Lane Group	SEL	SET	NWU	NWT	NWR	SWL	SWR
Minimum Split (s)	14.0	21.0	14.0	21.0	14.0	14.0	14.0
Total Split (s)	52.0	111.0	14.0	73.0	15.0	15.0	52.0
Total Split (%)	37.1%	79.3%	10.0%	52.1%	10.7%	10.7%	37.1%
Maximum Green (s)	45.0	104.0	7.0	66.0	8.0	8.0	45.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag			Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	C-Max	None	None	None
Act Effct Green (s)	40.0	114.6	9.0	75.2	90.0	9.8	54.8
Actuated g/C Ratio	0.29	0.82	0.06	0.54	0.64	0.07	0.39
v/c Ratio	0.84	0.55	0.10	0.72	0.14	0.47	0.23
Control Delay	62.1	5.9	63.9	28.3	11.3	75.4	28.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.1	5.9	63.9	28.3	11.3	75.4	28.3
LOS	E	A	E	C	B	E	C
Approach Delay		17.6		26.9		41.8	
Approach LOS		B		C		D	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 22.7 Intersection LOS: C
Intersection Capacity Utilization 71.7% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 106: US 74 & Chamber Drive

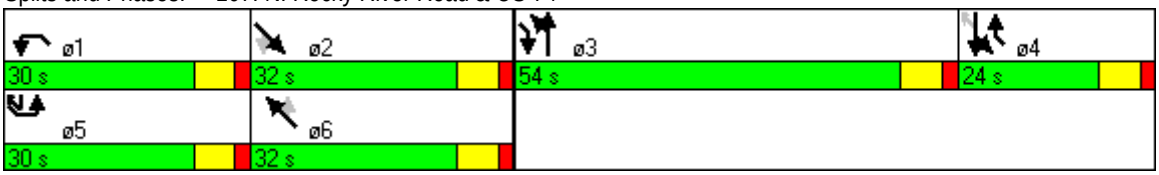


Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	412	105	288	186	121	184	279	693	718	394	544	222
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.952				0.850			0.850			0.850
Flt Protected		0.975			0.971		0.950			0.950		
Satd. Flow (prot)	0	1729	0	0	1809	1583	1719	3438	1538	1719	3438	1538
Flt Permitted		0.975			0.971		0.950			0.950		
Satd. Flow (perm)	0	1729	0	0	1809	1583	1719	3438	1538	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		1176			418			3021			3350	
Travel Time (s)		17.8			6.3			37.5			41.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	458	117	320	207	134	204	310	770	798	438	604	247
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	895	0	0	341	204	310	770	798	438	604	247
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	3	3		4	4	5	5	2	3	1	6	4
Permitted Phases						4			2			6
Detector Phase	3	3		4	4	5	5	2	3	1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	14.0	7.0	7.0	14.0	7.0

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0	14.0	14.0	21.0	14.0	14.0	21.0	14.0
Total Split (s)	54.0	54.0	0.0	24.0	24.0	30.0	30.0	32.0	54.0	30.0	32.0	24.0
Total Split (%)	38.6%	38.6%	0.0%	17.1%	17.1%	21.4%	21.4%	22.9%	38.6%	21.4%	22.9%	17.1%
Maximum Green (s)	47.0	47.0		17.0	17.0	23.0	23.0	25.0	47.0	23.0	25.0	17.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead		Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)		49.0			19.0	49.0	25.0	27.0	81.0	25.0	27.0	46.0
Actuated g/C Ratio		0.35			0.14	0.35	0.18	0.19	0.58	0.18	0.19	0.33
v/c Ratio		1.48			1.39	0.37	1.01	1.16	0.90	1.43	0.91	0.49
Control Delay		258.4			240.4	36.4	110.3	137.5	40.4	250.8	74.2	23.7
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		258.4			240.4	36.4	110.3	137.5	40.4	250.8	74.2	23.7
LOS		F			F	D	F	F	D	F	E	C
Approach Delay		258.4			164.0			91.8			124.5	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 160			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.48			
Intersection Signal Delay: 141.9		Intersection LOS: F	
Intersection Capacity Utilization 120.3%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 107: N. Rocky River Road & US 74

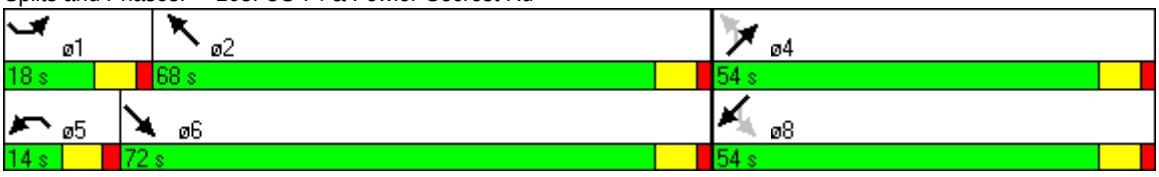


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	85	1183	29	58	947	173	33	120	83	138	66	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.977			0.953			0.972	
Flt Protected	0.950			0.950				0.993			0.974	
Satd. Flow (prot)	1719	3424	0	1719	3359	0	0	1763	0	0	1764	0
Flt Permitted	0.950			0.950				0.916			0.570	
Satd. Flow (perm)	1719	3424	0	1719	3359	0	0	1626	0	0	1032	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		2601			2354			277			1205	
Travel Time (s)		39.4			35.7			5.4			18.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	94	1314	32	64	1052	192	37	133	92	153	73	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	94	1346	0	64	1244	0	0	262	0	0	286	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		
Detector Phase	1	6		5	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	18.0	72.0	0.0	14.0	68.0	0.0	54.0	54.0	0.0	54.0	54.0	0.0
Total Split (%)	12.9%	51.4%	0.0%	10.0%	48.6%	0.0%	38.6%	38.6%	0.0%	38.6%	38.6%	0.0%
Maximum Green (s)	11.0	65.0		7.0	61.0		47.0	47.0		47.0	47.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	12.7	75.2		10.1	69.8			42.5			42.5	
Actuated g/C Ratio	0.09	0.54		0.07	0.50			0.30			0.30	
v/c Ratio	0.60	0.73		0.51	0.74			0.53			0.91	
Control Delay	77.4	30.0		77.7	32.9			43.7			79.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	77.4	30.0		77.7	32.9			43.7			79.4	
LOS	E	C		E	C			D			E	
Approach Delay		33.1			35.1			43.7			79.4	
Approach LOS		C			D			D			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay: 38.7		Intersection LOS: D	
Intersection Capacity Utilization 83.7%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 108: US 74 & Fowler-Secrest Rd



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	74	1269	157	16	1043	9	124	13	15	7	10	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00											
Frt		0.984				0.850		0.986			0.901	
Flt Protected	0.950			0.950				0.961			0.994	
Satd. Flow (prot)	1719	3383	0	1719	3266	1538	0	1765	0	0	1668	0
Flt Permitted	0.950			0.950				0.701			0.965	
Satd. Flow (perm)	1717	3383	0	1719	3266	1538	0	1288	0	0	1620	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		309			978			474			425	
Travel Time (s)		4.7			14.8			12.9			11.6	
Confl. Peds. (#/hr)	1											
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Parking (#/hr)					0							
Adj. Flow (vph)	82	1410	174	18	1159	10	138	14	17	8	11	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	82	1584	0	18	1159	10	0	169	0	0	71	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.07	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot		Perm	Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases						2	4			8		

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector Phase	1	6		5	2	2	4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	12.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	19.0		14.0	19.0	19.0	14.0	14.0		14.0	14.0	
Total Split (s)	18.0	91.0	0.0	14.0	87.0	87.0	35.0	35.0	0.0	35.0	35.0	0.0
Total Split (%)	12.9%	65.0%	0.0%	10.0%	62.1%	62.1%	25.0%	25.0%	0.0%	25.0%	25.0%	0.0%
Maximum Green (s)	11.0	84.0		7.0	80.0	80.0	28.0	28.0		28.0	28.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		None	None	
Act Effct Green (s)	12.5	99.8		9.2	88.1	88.1		24.4			24.4	
Actuated g/C Ratio	0.09	0.71		0.07	0.63	0.63		0.17			0.17	
v/c Ratio	0.53	0.66		0.16	0.56	0.01		0.75			0.25	
Control Delay	73.7	14.7		65.2	17.2	11.9		74.8			50.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	
Total Delay	73.7	14.7		65.2	17.2	11.9		74.8			50.4	
LOS	E	B		E	B	B		E			D	
Approach Delay		17.6			17.9			74.8			50.4	
Approach LOS		B			B			E			D	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 21.6 Intersection LOS: C
Intersection Capacity Utilization 73.5% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 110: US 74 & Rolling Hill Drive

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	133	10	150	95	10	84	79	1074	125	113	861	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.859			0.940			0.984				0.850
Flt Protected	0.950				0.975		0.950			0.950		
Satd. Flow (prot)	1770	1600	0	0	1707	0	1719	3383	0	1719	3438	1538
Flt Permitted	0.590				0.633		0.950			0.950		
Satd. Flow (perm)	1099	1600	0	0	1108	0	1719	3383	0	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		510			371			748			991	
Travel Time (s)		13.9			10.1			11.3			15.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	148	11	167	106	11	93	88	1193	139	126	957	80
Shared Lane Traffic (%)												
Lane Group Flow (vph)	148	178	0	0	210	0	88	1332	0	126	957	80
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm			Perm			Prot			Prot		Perm
Protected Phases		3			8		1	6		5	2	
Permitted Phases	3			8								2
Detector Phase	3	3		8	8		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	12.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0		14.0	19.0	19.0
Total Split (s)	44.0	44.0	0.0	44.0	44.0	0.0	19.0	75.0	0.0	21.0	77.0	77.0
Total Split (%)	31.4%	31.4%	0.0%	31.4%	31.4%	0.0%	13.6%	53.6%	0.0%	15.0%	55.0%	55.0%
Maximum Green (s)	37.0	37.0		37.0	37.0		12.0	68.0		14.0	70.0	70.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?								Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	Max		None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	39.0	39.0			39.0		12.8	71.0		15.0	73.2	73.2
Actuated g/C Ratio	0.28	0.28			0.28		0.09	0.51		0.11	0.52	0.52
v/c Ratio	0.48	0.40			0.68		0.56	0.78		0.68	0.53	0.10
Control Delay	48.5	44.3			57.6		74.5	32.2		79.3	23.7	17.7
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	48.5	44.3			57.6		74.5	32.2		79.3	23.7	17.7
LOS	D	D			E		E	C		E	C	B
Approach Delay		46.2			57.6			34.8			29.3	
Approach LOS		D			E			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay: 35.5		Intersection LOS: D	
Intersection Capacity Utilization 77.3%		ICU Level of Service D	
Analysis Period (min) 15			

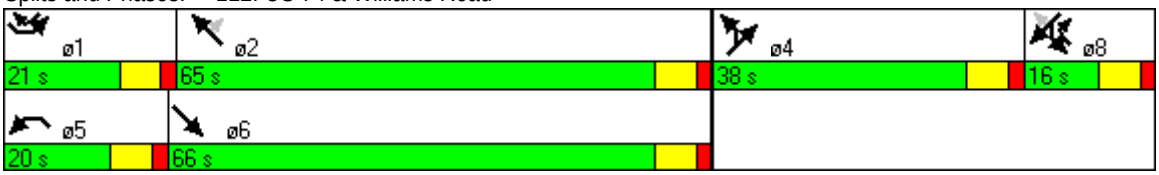
Splits and Phases: 111: Roland Drive & US 74

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	134	1125	33	129	931	123	50	51	237	96	22	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996				0.850		0.877				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3424	0	1719	3438	1538	1770	1634	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3424	0	1719	3438	1538	1770	1634	0	1770	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		822			734			281			279	
Travel Time (s)		12.5			11.1			5.5			7.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	149	1250	37	143	1034	137	56	57	263	107	24	96
Shared Lane Traffic (%)												
Lane Group Flow (vph)	149	1287	0	143	1034	137	56	320	0	107	24	96
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot		pm+ov	Split			Split		pm+ov
Protected Phases	1	6		5	2	8	4	4		8	8	1
Permitted Phases						2						8
Detector Phase	1	6		5	2	8	4	4		8	8	1
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	7.0	7.0	7.0		7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0		14.0	19.0	14.0	14.0	14.0		14.0	14.0	14.0
Total Split (s)	21.0	66.0	0.0	20.0	65.0	16.0	38.0	38.0	0.0	16.0	16.0	21.0
Total Split (%)	15.0%	47.1%	0.0%	14.3%	46.4%	11.4%	27.1%	27.1%	0.0%	11.4%	11.4%	15.0%
Maximum Green (s)	14.0	59.0		13.0	58.0	9.0	31.0	31.0		9.0	9.0	14.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	C-Max		None	C-Max	Max	None	None		Max	Max	Max
Act Effct Green (s)	16.0	61.3		14.7	60.0	72.8	31.2	31.2		12.8	12.8	33.8
Actuated g/C Ratio	0.11	0.44		0.10	0.43	0.52	0.22	0.22		0.09	0.09	0.24
v/c Ratio	0.76	0.86		0.79	0.70	0.17	0.14	0.88		0.66	0.14	0.25
Control Delay	84.3	42.6		90.4	35.9	10.2	43.8	77.0		82.1	62.4	46.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	84.3	42.6		90.4	35.9	10.2	43.8	77.0		82.1	62.4	46.0
LOS	F	D		F	D	B	D	E		F	E	D
Approach Delay		46.9			39.1			72.1			64.7	
Approach LOS		D			D			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 47.9		Intersection LOS: D	
Intersection Capacity Utilization 79.1%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 112: US 74 & Williams Road

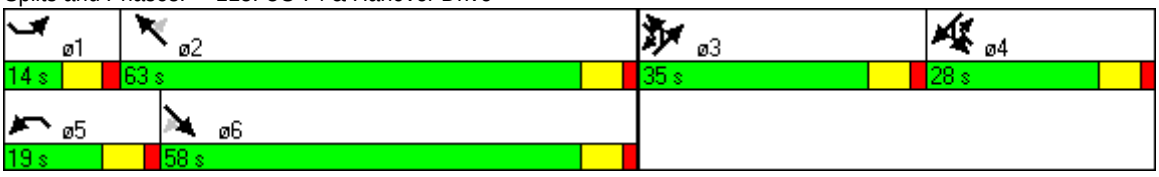


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	15	1320	101	193	1075	467	110	109	257	589	103	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850			0.850		0.895			0.980	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	1752	1651	0	3400	1808	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	1752	1651	0	3400	1808	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		338			529			376			313	
Travel Time (s)		5.1			8.0			7.3			8.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	17	1467	112	214	1194	519	122	121	286	654	114	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	1467	112	214	1194	519	122	407	0	654	132	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Split			Split		
Protected Phases	1	6	3	5	2	4	3	3		4	4	
Permitted Phases			6			2						
Detector Phase	1	6	3	5	2	4	3	3		4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0		14.0	14.0	
Total Split (s)	14.0	58.0	35.0	19.0	63.0	28.0	35.0	35.0	0.0	28.0	28.0	0.0
Total Split (%)	10.0%	41.4%	25.0%	13.6%	45.0%	20.0%	25.0%	25.0%	0.0%	20.0%	20.0%	0.0%
Maximum Green (s)	7.0	51.0	28.0	12.0	56.0	21.0	28.0	28.0		21.0	21.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Act Effct Green (s)	9.0	53.0	88.0	14.0	66.4	92.4	30.0	30.0		23.0	23.0	
Actuated g/C Ratio	0.06	0.38	0.63	0.10	0.47	0.66	0.21	0.21		0.16	0.16	
v/c Ratio	0.15	1.13	0.12	1.24	0.73	0.51	0.33	1.15		1.17	0.44	
Control Delay	65.3	107.6	10.8	199.0	34.2	12.5	49.3	143.3		144.5	58.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	65.3	107.6	10.8	199.0	34.2	12.5	49.3	143.3		144.5	58.2	
LOS	E	F	B	F	C	B	D	F		F	E	
Approach Delay		100.4			46.7			121.6			130.0	
Approach LOS		F			D			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 170			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.24			
Intersection Signal Delay: 86.1		Intersection LOS: F	
Intersection Capacity Utilization 102.2%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 113: US 74 & Hanover Drive

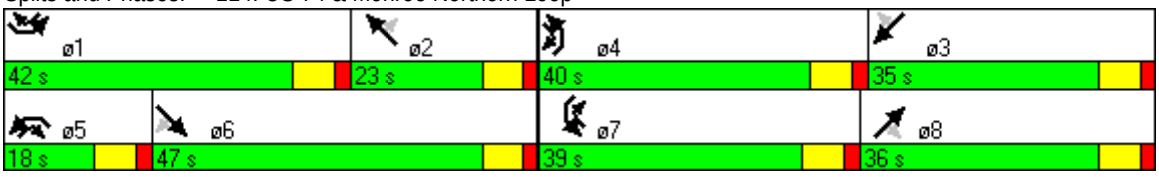


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	972	753	394	134	546	676	482	810	227	715	507	745
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3335	4940	1538	3335	4940	1538	3335	3438	1538	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	4940	1538	3335	4940	1538	3335	3438	1538	3433	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		858			915			405			209	
Travel Time (s)		13.0			13.9			7.9			3.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	2%	2%	2%
Adj. Flow (vph)	1080	837	438	149	607	751	536	900	252	794	563	828
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1080	837	438	149	607	751	536	900	252	794	563	828
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	1	6	4	5	2	7	4	8	5	7	3	1
Permitted Phases			6			2			8			3
Detector Phase	1	6	4	5	2	7	4	8	5	7	3	1
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	42.0	47.0	40.0	18.0	23.0	39.0	40.0	36.0	18.0	39.0	35.0	42.0
Total Split (%)	30.0%	33.6%	28.6%	12.9%	16.4%	27.9%	28.6%	25.7%	12.9%	27.9%	25.0%	30.0%
Maximum Green (s)	35.0	40.0	33.0	11.0	16.0	32.0	33.0	29.0	11.0	32.0	28.0	35.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	37.0	42.7	77.8	12.3	18.0	57.0	30.1	31.0	48.3	34.0	34.9	76.9
Actuated g/C Ratio	0.26	0.30	0.56	0.09	0.13	0.41	0.22	0.22	0.34	0.24	0.25	0.55
v/c Ratio	1.23	0.56	0.51	0.51	0.96	1.20	0.75	1.18	0.47	0.95	0.64	0.95
Control Delay	155.0	42.6	21.4	67.1	86.6	141.8	57.9	142.1	39.4	73.6	51.7	52.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	155.0	42.6	21.4	67.1	86.6	141.8	57.9	142.1	39.4	73.6	51.7	52.0
LOS	F	D	C	E	F	F	E	F	D	E	D	D
Approach Delay		90.2			112.2			100.0			59.8	
Approach LOS		F			F			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.23			
Intersection Signal Delay: 88.0		Intersection LOS: F	
Intersection Capacity Utilization 104.5%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 114: US 74 & Monroe Northern Loop



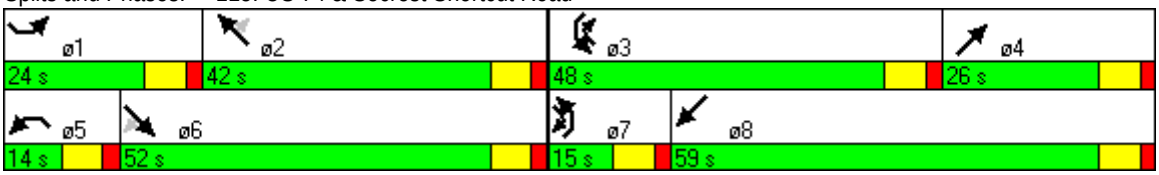
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	209	1447	55	119	1136	519	57	66	157	479	46	151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.894			0.885	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	3335	4940	1538	1770	1665	0	1770	1649	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	3335	4940	1538	1770	1665	0	1770	1649	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		413			1354			238			233	
Travel Time (s)		6.3			20.5			6.5			4.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	232	1608	61	132	1262	577	63	73	174	532	51	168
Shared Lane Traffic (%)												
Lane Group Flow (vph)	232	1608	61	132	1262	577	63	247	0	532	219	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot			Prot		
Protected Phases	1	6	7	5	2	3	7	4		3	8	
Permitted Phases			6			2						
Detector Phase	1	6	7	5	2	3	7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	

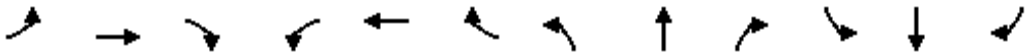
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0		14.0	14.0	
Total Split (s)	24.0	52.0	15.0	14.0	42.0	48.0	15.0	26.0	0.0	48.0	59.0	0.0
Total Split (%)	17.1%	37.1%	10.7%	10.0%	30.0%	34.3%	10.7%	18.6%	0.0%	34.3%	42.1%	0.0%
Maximum Green (s)	17.0	45.0	8.0	7.0	35.0	41.0	8.0	19.0		41.0	52.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Act Effct Green (s)	19.0	47.0	61.8	9.0	37.0	85.0	9.8	21.0		43.0	54.2	
Actuated g/C Ratio	0.14	0.34	0.44	0.06	0.26	0.61	0.07	0.15		0.31	0.39	
v/c Ratio	1.00	0.97	0.09	0.62	0.97	0.62	0.51	0.99		0.98	0.34	
Control Delay	117.6	61.7	23.2	76.8	68.8	20.9	77.6	112.7		81.4	32.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	117.6	61.7	23.2	76.8	68.8	20.9	77.6	112.7		81.4	32.3	
LOS	F	E	C	E	E	C	E	F		F	C	
Approach Delay		67.3			55.3			105.6			67.1	
Approach LOS		E			E			F			E	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.00
Intersection Signal Delay: 64.9 Intersection LOS: E
Intersection Capacity Utilization 90.1% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 115: US 74 & Secrest Shortcut Road



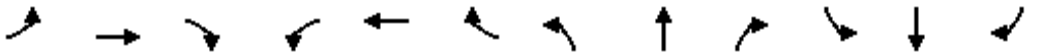


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	260	2116	253	303	1693	155	151	114	225	138	136	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00											
Frt		0.984			0.987			0.901			0.913	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4861	0	1719	4876	0	1770	1678	0	1770	1701	0
Flt Permitted	0.950			0.950			0.267			0.238		
Satd. Flow (perm)	1719	4861	0	1719	4876	0	497	1678	0	443	1701	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		443			590			549			636	
Travel Time (s)		6.7			8.9			15.0			12.4	
Confl. Peds. (#/hr)	1											
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	289	2351	281	337	1881	172	168	127	250	153	151	206
Shared Lane Traffic (%)												
Lane Group Flow (vph)	289	2632	0	337	2053	0	168	377	0	153	357	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Detector Phase	5	2		1	6		4	4		8	8	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	28.0	69.0	0.0	27.0	68.0	0.0	44.0	44.0	0.0	44.0	44.0	0.0
Total Split (%)	20.0%	49.3%	0.0%	19.3%	48.6%	0.0%	31.4%	31.4%	0.0%	31.4%	31.4%	0.0%
Maximum Green (s)	21.0	62.0		20.0	61.0		37.0	37.0		37.0	37.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	23.0	64.0		22.0	63.0		39.0	39.0		39.0	39.0	
Actuated g/C Ratio	0.16	0.46		0.16	0.45		0.28	0.28		0.28	0.28	
v/c Ratio	1.02	1.18		1.25	0.94		1.22	0.81		1.24	0.75	
Control Delay	116.6	122.9		185.9	45.9		189.3	61.6		202.7	57.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	116.6	122.9		185.9	45.9		189.3	61.6		202.7	57.5	
LOS	F	F		F	D		F	E		F	E	
Approach Delay		122.3			65.6			101.0			101.1	
Approach LOS		F			E			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 140			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.25			
Intersection Signal Delay: 97.5		Intersection LOS: F	
Intersection Capacity Utilization 107.4%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 120: US 74 & Stafford Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	195	2252	117	117	1841	107	159	10	195	53	10	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993			0.992			0.857			0.867	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4905	0	1719	4900	0	1770	1596	0	1770	1615	0
Flt Permitted	0.950			0.950			0.648			0.327		
Satd. Flow (perm)	1719	4905	0	1719	4900	0	1207	1596	0	609	1615	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			20	
Link Distance (ft)		493			536			238			211	
Travel Time (s)		7.5			8.1			6.5			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	217	2502	130	130	2046	119	177	11	217	59	11	87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	217	2632	0	130	2165	0	177	228	0	59	98	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	27.0	89.0	0.0	19.0	81.0	0.0	32.0	32.0	0.0	32.0	32.0	0.0
Total Split (%)	19.3%	63.6%	0.0%	13.6%	57.9%	0.0%	22.9%	22.9%	0.0%	22.9%	22.9%	0.0%
Maximum Green (s)	20.0	82.0		12.0	74.0		25.0	25.0		25.0	25.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	21.3	86.0		14.1	78.8		24.9	24.9		24.9	24.9	
Actuated g/C Ratio	0.15	0.61		0.10	0.56		0.18	0.18		0.18	0.18	
v/c Ratio	0.83	0.87		0.75	0.78		0.82	0.80		0.55	0.34	
Control Delay	82.9	27.3		86.5	27.2		84.1	76.1		71.4	53.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	82.9	27.3		86.5	27.2		84.1	76.1		71.4	53.2	
LOS	F	C		F	C		F	E		E	D	
Approach Delay		31.5			30.5			79.6			60.1	
Approach LOS		C			C			E			E	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 35.3 Intersection LOS: D
Intersection Capacity Utilization 87.7% ICU Level of Service E
Analysis Period (min) 15

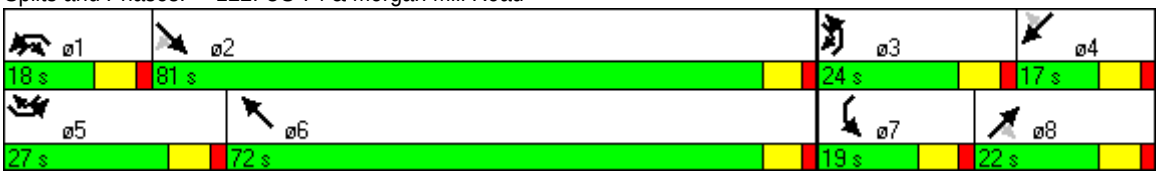
Splits and Phases: 121: US 74 & Boyte Street

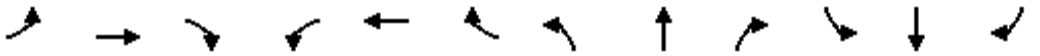
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	197	2174	159	110	1756	150	161	153	138	117	96	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.988				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	1719	4881	0	1687	1776	1509	1687	1776	1509
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	1719	4881	0	1687	1776	1509	1687	1776	1509
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		515			499			502			475	
Travel Time (s)		7.8			7.6			9.8			9.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	7%	7%	7%	7%	7%	7%
Adj. Flow (vph)	219	2416	177	122	1951	167	179	170	153	130	107	139
Shared Lane Traffic (%)												
Lane Group Flow (vph)	219	2416	177	122	2118	0	179	170	153	130	107	139
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot			Prot		pm+ov	Prot		pm+ov
Protected Phases	5	2	3	1	6		3	8	1	7	4	5
Permitted Phases			2						8			4
Detector Phase	5	2	3	1	6		3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0		7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0		14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	27.0	81.0	24.0	18.0	72.0	0.0	24.0	22.0	18.0	19.0	17.0	27.0
Total Split (%)	19.3%	57.9%	17.1%	12.9%	51.4%	0.0%	17.1%	15.7%	12.9%	13.6%	12.1%	19.3%
Maximum Green (s)	20.0	74.0	17.0	11.0	65.0		17.0	15.0	11.0	12.0	10.0	20.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max		None	None	None	None	None	None
Act Effct Green (s)	21.2	76.9	100.2	12.8	68.5		18.3	16.6	34.4	13.7	12.0	38.2
Actuated g/C Ratio	0.15	0.55	0.72	0.09	0.49		0.13	0.12	0.25	0.10	0.09	0.27
v/c Ratio	0.84	0.89	0.16	0.77	0.89		0.81	0.81	0.41	0.78	0.70	0.34
Control Delay	84.3	33.3	6.8	92.3	38.3		85.7	87.6	48.1	91.8	86.7	43.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.3	33.3	6.8	92.3	38.3		85.7	87.6	48.1	91.8	86.7	43.2
LOS	F	C	A	F	D		F	F	D	F	F	D
Approach Delay		35.6			41.3			74.9			72.4	
Approach LOS		D			D			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 43.4		Intersection LOS: D	
Intersection Capacity Utilization 79.6%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 122: US 74 & Morgan Mill Road



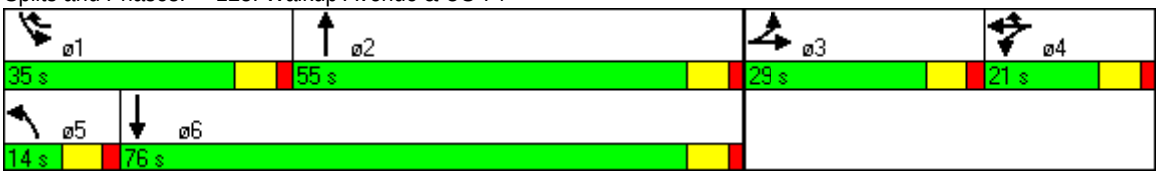


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	70	135	91	43	188	382	92	1572	31	348	1983	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.959				0.850		0.997			0.994	
Flt Protected		0.988		0.950			0.950			0.950		
Satd. Flow (prot)	0	1765	0	1770	1863	1583	1719	4925	0	1719	4910	0
Flt Permitted		0.988		0.950			0.950			0.950		
Satd. Flow (perm)	0	1765	0	1770	1863	1583	1719	4925	0	1719	4910	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		443			502			602			356	
Travel Time (s)		12.1			9.8			9.1			5.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	78	150	101	48	209	424	102	1747	34	387	2203	99
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	329	0	48	209	424	102	1781	0	387	2302	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pt+ov	Prot			Prot		
Protected Phases	3	3		4	4	4 1	5	2		1	6	
Permitted Phases												
Detector Phase	3	3		4	4	4 1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0		14.0	19.0	
Total Split (s)	29.0	29.0	0.0	21.0	21.0	56.0	14.0	55.0	0.0	35.0	76.0	0.0
Total Split (%)	20.7%	20.7%	0.0%	15.0%	15.0%	40.0%	10.0%	39.3%	0.0%	25.0%	54.3%	0.0%
Maximum Green (s)	22.0	22.0		14.0	14.0		7.0	48.0		28.0	69.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lead		Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)		24.0		16.0	16.0	51.0	9.0	50.0		30.0	71.0	
Actuated g/C Ratio		0.17		0.11	0.11	0.36	0.06	0.36		0.21	0.51	
v/c Ratio		1.09		0.24	0.98	0.73	0.92	1.01		1.05	0.92	
Control Delay		129.7		59.8	118.1	47.6	129.9	69.0		113.2	39.6	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		129.7		59.8	118.1	47.6	129.9	69.0		113.2	39.6	
LOS		F		E	F	D	F	E		F	D	
Approach Delay		129.7			70.1			72.3			50.2	
Approach LOS		F			E			E			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.09			
Intersection Signal Delay: 64.8		Intersection LOS: E	
Intersection Capacity Utilization 93.4%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 123: Walkup Avenue & US 74

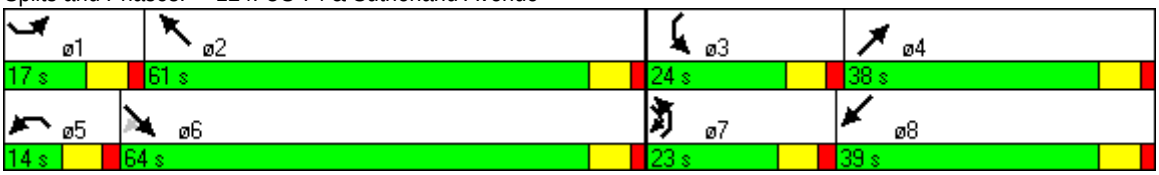


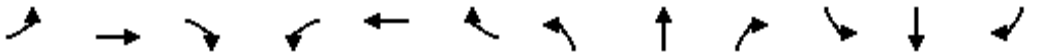
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	96	1801	151	41	1444	137	192	264	66	209	254	118
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.987			0.970			0.952	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	1719	4876	0	1752	1789	0	1752	1756	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	1719	4876	0	1752	1789	0	1752	1756	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		425			487			426			331	
Travel Time (s)		6.4			7.4			11.6			6.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	107	2001	168	46	1604	152	213	293	73	232	282	131
Shared Lane Traffic (%)												
Lane Group Flow (vph)	107	2001	168	46	1756	0	213	366	0	232	413	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot			Prot			Prot		
Protected Phases	1	6	7	5	2		7	4		3	8	
Permitted Phases			6									
Detector Phase	1	6	7	5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	17.0	64.0	23.0	14.0	61.0	0.0	23.0	38.0	0.0	24.0	39.0	0.0
Total Split (%)	12.1%	45.7%	16.4%	10.0%	43.6%	0.0%	16.4%	27.1%	0.0%	17.1%	27.9%	0.0%
Maximum Green (s)	10.0	57.0	16.0	7.0	54.0		16.0	31.0		17.0	32.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes			Yes			Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max		None	None		None	None	
Act Effct Green (s)	11.8	61.8	84.8	9.0	56.2		18.0	33.0		19.0	34.0	
Actuated g/C Ratio	0.08	0.44	0.61	0.06	0.40		0.13	0.24		0.14	0.24	
v/c Ratio	0.74	0.92	0.18	0.41	0.90		0.95	0.87		0.97	0.97	
Control Delay	90.8	45.1	13.6	74.7	46.6		107.6	72.5		111.9	88.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	90.8	45.1	13.6	74.7	46.6		107.6	72.5		111.9	88.9	
LOS	F	D	B	E	D		F	E		F	F	
Approach Delay		45.0			47.3			85.4			97.1	
Approach LOS		D			D			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.97			
Intersection Signal Delay: 56.5		Intersection LOS: E	
Intersection Capacity Utilization 88.5%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 124: US 74 & Sutherland Avenue





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	48	61	31	34	152	26	1528	19	115	1888	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.916			0.878				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1706	0	1770	1635	0	1719	4940	1538	1719	4940	1538
Flt Permitted	0.376			0.589			0.950			0.950		
Satd. Flow (perm)	700	1706	0	1097	1635	0	1719	4940	1538	1719	4940	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		163			218			356			257	
Travel Time (s)		5.6			4.2			5.4			3.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	4	53	68	34	38	169	29	1698	21	128	2098	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	121	0	34	207	0	29	1698	21	128	2098	2
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm			Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	12.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	19.0
Total Split (s)	37.0	37.0	0.0	37.0	37.0	0.0	14.0	78.0	78.0	25.0	89.0	89.0
Total Split (%)	26.4%	26.4%	0.0%	26.4%	26.4%	0.0%	10.0%	55.7%	55.7%	17.9%	63.6%	63.6%
Maximum Green (s)	30.0	30.0		30.0	30.0		7.0	71.0	71.0	18.0	82.0	82.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	24.8	24.8		24.8	24.8		9.5	83.3	83.3	17.0	96.3	96.3
Actuated g/C Ratio	0.18	0.18		0.18	0.18		0.07	0.60	0.60	0.12	0.69	0.69
v/c Ratio	0.03	0.40		0.18	0.72		0.25	0.58	0.02	0.62	0.62	0.00
Control Delay	44.5	53.8		48.6	67.6		67.3	19.7	14.6	70.8	14.7	11.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.5	53.8		48.6	67.6		67.3	19.7	14.6	70.8	14.7	11.0
LOS	D	D		D	E		E	B	B	E	B	B
Approach Delay		53.5			64.9			20.4			17.9	
Approach LOS		D			E			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 22.6		Intersection LOS: C	
Intersection Capacity Utilization 66.0%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 125: Dove Street & US 74

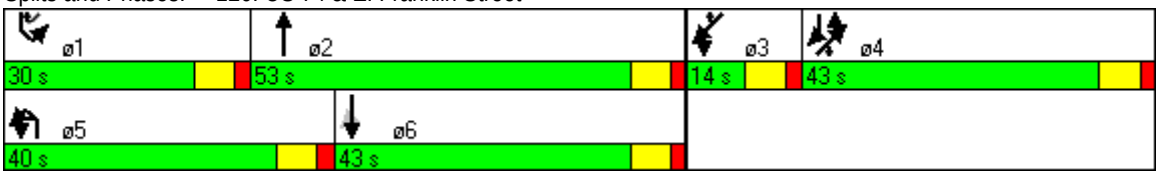
Lane Group	NBU	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT
Lane Configurations												
Volume (vph)	16	1045	1153	129	171	1511	355	255	80	983	127	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.86	0.97	0.86	0.86	1.00	0.91	1.00	1.00	1.00	0.88	1.00	1.00
Frt			0.985				0.850			0.850		
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	3335	6131	0	1719	4940	1538	1752	1845	2760	1752	1845
Flt Permitted		0.950			0.950			0.950			0.950	
Satd. Flow (perm)	0	3335	6131	0	1719	4940	1538	1752	1845	2760	1752	1845
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			45			35			20
Link Distance (ft)			341			436			391			335
Travel Time (s)			5.2			6.6			7.6			11.4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%
Adj. Flow (vph)	18	1161	1281	143	190	1679	394	283	89	1092	141	92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1179	1424	0	190	1679	394	283	89	1092	141	92
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			24			24			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1	1	2		1	2	1	1	2	1	1	2
Detector Template	Left	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru
Leading Detector (ft)	20	20	100		20	100	20	20	100	20	20	100
Trailing Detector (ft)	0	0	0		0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0		0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	6		20	6	20	20	6	20	20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94			94			94			94
Detector 2 Size(ft)			6			6			6			6
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			0.0
Turn Type	Prot	Prot			Prot		pm+ov	Split		Prot	Split	
Protected Phases	5	5	2		1	6	4	4	4	4	3	3
Permitted Phases							6					
Detector Phase	5	5	2		1	6	4	4	4	4	3	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	12.0		7.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SWR
Lane Configurations	
Volume (vph)	128
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1568
Flt Permitted	
Satd. Flow (perm)	1568
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	3%
Adj. Flow (vph)	142
Shared Lane Traffic (%)	
Lane Group Flow (vph)	142
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	pt+ov
Protected Phases	3 1
Permitted Phases	
Detector Phase	3 1
Switch Phase	
Minimum Initial (s)	

Lane Group	NBU	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT
Minimum Split (s)	14.0	14.0	19.0		14.0	19.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	40.0	40.0	53.0	0.0	30.0	43.0	43.0	43.0	43.0	43.0	14.0	14.0
Total Split (%)	28.6%	28.6%	37.9%	0.0%	21.4%	30.7%	30.7%	30.7%	30.7%	30.7%	10.0%	10.0%
Maximum Green (s)	33.0	33.0	46.0		23.0	36.0	36.0	36.0	36.0	36.0	7.0	7.0
Yellow Time (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag		Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max		None	C-Max	None	None	None	None	None	None
Act Effct Green (s)		35.0	51.4		21.6	38.0	76.0	38.0	38.0	38.0	9.0	9.0
Actuated g/C Ratio		0.25	0.37		0.15	0.27	0.54	0.27	0.27	0.27	0.06	0.06
v/c Ratio		1.41	0.63		0.72	1.25	0.47	0.59	0.18	1.46	1.25	0.77
Control Delay		231.9	38.5		71.4	161.9	13.6	50.4	40.2	250.4	216.7	102.0
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		231.9	38.5		71.4	161.9	13.6	50.4	40.2	250.4	216.7	102.0
LOS		F	D		E	F	B	D	D	F	F	F
Approach Delay			126.1			128.5			198.9			116.9
Approach LOS			F			F			F			F

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 170			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.46			
Intersection Signal Delay: 142.3		Intersection LOS: F	
Intersection Capacity Utilization 117.6%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 126: US 74 & E. Franklin Street



Lane Group	SWR
Minimum Split (s)	
Total Split (s)	44.0
Total Split (%)	31.4%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Act Effct Green (s)	30.6
Actuated g/C Ratio	0.22
v/c Ratio	0.42
Control Delay	27.6
Queue Delay	0.0
Total Delay	27.6
LOS	C
Approach Delay	
Approach LOS	

Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	10	0	1392	1547	325	1116	35	918	0	238	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.91	0.91	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.995			0.936			
Flt Protected	0.950				0.950			0.950	0.972			
Satd. Flow (prot)	1719	0	4940	1538	1736	4963	0	1504	1441	0	0	0
Flt Permitted	0.950				0.950			0.950	0.972			
Satd. Flow (perm)	1719	0	4940	1538	1736	4963	0	1504	1441	0	0	0
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			55			45			25
Link Distance (ft)			239			375			459			145
Travel Time (s)			3.6			4.6			7.0			4.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	4%	4%	4%	14%	14%	14%	2%	2%
Adj. Flow (vph)	11	0	1547	1719	361	1240	39	1020	0	264	0	0
Shared Lane Traffic (%)								35%				
Lane Group Flow (vph)	11	0	1547	1719	361	1279	0	663	621	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			12			12			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1		2	1	1	2		1	2			
Detector Template	Left		Thru	Right	Left	Thru		Left	Thru			
Leading Detector (ft)	20		100	20	20	100		20	100			
Trailing Detector (ft)	0		0	0	0	0		0	0			
Detector 1 Position(ft)	0		0	0	0	0		0	0			
Detector 1 Size(ft)	20		6	20	20	6		20	6			
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 2 Position(ft)			94			94			94			
Detector 2 Size(ft)			6			6			6			
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			
Turn Type	Prot			pm+ov	Prot			Split				
Protected Phases	5		2	8	1	6		8	8			
Permitted Phases				2								
Detector Phase	5		2	8	1	6		8	8			
Switch Phase												
Minimum Initial (s)	7.0		12.0	12.0	7.0	14.0		12.0	12.0			

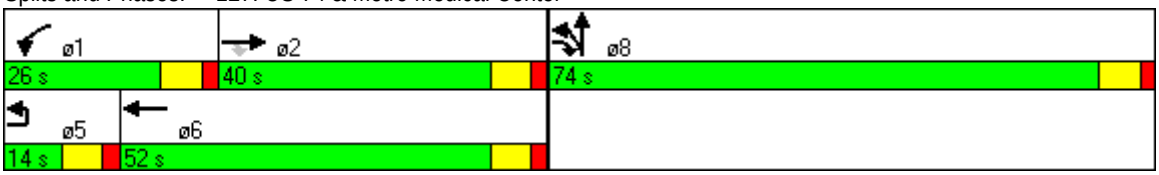
Lane Group	SBR
Lane Configurations	
Volume (vph)	25
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.865
Flt Protected	
Satd. Flow (prot)	1611
Flt Permitted	
Satd. Flow (perm)	1611
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	2%
Adj. Flow (vph)	28
Shared Lane Traffic (%)	
Lane Group Flow (vph)	28
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Detector Phase	
Switch Phase	
Minimum Initial (s)	

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Minimum Split (s)	14.0		19.0	19.0	14.0	21.0		19.0	19.0			
Total Split (s)	14.0	0.0	40.0	74.0	26.0	52.0	0.0	74.0	74.0	0.0	0.0	0.0
Total Split (%)	10.0%	0.0%	28.6%	52.9%	18.6%	37.1%	0.0%	52.9%	52.9%	0.0%	0.0%	0.0%
Maximum Green (s)	7.0		33.0	67.0	19.0	45.0		67.0	67.0			
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0		5.0	5.0			
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0		2.0	2.0			
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	2.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	2.0	2.0
Lead/Lag	Lead		Lag		Lead	Lag						
Lead-Lag Optimize?			Yes			Yes						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0		3.0	3.0			
Recall Mode	None		C-Max	None	None	C-Max		None	None			
Act Effct Green (s)	9.0		35.0	109.0	21.0	55.4		69.0	69.0			
Actuated g/C Ratio	0.06		0.25	0.78	0.15	0.40		0.49	0.49			
v/c Ratio	0.10		1.25	1.44	1.39	0.65		0.89	0.87			
Control Delay	63.9		163.6	221.3	239.6	37.4		48.6	46.7			
Queue Delay	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Total Delay	63.9		163.6	221.3	239.6	37.4		48.6	46.7			
LOS	E		F	F	F	D		D	D			
Approach Delay			193.5			81.9			47.7			
Approach LOS			F			F			D			

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.44
Intersection Signal Delay: 133.2 Intersection LOS: F
Intersection Capacity Utilization 122.1% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 127: US 74 & Metro Medical Center



Lane Group	SBR
Minimum Split (s)	
Total Split (s)	0.0
Total Split (%)	0.0%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	2.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Act Effct Green (s)	140.0
Actuated g/C Ratio	1.00
v/c Ratio	0.02
Control Delay	0.0
Queue Delay	0.0
Total Delay	0.0
LOS	A
Approach Delay	
Approach LOS	

Intersection Summary

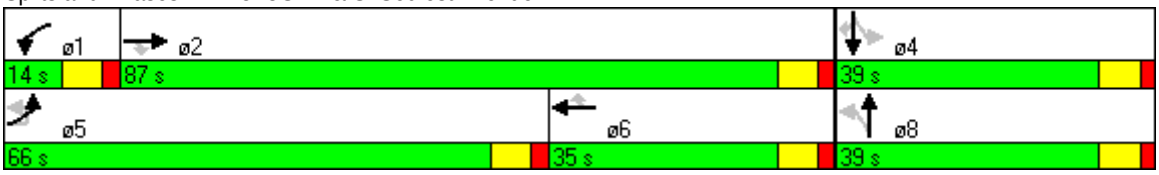
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	26	164	1423	47	9	1133	108	36	99	9	250	238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850			0.850		0.992			
Flt Protected		0.950			0.950				0.988			0.975
Satd. Flow (prot)	0	1736	3471	1553	1736	3471	1553	0	1826	0	0	1816
Flt Permitted		0.066			0.950				0.155			0.679
Satd. Flow (perm)	0	121	3471	1553	1736	3471	1553	0	286	0	0	1265
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			55			55			35			35
Link Distance (ft)			411			374			242			283
Travel Time (s)			5.1			4.6			4.7			5.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%
Adj. Flow (vph)	29	182	1581	52	10	1259	120	40	110	10	278	264
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	211	1581	52	10	1259	120	0	160	0	0	542
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			12			12			0			0
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1	1	2	1	1	2	1	1	2		1	2
Detector Template	Left	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru
Leading Detector (ft)	20	20	100	20	20	100	20	20	100		20	100
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0		0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0		0	0
Detector 1 Size(ft)	20	20	6	20	20	6	20	20	6		20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)			94			94			94			94
Detector 2 Size(ft)			6			6			6			6
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			0.0
Turn Type	custom	Prot		Perm	Prot		Perm	Perm			Perm	
Protected Phases		5	2		1	6			8			4
Permitted Phases	5			2			6	8			4	
Detector Phase	5	5	2	2	1	6	6	8	8		4	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	14.0	14.0	7.0	14.0	14.0	7.0	7.0		7.0	7.0

Lane Group	SBR
Lane Configurations	
Volume (vph)	301
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	2%
Adj. Flow (vph)	334
Shared Lane Traffic (%)	
Lane Group Flow (vph)	334
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Detector Phase	4
Switch Phase	
Minimum Initial (s)	7.0

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Minimum Split (s)	14.0	14.0	21.0	21.0	14.0	21.0	21.0	14.0	14.0		14.0	14.0
Total Split (s)	66.0	66.0	87.0	87.0	14.0	35.0	35.0	39.0	39.0	0.0	39.0	39.0
Total Split (%)	47.1%	47.1%	62.1%	62.1%	10.0%	25.0%	25.0%	27.9%	27.9%	0.0%	27.9%	27.9%
Maximum Green (s)	59.0	59.0	80.0	80.0	7.0	28.0	28.0	32.0	32.0		32.0	32.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Time Before Reduce (s)	0.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0	0.0		0.0	0.0
Time To Reduce (s)	0.0	0.0	50.0	50.0	0.0	50.0	50.0	0.0	0.0		0.0	0.0
Recall Mode	None	None	C-Min	C-Min	None	C-Min	C-Min	None	None		None	None
Act Effct Green (s)		61.0	93.2	93.2	9.0	30.0	30.0		34.0			34.0
Actuated g/C Ratio		0.44	0.67	0.67	0.06	0.21	0.21		0.24			0.24
v/c Ratio		3.98	0.68	0.05	0.09	1.69	0.36		2.32			1.77
Control Delay		1399.2	17.1	9.4	63.7	351.0	50.5		660.8			389.2
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0
Total Delay		1399.2	17.1	9.4	63.7	351.0	50.5		660.8			389.2
LOS		F	B	A	E	F	D		F			F
Approach Delay			175.1			323.0			660.8			269.0
Approach LOS			F			F			F			F

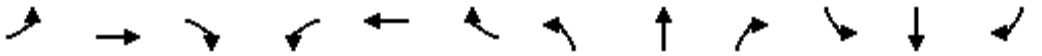
Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 3.98			
Intersection Signal Delay: 260.7		Intersection LOS: F	
Intersection Capacity Utilization 95.1%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 128: US 74 & S. Secrest Avenue



Lane Group	SBR
Minimum Split (s)	14.0
Total Split (s)	39.0
Total Split (%)	27.9%
Maximum Green (s)	32.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Minimum Gap (s)	3.0
Time Before Reduce (s)	0.0
Time To Reduce (s)	0.0
Recall Mode	None
Act Effct Green (s)	34.0
Actuated g/C Ratio	0.24
v/c Ratio	0.87
Control Delay	73.9
Queue Delay	0.0
Total Delay	73.9
LOS	E
Approach Delay	
Approach LOS	

Intersection Summary

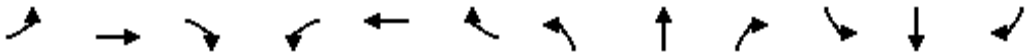


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	79	1477	20	3	1192	58	32	20	6	101	18	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.993			0.985				0.850
Flt Protected	0.950			0.950				0.973			0.959	
Satd. Flow (prot)	1736	3464	0	1736	3447	0	0	1785	0	0	1786	1583
Flt Permitted	0.950			0.950				0.652			0.722	
Satd. Flow (perm)	1736	3464	0	1736	3447	0	0	1196	0	0	1345	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			20			25	
Link Distance (ft)		242			246			170			270	
Travel Time (s)		4.7			4.8			5.8			7.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	88	1641	22	3	1324	64	36	22	7	112	20	122
Shared Lane Traffic (%)												
Lane Group Flow (vph)	88	1663	0	3	1388	0	0	65	0	0	132	122
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		pm+ov
Protected Phases	5	2		1	6			8			4	5
Permitted Phases							8			4		4
Detector Phase	5	2		1	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	17.0		14.0	17.0		14.0	14.0		14.0	14.0	14.0
Total Split (s)	18.0	96.0	0.0	14.0	92.0	0.0	30.0	30.0	0.0	30.0	30.0	18.0
Total Split (%)	12.9%	68.6%	0.0%	10.0%	65.7%	0.0%	21.4%	21.4%	0.0%	21.4%	21.4%	12.9%
Maximum Green (s)	11.0	89.0		7.0	85.0		23.0	23.0		23.0	23.0	11.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None
Act Effct Green (s)	13.2	107.0		9.0	91.6			20.2			20.2	38.4
Actuated g/C Ratio	0.09	0.76		0.06	0.65			0.14			0.14	0.27
v/c Ratio	0.54	0.63		0.03	0.62			0.38			0.68	0.28
Control Delay	72.8	10.2		62.0	16.3			59.2			73.8	40.4
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Delay	72.8	10.2		62.0	16.3			59.2			73.8	40.4
LOS	E	B		E	B			E			E	D
Approach Delay		13.4			16.4			59.2			57.7	
Approach LOS		B			B			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay: 18.7		Intersection LOS: B	
Intersection Capacity Utilization 69.7%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 129: US 74 & Bivens Street

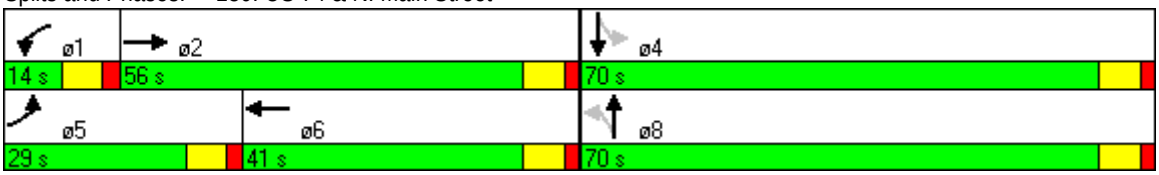


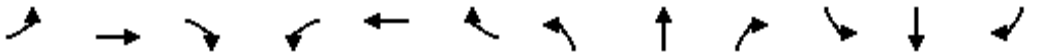
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	360	1122	50	55	880	77	39	271	56	102	358	377
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.994			0.988			0.979			0.923	
Flt Protected	0.950			0.950				0.995		0.950		
Satd. Flow (prot)	1736	3450	0	1736	3429	0	0	1815	0	1770	1719	0
Flt Permitted	0.950			0.950				0.315		0.440		
Satd. Flow (perm)	1736	3450	0	1736	3429	0	0	574	0	820	1719	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		282			333			173			197	
Travel Time (s)		5.5			6.5			3.4			3.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	400	1247	56	61	978	86	43	301	62	113	398	419
Shared Lane Traffic (%)												
Lane Group Flow (vph)	400	1303	0	61	1064	0	0	406	0	113	817	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	17.0		14.0	17.0		14.0	14.0		14.0	14.0	
Total Split (s)	29.0	56.0	0.0	14.0	41.0	0.0	70.0	70.0	0.0	70.0	70.0	0.0
Total Split (%)	20.7%	40.0%	0.0%	10.0%	29.3%	0.0%	50.0%	50.0%	0.0%	50.0%	50.0%	0.0%
Maximum Green (s)	22.0	49.0		7.0	34.0		63.0	63.0		63.0	63.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	None		None	None		None	None	
Act Effct Green (s)	24.0	53.8		9.0	36.0			65.0		65.0	65.0	
Actuated g/C Ratio	0.17	0.38		0.06	0.26			0.46		0.46	0.46	
v/c Ratio	1.34	0.98		0.54	1.21			1.52		0.30	1.02	
Control Delay	218.4	63.8		82.0	147.8			282.3		26.0	75.1	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	218.4	63.8		82.0	147.8			282.3		26.0	75.1	
LOS	F	E		F	F			F		C	E	
Approach Delay		100.1			144.2			282.3			69.1	
Approach LOS		F			F			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT, Start of Green			
Natural Cycle: 160			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.52			
Intersection Signal Delay: 122.9		Intersection LOS: F	
Intersection Capacity Utilization 110.2%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 130: US 74 & N. Main Street



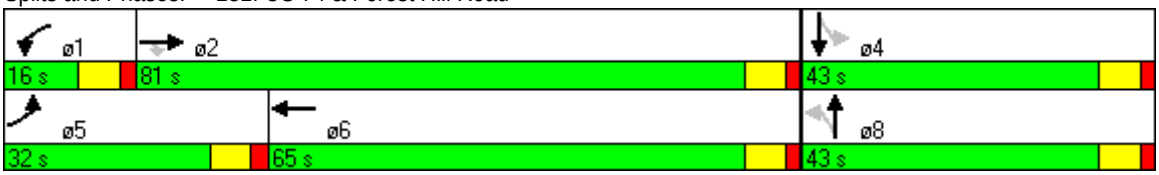


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	143	904	87	15	734	9	82	17	18	9	15	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.998			0.979			0.889	
Flt Protected	0.950			0.950				0.966			0.997	
Satd. Flow (prot)	1736	3471	1553	1736	3464	0	0	1679	0	0	1619	0
Flt Permitted	0.950			0.950				0.511			0.977	
Satd. Flow (perm)	1736	3471	1553	1736	3464	0	0	888	0	0	1587	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			35	
Link Distance (ft)		576			646			376			353	
Travel Time (s)		7.1			8.0			4.7			6.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	7%	7%	7%	4%	4%	4%
Adj. Flow (vph)	159	1004	97	17	816	10	91	19	20	10	17	127
Shared Lane Traffic (%)												
Lane Group Flow (vph)	159	1004	97	17	826	0	0	130	0	0	154	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		Perm	Prot			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8			4		
Detector Phase	5	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	14.0	14.0	7.0	14.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	21.0	21.0	14.0	21.0		14.0	14.0		14.0	14.0	
Total Split (s)	32.0	81.0	81.0	16.0	65.0	0.0	43.0	43.0	0.0	43.0	43.0	0.0
Total Split (%)	22.9%	57.9%	57.9%	11.4%	46.4%	0.0%	30.7%	30.7%	0.0%	30.7%	30.7%	0.0%
Maximum Green (s)	25.0	74.0	74.0	9.0	58.0		36.0	36.0		36.0	36.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	
Act Effct Green (s)	20.1	99.7	99.7	9.5	80.7			24.2			24.2	
Actuated g/C Ratio	0.14	0.71	0.71	0.07	0.58			0.17			0.17	
v/c Ratio	0.64	0.41	0.09	0.14	0.41			0.85			0.56	
Control Delay	67.6	10.8	9.1	63.9	19.1			96.2			59.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Delay	67.6	10.8	9.1	63.9	19.1			96.2			59.7	
LOS	E	B	A	E	B			F			E	
Approach Delay		17.8			20.0			96.2			59.7	
Approach LOS		B			B			F			E	

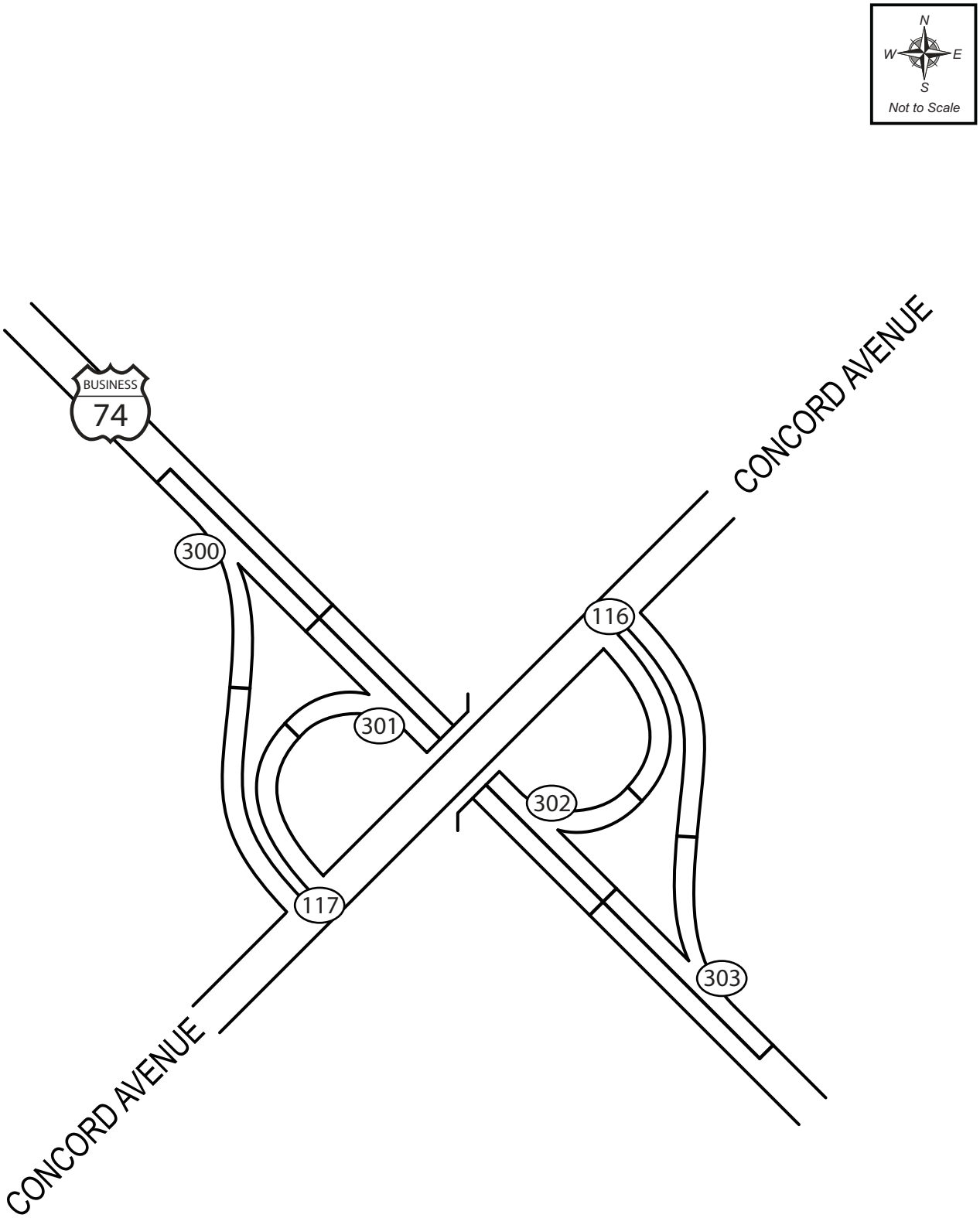
Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 25.5		Intersection LOS: C	
Intersection Capacity Utilization 62.3%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 131: US 74 & Forest Hill Road



E-5-2

Business US 74 / Concord Ave I/C



NORTH CAROLINA Turnpike Authority

MONROE CONNECTOR / BYPASS

TIP Project Numbers R-3329 & R-2559

Mecklenburg and Union Counties

Business US 74 Corridor
Concord Avenue
Key Sheet

Appendix E

KeySheetUS74CorridorConcordAve.ai

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*WB US 74 Ramp at Concord Ave*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 2A*
Analysis Time Period	*AM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *WB US 74 Ramp*	North/South Street: *Concord Ave.*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*370*	*114*	*107*	*431*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*411*	*126*	*118*	*478*	*0*
Percent Heavy Vehicles		--	--	*4*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*183*	*0*	*67*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*203*	*0*	*74*	*0*	*0*	*0*
Percent Heavy Vehicles	*5*		*5*			
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (vph)		*118*		*277*				
C (m) (vph)		*1021*		*222*				
v/c		*0.12*		*1.25*				
95% queue length		*0.39*		*14.19*				
Control Delay		*9.0*		*187.5*				
LOS		*A*		*F*				
Approach Delay	--	--	*187.5*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*WB US 74 Ramp at Concord Ave*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 2A*
Analysis Time Period	*PM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *WB US 74 Ramp*	North/South Street: *Concord Ave.*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*470*	*116*	*85*	*352*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*522*	*128*	*94*	*391*	*0*
Percent Heavy Vehicles		--	--	*4*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*145*	*0*	*68*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*161*	*0*	*75*	*0*	*0*	*0*
Percent Heavy Vehicles	*5*		*5*			
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (vph)		*94*		*236*				
C (m) (vph)		*927*		*238*				
v/c		*0.10*		*0.99*				
95% queue length		*0.34*		*9.28*				
Control Delay		*9.3*		*100.4*				
LOS		*A*		*F*				
Approach Delay	--	--	*100.4*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*EB US 74 Ramp at Concord Ave*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 2A*
Analysis Time Period	*AM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *EB US 74 Ramp*	North/South Street: *Concord Ave.*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*145*	*399*			*546*	*68*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*161*	*443*	*0*	*0*	*606*	*75*
Percent Heavy Vehicles	*4*	--	--		--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume		*0*		*85*	*0*	*116*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*94*	*0*	*128*
Percent Heavy Vehicles				*5*		*5*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*161*						*222*	
C (m) (vph)	*902*						*214*	
v/c	*0.18*						*1.04*	
95% queue length	*0.65*						*9.64*	
Control Delay	*9.9*						*119.2*	
LOS	*A*						*F*	
Approach Delay	--	--				*119.2*		
Approach LOS	--	--				*F*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*EB US 74 Ramp at Concord Ave*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 2A*
Analysis Time Period	*PM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *EB US 74 Ramp*	North/South Street: *Concord Ave.*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*183*	*479*			*430*	*67*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*203*	*532*	*0*	*0*	*477*	*74*
Percent Heavy Vehicles	*4*	--	--		--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume		*0*		*107*	*0*	*114*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*118*	*0*	*126*
Percent Heavy Vehicles				*5*		*5*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*203*						*244*	
C (m) (vph)	*1009*						*192*	
v/c	*0.20*						*1.27*	
95% queue length	*0.75*						*13.35*	
Control Delay	*9.5*						*204.8*	
LOS	*A*						*F*	
Approach Delay	--	--				*204.8*		
Approach LOS	--	--				*F*		

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Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB off to Concord Ave.
Junction:	300
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2A
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1724	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	201	vph
Length of first accel/decel lane	680	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	213	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	1724		201		213		vph
Peak-hour factor, PHF	0.90		0.90		0.90		
Peak 15-min volume, v15	479		56		59		v
Trucks and buses	5		5		4		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		

Heavy vehicle adjustment, fHV	0.930	0.930	0.943	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2059	240	251	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.697 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1509 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2059	6750	No
v_{12}	1509	4400	No
$v_{FO} = v_F - v_R$	1819	6750	No
v_R	240	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 11.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.385

Space mean speed in ramp influence area, S_R = 50.0 mph

Space mean speed in outer lanes, S_0 = 60.3 mph

Space mean speed for all vehicles, S = 52.4 mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB off to Concord Ave.
Junction:	300
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2A
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1994	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	221	vph
Length of first accel/decel lane	680	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	250	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1994	221	250	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	554	61	69	v
Trucks and buses	5	5	4	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.943	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2382	264	294	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.688 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1722 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2382	6750	No
v_{12}	1722	4400	No
$v_{FO} = v_F - v_R$	2118	6750	No
v_R	264	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 12.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.387	
Space mean speed in ramp influence area,	S_R = 50.0	mph
Space mean speed in outer lanes,	S_O = 60.3	mph
Space mean speed for all vehicles,	S = 52.5	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB on from Concord Ave.
Junction:	301
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2A
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1436	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	213	vph
Length of first accel/decel lane	100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	201	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1436	213	201	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	399	59	56	v
Trucks and buses	5	4	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1715	251	240	pcph

Estimation of V12 Merge Areas

L_{EQ} = -629.88 (Equation 25-2 or 25-3)

P_{FM} = 0.580 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 995 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	1966	6750	No
v_{R12}	1246	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 14.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.330

Space mean speed in ramp influence area, S_R = 50.7 mph

Space mean speed in outer lanes, S_O = 54.2 mph

Space mean speed for all vehicles, S = 51.9 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB on from Concord Ave.
Junction:	301
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2A
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1773	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	250	vph
Length of first accel/decel lane	100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	221	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1773	250	221	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	493	69	61	v
Trucks and buses	5	4	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2118	294	264	pcph

Estimation of V12 Merge Areas

L_{EQ} = -534.43 (Equation 25-2 or 25-3)

P_{FM} = 0.580 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1229 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2412	6750	No
v_{R12}	1523	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 16.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.334	
Space mean speed in ramp influence area,	S_R = 50.7	mph
Space mean speed in outer lanes,	S_O = 53.6	mph
Space mean speed for all vehicles,	S = 51.7	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB on from Concord Ave.
Junction:	302
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2A
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1773	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	221	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	250	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1773	221	250	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	493	61	69	v
Trucks and buses	5	4	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2118	260	299	pcph

Estimation of V12 Merge Areas

L_{EQ} = -452.91 (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1241 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2378	6750	No
v_{R12}	1501	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 15.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.323

Space mean speed in ramp influence area, S_R = 50.8 mph

Space mean speed in outer lanes, S_O = 53.6 mph

Space mean speed for all vehicles, S = 51.8 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB on from Concord Ave.
Junction:	302
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2A
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1436	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	201	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	213	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1436	201	213	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	399	56	59	v
Trucks and buses	5	4	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1715	237	254	pcph

Estimation of V12 Merge Areas

L_{EQ} = -544.07 (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1005 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	1952	6750	No
v_{R12}	1242	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 13.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.320

Space mean speed in ramp influence area, S_R = 50.8 mph

Space mean speed in outer lanes, S_O = 54.2 mph

Space mean speed for all vehicles, S = 52.0 mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB off to Concord Ave.
Junction:	303
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2A
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2023	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	250	vph
Length of first accel/decel lane	680	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	221	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2023		250		221		vph
Peak-hour factor, PHF	0.90		0.90		0.90		
Peak 15-min volume, v15	562		69		61		v
Trucks and buses	5		5		8		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		

Heavy vehicle adjustment, fHV	0.930	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2416	299	275	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.686 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1751 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2416	6750	No
v_{12}	1751	4400	No
$v_{FO} = v_F - v_R$	2117	6750	No
v_R	299	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 13.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.390	
Space mean speed in ramp influence area,	S_R = 49.9	mph
Space mean speed in outer lanes,	S_0 = 60.3	mph
Space mean speed for all vehicles,	S = 52.4	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB off to Concord Ave.
Junction:	303
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2A
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1649	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	213	vph
Length of first accel/decel lane	680	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	201	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	1649		213		201	vph
Peak-hour factor, PHF	0.90		0.90		0.90	
Peak 15-min volume, v15	458		59		56	v
Trucks and buses	5		5		8	%
Recreational vehicles	0		0		0	%
Terrain type:	Rolling		Rolling		Rolling	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	2.5		2.5		2.5	
Recreational vehicle PCE, ER	2.0		2.0		2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1970	254	250	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.699 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1454 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	1970	6750	No
v_{12}	1454	4400	No
$v_{FO} = v_F - v_R$	1716	6750	No
v_R	254	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 10.6 pc/mi/ln

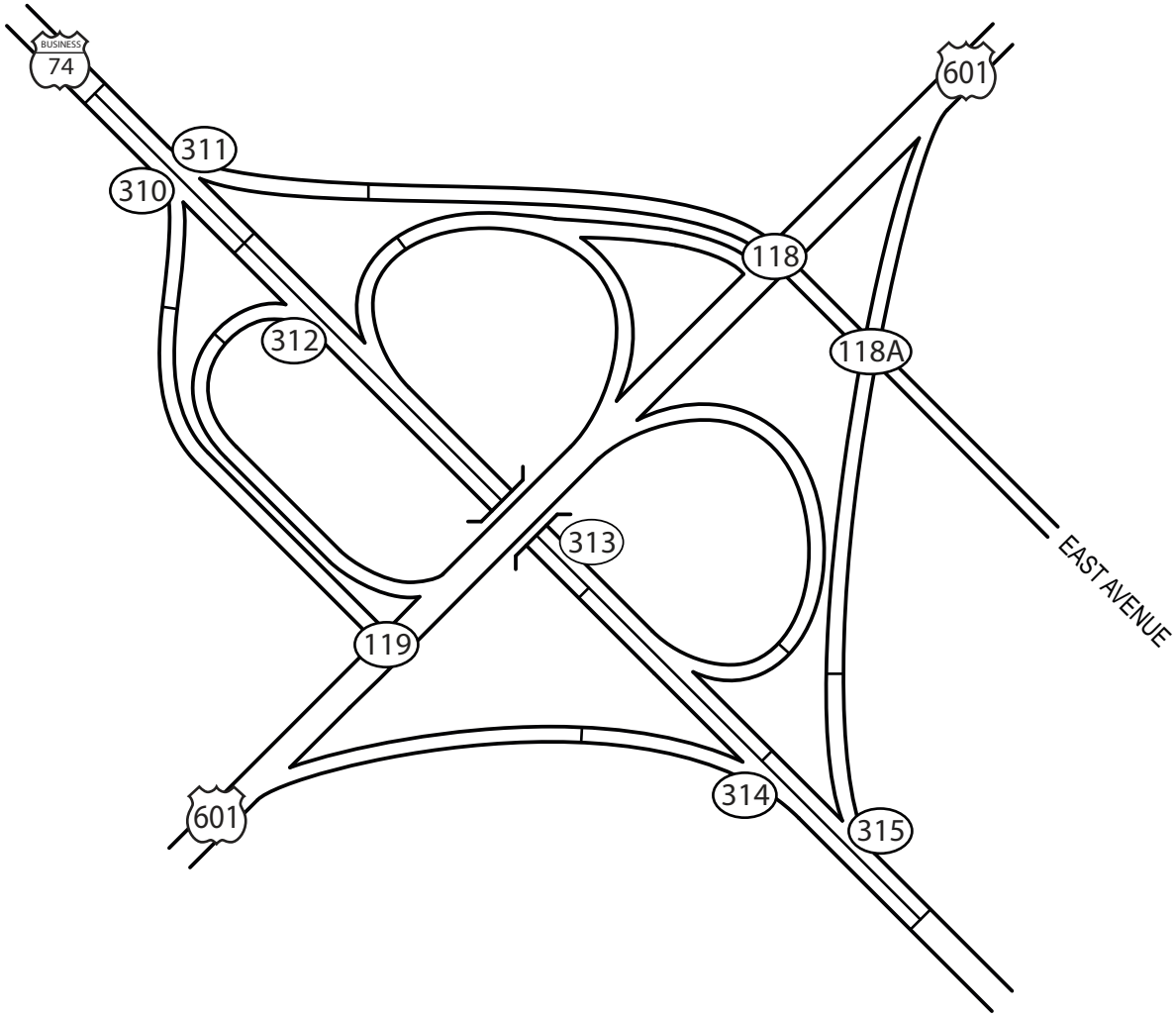
Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.386	
Space mean speed in ramp influence area,	S_R = 50.0	mph
Space mean speed in outer lanes,	S_0 = 60.3	mph
Space mean speed for all vehicles,	S = 52.3	mph

E-5-3

Business US 74 / US 601I/C



NORTH CAROLINA Turnpike Authority

MONROE CONNECTOR / BYPASS

TIP Project Numbers R-3329 & R-2559

Mecklenburg and Union Counties

Business US 74 Corridor
US 601
Key Sheet

Appendix E

KeySheetUS74CorridorUS601.ai

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*East Ave. at US 74 Off Ramp*
Agency/Co.	*PBS&J*	Jurisdiction	*118A*
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 2A*
Analysis Time Period	*AM Peak Hour*		
Project Description	*Monroe Connector/Bypass*		
East/West Street:	*East Ave.*	North/South Street:	*US 74 Off Ramp*
Intersection Orientation:	*North-South*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*10*	*495*	*10*			
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*11*	*550*	*11*	*0*	*0*	*0*
Percent Heavy Vehicles	*5*	--	--		--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration	*LTR*					
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume		*120*	*150*	*10*	*270*	
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*133*	*166*	*11*	*300*	*0*
Percent Heavy Vehicles		*5*	*5*	*8*	*8*	
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*				*TR*	*LT*		
v (vph)	*11*				*299*	*311*		
C (m) (vph)	*1604*				*472*	*392*		
v/c	*0.01*				*0.63*	*0.79*		
95% queue length	*0.02*				*4.32*	*6.86*		
Control Delay	*7.3*				*24.9*	*41.4*		
LOS	*A*				*C*	*E*		
Approach Delay	--	--	*24.9*			*41.4*		
Approach LOS	--	--	*C*			*E*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*East Ave. at US 74 Off Ramp*
Agency/Co.	*PBS&J*	Jurisdiction	*118A*
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 2A*
Analysis Time Period	*PM Peak Hour*		
Project Description	*Monroe Connector/Bypass*		
East/West Street:	*East Ave.*	North/South Street:	*US 74 Off Ramp*
Intersection Orientation:	*North-South*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*10*	*379*	*10*			
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*11*	*421*	*11*	*0*	*0*	*0*
Percent Heavy Vehicles	*5*	--	--		--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration	*LTR*					
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume		*150*	*150*	*10*	*290*	
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*166*	*166*	*11*	*322*	*0*
Percent Heavy Vehicles		*5*	*5*	*8*	*8*	
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*				*TR*	*LT*		
v (vph)	*11*				*332*	*333*		
C (m) (vph)	*1604*				*552*	*468*		
v/c	*0.01*				*0.60*	*0.71*		
95% queue length	*0.02*				*3.96*	*5.56*		
Control Delay	*7.3*				*20.9*	*29.5*		
LOS	*A*				*C*	*D*		
Approach Delay	--	--	*20.9*			*29.5*		
Approach LOS	--	--	*C*			*D*		

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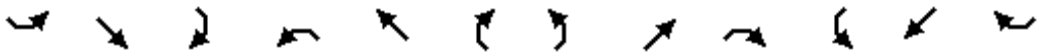


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	10	10	10	120	10	0	10	694	150	120	646	319
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.955							0.850			0.850
Flt Protected		0.984		0.950			0.950			0.950		
Satd. Flow (prot)	0	1700	0	1719	1810	0	1671	3343	1495	1671	3343	1495
Flt Permitted		0.984		0.950			0.950			0.950		
Satd. Flow (perm)	0	1700	0	1719	1810	0	1671	3343	1495	1671	3343	1495
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		412			451			446			441	
Travel Time (s)		8.0			8.8			6.8			6.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	8%	8%	8%	8%	8%	8%
Adj. Flow (vph)	11	11	11	133	11	0	11	771	167	133	718	354
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	33	0	133	11	0	11	771	167	133	718	354
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split			Prot		Perm	Prot		pm+ov
Protected Phases	4	4		8	8		5	2		1	6	4
Permitted Phases									2			6
Detector Phase	4	4		8	8		5	2	2	1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	14.0
Total Split (s)	20.0	20.0	0.0	22.0	22.0	0.0	14.0	46.0	46.0	22.0	54.0	20.0
Total Split (%)	18.2%	18.2%	0.0%	20.0%	20.0%	0.0%	12.7%	41.8%	41.8%	20.0%	49.1%	18.2%
Maximum Green (s)	13.0	13.0		15.0	15.0		7.0	39.0	39.0	15.0	47.0	13.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	None	None
Act Effct Green (s)		10.2		15.3	15.3		9.0	49.6	49.6	14.8	66.7	81.9
Actuated g/C Ratio		0.09		0.14	0.14		0.08	0.45	0.45	0.13	0.61	0.74
v/c Ratio		0.21		0.56	0.04		0.08	0.51	0.25	0.59	0.35	0.32
Control Delay		48.7		52.7	39.3		48.2	24.4	21.9	55.4	13.1	6.9
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		48.7		52.7	39.3		48.2	24.4	21.9	55.4	13.1	6.9
LOS		D		D	D		D	C	C	E	B	A
Approach Delay		48.7			51.6			24.3			16.0	
Approach LOS		D			D			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 2:NET, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 22.0		Intersection LOS: C	
Intersection Capacity Utilization 51.6%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 118: US 74 Ramps & US 601

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (vph)	325	147	0	718	684	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	3335	1538	0	3343	3343	0
Flt Permitted	0.950					
Satd. Flow (perm)	3335	1538	0	3343	3343	0
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	35			45	45	
Link Distance (ft)	529			486	575	
Travel Time (s)	10.3			7.4	8.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	8%	8%	8%	8%
Adj. Flow (vph)	361	163	0	798	760	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	361	163	0	798	760	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (ft)	20	20		100	100	
Trailing Detector (ft)	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	
Detector 1 Size(ft)	20	20		6	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type		Perm				
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						
Minimum Initial (s)	7.0	7.0		12.0	12.0	

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Minimum Split (s)	14.0	14.0		19.0	19.0	
Total Split (s)	42.0	42.0	0.0	68.0	68.0	0.0
Total Split (%)	38.2%	38.2%	0.0%	61.8%	61.8%	0.0%
Maximum Green (s)	35.0	35.0		61.0	61.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		C-Max	C-Max	
Act Effct Green (s)	37.0	37.0		63.0	63.0	
Actuated g/C Ratio	0.34	0.34		0.57	0.57	
v/c Ratio	0.32	0.32		0.42	0.40	
Control Delay	28.2	29.2		14.0	13.8	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	28.2	29.2		14.0	13.8	
LOS	C	C		B	B	
Approach Delay	28.5			14.0	13.8	
Approach LOS	C			B	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 2:NET and 6:SWT, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.42			
Intersection Signal Delay: 17.6		Intersection LOS: B	
Intersection Capacity Utilization 37.5%		ICU Level of Service A	
Analysis Period (min) 15			

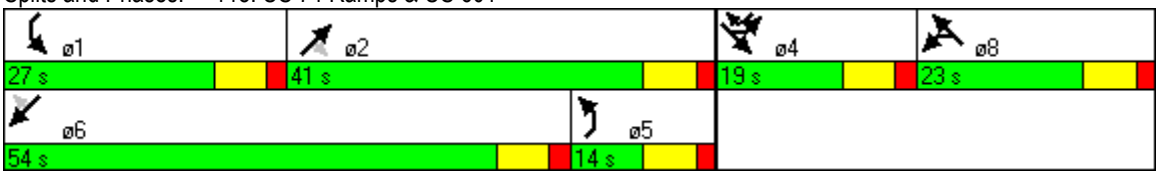
Splits and Phases: 119: EB US 74 Off Ramp & US 601

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	10	10	10	150	10	0	10	586	120	170	864	325
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.955							0.850			0.850
Flt Protected		0.984		0.950			0.950			0.950		
Satd. Flow (prot)	0	1700	0	1719	1810	0	1671	3343	1495	1671	3343	1495
Flt Permitted		0.984		0.950			0.950			0.950		
Satd. Flow (perm)	0	1700	0	1719	1810	0	1671	3343	1495	1671	3343	1495
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		412			451			446			441	
Travel Time (s)		8.0			8.8			6.8			6.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	8%	8%	8%	8%	8%	8%
Adj. Flow (vph)	11	11	11	167	11	0	11	651	133	189	960	361
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	33	0	167	11	0	11	651	133	189	960	361
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split			Prot		Perm	Prot		pm+ov
Protected Phases	4	4		8	8		5	2		1	6	4
Permitted Phases									2			6
Detector Phase	4	4		8	8		5	2	2	1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	14.0
Total Split (s)	19.0	19.0	0.0	23.0	23.0	0.0	14.0	41.0	41.0	27.0	54.0	19.0
Total Split (%)	17.3%	17.3%	0.0%	20.9%	20.9%	0.0%	12.7%	37.3%	37.3%	24.5%	49.1%	17.3%
Maximum Green (s)	12.0	12.0		16.0	16.0		7.0	34.0	34.0	20.0	47.0	12.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lag	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		Max	Max		None	C-Max	C-Max	None	None	None
Act Effct Green (s)		10.4		21.6	21.6		9.1	39.3	39.3	18.7	60.1	74.4
Actuated g/C Ratio		0.09		0.20	0.20		0.08	0.36	0.36	0.17	0.55	0.68
v/c Ratio		0.21		0.49	0.03		0.08	0.55	0.25	0.66	0.53	0.36
Control Delay		48.3		45.8	37.6		47.8	31.0	27.7	53.9	18.2	7.7
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		48.3		45.8	37.6		47.8	31.0	27.7	53.9	18.2	7.7
LOS		D		D	D		D	C	C	D	B	A
Approach Delay		48.3			45.3			30.7			20.1	
Approach LOS		D			D			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 2:NET, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 25.6		Intersection LOS: C	
Intersection Capacity Utilization 57.2%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 118: US 74 Ramps & US 601



Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (vph)	319	199	0	534	810	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	3335	1538	0	3343	3343	0
Flt Permitted	0.950					
Satd. Flow (perm)	3335	1538	0	3343	3343	0
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	35			45	45	
Link Distance (ft)	529			486	575	
Travel Time (s)	10.3			7.4	8.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	8%	8%	8%	8%
Adj. Flow (vph)	354	221	0	593	900	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	354	221	0	593	900	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (ft)	20	20		100	100	
Trailing Detector (ft)	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	
Detector 1 Size(ft)	20	20		6	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type		Perm				
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						
Minimum Initial (s)	7.0	7.0		12.0	12.0	

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Minimum Split (s)	14.0	14.0		19.0	19.0	
Total Split (s)	45.0	45.0	0.0	65.0	65.0	0.0
Total Split (%)	40.9%	40.9%	0.0%	59.1%	59.1%	0.0%
Maximum Green (s)	38.0	38.0		58.0	58.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		None	None	
Act Effct Green (s)	40.2	40.2		30.0	30.0	
Actuated g/C Ratio	0.50	0.50		0.37	0.37	
v/c Ratio	0.21	0.29		0.47	0.72	
Control Delay	12.6	14.2		20.2	25.0	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	12.6	14.2		20.2	25.0	
LOS	B	B		C	C	
Approach Delay	13.2			20.2	25.0	
Approach LOS	B			C	C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 80.2			
Natural Cycle: 40			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 20.3		Intersection LOS: C	
Intersection Capacity Utilization 43.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 119: EB US 74 Off Ramp & US 601

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB off to US 601
Junction:	310
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2A
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1647	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	472	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	379	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	700	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1647	472	379	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	458	131	105	v
Trucks and buses	5	5	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1967	564	472	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.685 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1525 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	1967	6750	No
v_{12}	1525	4400	No
$v_{FO} = v_F - v_R$	1403	6750	No
v_R	564	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 15.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.414	
Space mean speed in ramp influence area,	S_R = 49.6	mph
Space mean speed in outer lanes,	S_O = 60.3	mph
Space mean speed for all vehicles,	S = 51.7	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB off to US 601
Junction:	310
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2A
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2026	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	518	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	495	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	700	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2026	518	495	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	563	144	138	v
Trucks and buses	5	5	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2420	619	616	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.671 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1828 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2420	6750	No
v_{12}	1828	4400	No
$v_{FO} = v_F - v_R$	1801	6750	No
v_R	619	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 18.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.419

Space mean speed in ramp influence area, S_R = 49.6 mph

Space mean speed in outer lanes, S_O = 60.3 mph

Space mean speed for all vehicles, S = 51.8 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB on from US 601
Junction:	311
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2A
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1707	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	40.0	mph
Volume on ramp	329	vph
Length of first accel/decel lane	250	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	417	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1707	329	417	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	474	91	116	v
Trucks and buses	5	8	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2039	409	498	pcph

Estimation of V12 Merge Areas

L_{EQ} = 324.67 (Equation 25-2 or 25-3)

P_{FM} = 0.585 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1192 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2448	6750	No
v_{R12}	1601	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 16.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.320	
Space mean speed in ramp influence area,	S_R = 50.8	mph
Space mean speed in outer lanes,	S_O = 53.8	mph
Space mean speed for all vehicles,	S = 51.8	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB on from US 601
Junction:	311
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2A
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1322	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	40.0	mph
Volume on ramp	335	vph
Length of first accel/decel lane	250	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	441	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1322	335	441	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	367	93	123	v
Trucks and buses	5	8	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1579	417	527	pcph

Estimation of V12 Merge Areas

L_{EQ} = 227.94 (Equation 25-2 or 25-3)

P_{FM} = 0.585 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 923 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	1996	6750	No
v_{R12}	1340	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 14.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.316

Space mean speed in ramp influence area, S_R = 50.9 mph

Space mean speed in outer lanes, S_O = 54.4 mph

Space mean speed for all vehicles, S = 52.0 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB on from US 601 SB
Junction:	312
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2A
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1175	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	379	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	472	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	700	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1175	379	472	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	326	105	131	v
Trucks and buses	5	8	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1403	472	564	pcph

Estimation of V12 Merge Areas

L_{EQ} = -560.55 (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 822 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	1875	6750	No
v_{R12}	1294	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 13.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.320

Space mean speed in ramp influence area, S_R = 50.8 mph

Space mean speed in outer lanes, S_O = 54.7 mph

Space mean speed for all vehicles, S = 52.0 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB on from US 601 SB
Junction:	312
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2A
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1508	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	495	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	518	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	700	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1508	495	518	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	419	138	144	v
Trucks and buses	5	8	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1801	616	619	pcph

Estimation of V12 Merge Areas

L_{EQ} = -444.56 (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1055 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2417	6750	No
v_{R12}	1671	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 16.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.327

Space mean speed in ramp influence area, S_R = 50.8 mph

Space mean speed in outer lanes, S_O = 54.1 mph

Space mean speed for all vehicles, S = 51.7 mph

FREEWAY WEAVING WORKSHEET

General Information

Analyst	OSR
Agency/Company	PBSJ
Date Performed	4/30/08
Analysis Time Period	AM Peak

Site Information

Freeway/Dir of Travel	US 74 WB
Weaving Seg Location	313
Jurisdiction	
Analysis Year	2035 Build Alternative 2A

Inputs

Freeway free-flow speed, SFF (mi/h)	55	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.29
Weaving seg length, L (ft)	550	Weaving ratio, R	0.33
Terrain	Rolling		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	1508	0.90	5	0	2.5	2.0	0.930	1.00	1801
Vo2	0	0.90	0	0	2.5	2.0	1.000	1.00	0
Vw1	417	0.90	5	0	2.5	2.0	0.930	1.00	498
Vw2	199	0.90	8	0	2.5	2.0	0.893	1.00	247
Vw				745	Vnw				1801
V									2546

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.15	0.00		
b (Exhibit 24-6)	2.20	4.00		
c (Exhibit 24-6)	0.97	1.30		
d (Exhibit 24-6)	0.80	0.75		
Weaving intensity factor, Wi	0.89	0.38		
Weaving and non-weaving speeds, Si (mi/h)	38.83	47.61		

Number of lanes required for unconstrained operation, Nw 1.29
Maximum number of lanes, Nw (max) 1.40

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	44.66
Weaving segment density, D (pc/mi/ln)	14.25
Level of service, LOS	B
Capacity of base condition, c_b (pc/h)	5814
Capacity as a 15-minute flow rate, c (veh/h)	5408
Capacity as a full-hour volume, c_h (veh/h)	4867

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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FREEWAY WEAVING WORKSHEET

General Information

Analyst	OSR
Agency/Company	PBSJ
Date Performed	4/30/08
Analysis Time Period	PM Peak

Site Information

Freeway/Dir of Travel	US 74 WB
Weaving Seg Location	313
Jurisdiction	
Analysis Year	2035 Build Alternative 2A

Inputs

Freeway free-flow speed, SFF (mi/h)	55	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.34
Weaving seg length, L (ft)	550	Weaving ratio, R	0.26
Terrain	Rolling		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	1175	0.90	5	0	2.5	2.0	0.930	1.00	1403
Vo2	0	0.90	0	0	2.5	2.0	1.000	1.00	0
Vw1	441	0.90	5	0	2.5	2.0	0.930	1.00	526
Vw2	147	0.90	8	0	2.5	2.0	0.893	1.00	182
Vw				708	Vnw				1403
V									2111

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.15	0.00		
b (Exhibit 24-6)	2.20	4.00		
c (Exhibit 24-6)	0.97	1.30		
d (Exhibit 24-6)	0.80	0.75		
Weaving intensity factor, Wi	0.80	0.34		
Weaving and non-weaving speeds, Si (mi/h)	40.06	48.60		

Number of lanes required for unconstrained operation, Nw 1.38
Maximum number of lanes, Nw (max) 1.40

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	45.36
Weaving segment density, D (pc/mi/ln)	11.64
Level of service, LOS	A
Capacity of base condition, c_b (pc/h)	5585
Capacity as a 15-minute flow rate, c (veh/h)	5195
Capacity as a full-hour volume, c_h (veh/h)	4675

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB on from US 601 NB
Junction:	314
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2A
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1554	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	40.0	mph
Volume on ramp	441	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	379	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1554	441	379	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	432	123	105	v
Trucks and buses	5	8	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1856	549	472	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1087 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2405	6750	No
v_{R12}	1636	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 16.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.317	
Space mean speed in ramp influence area,	S_R = 50.9	mph
Space mean speed in outer lanes,	S_O = 54.0	mph
Space mean speed for all vehicles,	S = 51.8	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB on from US 601 NB
Junction:	314
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2A
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2003	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	40.0	mph
Volume on ramp	417	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	495	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2003	417	495	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	556	116	138	v
Trucks and buses	5	8	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2392	519	616	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1401 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2911	6750	No
v_{R12}	1920	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 18.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.324

Space mean speed in ramp influence area, S_R = 50.8 mph

Space mean speed in outer lanes, S_O = 53.2 mph

Space mean speed for all vehicles, S = 51.6 mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB off to US 601
Junction:	315
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2A
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2420	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	495	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	199	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	400	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2420	495	199	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	672	138	55	v
Trucks and buses	5	5	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2891	591	248	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.661 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2110 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2891	6750	No
v_{12}	2110	4400	No
$v_{FO} = v_F - v_R$	2300	6750	No
v_R	591	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 19.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.416	
Space mean speed in ramp influence area,	S_R = 49.6	mph
Space mean speed in outer lanes,	S_0 = 60.3	mph
Space mean speed for all vehicles,	S = 52.1	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB off to US 601
Junction:	315
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2A
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1995	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	379	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	147	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	400	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	1995		379		147		vph
Peak-hour factor, PHF	0.90		0.90		0.90		
Peak 15-min volume, v15	554		105		41		v
Trucks and buses	5		5		8		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		

Heavy vehicle adjustment, fHV	0.930	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2383	453	183	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.680 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1765 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2383	6750	No
v_{12}	1765	4400	No
$v_{FO} = v_F - v_R$	1930	6750	No
v_R	453	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 16.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.404	
Space mean speed in ramp influence area,	S_R = 49.8	mph
Space mean speed in outer lanes,	S_0 = 60.3	mph
Space mean speed for all vehicles,	S = 52.1	mph

E-6

Alternative 2B

E-6-1

Business US 74 Intersections

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*OSR*
Agency/Co.	*PBS&J*
Date Performed	*4/30/08*
Analysis Time Period	*AM Peak*

Site Information

Intersection	*US 74 and Bivens Road*
Jurisdiction	
Analysis Year	*2035 Build Toll Alternative 2B*

Project Description *Monroe Connector/Bypass*

East/West Street: *US 74* | North/South Street: *Bivens Road*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*121*	*1268*	*10*	*10*	*1562*	*135*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*134*	*1408*	*11*	*11*	*1735*	*150*
Proportion of heavy vehicles, P_{HV}	*5*	--	--	*5*	--	--
Median type	*Undivided*					
RT Channelized?			*0*			*1*
Lanes	*1*	*2*	*1*	*1*	*2*	*1*
Configuration	*L*	*T*	*R*	*L*	*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*10*	*10*	*10*	*101*	*10*	*111*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*11*	*11*	*11*	*112*	*11*	*123*
Proportion of heavy vehicles, P_{HV}	*2*	*2*	*2*	*2*	*2*	*2*
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
Volume, v (vph)	*134*	*11*		*33*			*246*	
Capacity, c_m (vph)	*346*	*461*		*0*			*0*	
v/c ratio	*0.39*	*0.02*						
Queue length (95%)	*1.78*	*0.07*						
Control Delay (s/veh)	*21.8*	*13.0*						
LOS	*C*	*B*		*F*			*F*	
Approach delay (s/veh)	--	--						
Approach LOS	--	--						

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*OSR*
Agency/Co.	*PBS&J*
Date Performed	*4/30/08*
Analysis Time Period	*PM Peak*

Site Information

Intersection	*US 74 and Bivens Road*
Jurisdiction	
Analysis Year	*2035 Build Toll Alternative 2B*

Project Description *Monroe Connector/Bypass*

East/West Street: *US 74* | North/South Street: *Bivens Road*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*111*	*1562*	*10*	*10*	*1268*	*101*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*123*	*1735*	*11*	*11*	*1408*	*112*
Proportion of heavy vehicles, P_{HV}	*5*	--	--	*5*	--	--
Median type	*Undivided*					
RT Channelized?			*0*			*1*
Lanes	*1*	*2*	*1*	*1*	*2*	*1*
Configuration	*L*	*T*	*R*	*L*	*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*10*	*10*	*10*	*135*	*10*	*121*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*11*	*11*	*11*	*150*	*11*	*134*
Proportion of heavy vehicles, P_{HV}	*2*	*2*	*2*	*2*	*2*	*2*
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
Volume, v (vph)	*123*	*11*		*33*			*295*	
Capacity, c_m (vph)	*465*	*343*		*0*			*0*	
v/c ratio	*0.26*	*0.03*						
Queue length (95%)	*1.05*	*0.10*						
Control Delay (s/veh)	*15.5*	*15.8*						
LOS	*C*	*C*		*F*			*F*	
Approach delay (s/veh)	--	--						
Approach LOS	--	--						

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*OSR*
Agency/Co.	*PBS&J*
Date Performed	*4/30/08*
Analysis Time Period	*AM Peak*

Site Information

Intersection	*US 74 and Seacrest Shortcut*
Jurisdiction	
Analysis Year	*2035 Build Toll Alternative 2B*

Project Description *Monroe Connector/Bypass*

East/West Street: *US 74* | North/South Street: *Seacrest Shortcut RIRO*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*0*	*935*	*306*	*0*	*1440*	*0*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*0*	*1038*	*340*	*0*	*1600*	*0*
Proportion of heavy vehicles, P_{HV}		--	--		--	--
Median type	*Undivided*					
RT Channelized?			*0*			*1*
Lanes	*0*	*2*	*1*	*0*	*2*	*0*
Configuration		*T*	*R*		*T*	
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*428*	*0*	*0*	*0*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*0*	*0*	*475*	*0*	*0*	*0*
Proportion of heavy vehicles, P_{HV}			*4*			
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					*R*			
Volume, v (vph)					*475*			
Capacity, c_m (vph)					*496*			
v/c ratio					*0.96*			
Queue length (95%)					*12.10*			
Control Delay (s/veh)					*59.5*			
LOS					*F*			
Approach delay (s/veh)	--	--	*59.5*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*OSR*
Agency/Co.	*PBS&J*
Date Performed	*4/30/08*
Analysis Time Period	*PM Peak*

Site Information

Intersection	*US 74 and Seacrest Shortcut*
Jurisdiction	
Analysis Year	*2035 Build Toll Alternative 2B*

Project Description *Monroe Connector/Bypass*

East/West Street: *US 74* | North/South Street: *Seacrest Shortcut RIRO*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*0*	*1197*	*430*	*0*	*1179*	*0*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*0*	*1330*	*477*	*0*	*1310*	*0*
Proportion of heavy vehicles, P_{HV}		--	--		--	--
Median type	*Undivided*					
RT Channelized?			*0*			*1*
Lanes	*0*	*2*	*1*	*0*	*2*	*0*
Configuration		*T*	*R*		*T*	
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*304*	*0*	*0*	*0*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*0*	*0*	*337*	*0*	*0*	*0*
Proportion of heavy vehicles, P_{HV}			*4*			
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					*R*			
Volume, v (vph)					*337*			
Capacity, c_m (vph)					*398*			
v/c ratio					*0.85*			
Queue length (95%)					*8.06*			
Control Delay (s/veh)					*47.6*			
LOS					*E*			
Approach delay (s/veh)	--	--	*47.6*					
Approach LOS	--	--	*E*					

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	463	126	45	44	204	111	74	2428	497	60	3031	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1719	3438	1538	1719	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	1719	3438	1538	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			45			55			55	
Link Distance (ft)		1096			1168			1536			3465	
Travel Time (s)		21.4			17.7			19.0			43.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	514	140	50	49	227	123	82	2698	552	67	3368	41
Shared Lane Traffic (%)												
Lane Group Flow (vph)	514	140	50	49	227	123	82	2698	552	67	3368	41
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	1	6	7	5	2	3
Permitted Phases			4			8			6			2
Detector Phase	7	4	5	3	8	1	1	6	7	5	2	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	14.0	7.0	7.0	14.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0	14.0	14.0	21.0	14.0	14.0	21.0	14.0
Total Split (s)	21.0	21.0	14.0	14.0	14.0	14.0	14.0	91.0	21.0	14.0	91.0	14.0
Total Split (%)	15.0%	15.0%	10.0%	10.0%	10.0%	10.0%	10.0%	65.0%	15.0%	10.0%	65.0%	10.0%
Maximum Green (s)	14.0	14.0	7.0	7.0	7.0	7.0	7.0	84.0	14.0	7.0	84.0	7.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	16.0	18.8	32.8	9.0	9.0	23.0	9.0	86.0	107.0	9.0	86.0	100.0
Actuated g/C Ratio	0.11	0.13	0.23	0.06	0.06	0.16	0.06	0.61	0.76	0.06	0.61	0.71
v/c Ratio	1.31	0.29	0.13	0.22	1.00	0.47	0.74	1.28	0.47	0.60	1.59	0.04
Control Delay	204.1	58.0	45.8	64.8	123.0	59.8	99.6	155.4	7.6	86.3	294.5	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	204.1	58.0	45.8	64.8	123.0	59.8	99.6	155.4	7.6	86.3	294.5	6.0
LOS	F	E	D	E	F	E	F	F	A	F	F	A
Approach Delay		163.8			96.4			129.6			287.1	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.59			
Intersection Signal Delay: 200.2		Intersection LOS: F	
Intersection Capacity Utilization 116.4%		ICU Level of Service H	
Analysis Period (min) 15			

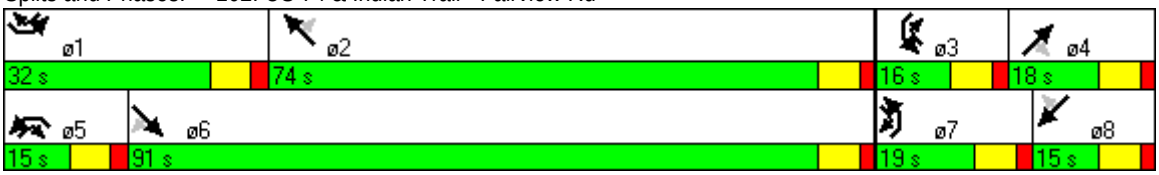
Splits and Phases: 101: Stallings Road & US 74

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	335	1738	427	108	2123	88	413	147	86	132	279	615
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3335	3438	1538	1719	3438	1538	3335	3438	1538	3335	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3438	1538	1719	3438	1538	3335	3438	1538	3335	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			35			35	
Link Distance (ft)		2103			2380			902			1112	
Travel Time (s)		26.1			29.5			17.6			21.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	372	1931	474	120	2359	98	459	163	96	147	310	683
Shared Lane Traffic (%)												
Lane Group Flow (vph)	372	1931	474	120	2359	98	459	163	96	147	310	683
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	7.0	14.0	7.0	7.0	14.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	21.0	14.0	14.0	21.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	32.0	91.0	19.0	15.0	74.0	16.0	19.0	18.0	15.0	16.0	15.0	32.0
Total Split (%)	22.9%	65.0%	13.6%	10.7%	52.9%	11.4%	13.6%	12.9%	10.7%	11.4%	10.7%	22.9%
Maximum Green (s)	25.0	84.0	12.0	8.0	67.0	9.0	12.0	11.0	8.0	9.0	8.0	25.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	27.0	86.0	105.0	10.0	69.0	84.8	14.0	13.2	28.2	10.8	10.0	42.0
Actuated g/C Ratio	0.19	0.61	0.75	0.07	0.49	0.61	0.10	0.09	0.20	0.08	0.07	0.30
v/c Ratio	0.58	0.91	0.41	0.98	1.39	0.11	1.37	0.50	0.31	0.57	1.26	1.48
Control Delay	55.5	31.9	7.6	138.6	210.8	11.9	231.5	66.3	51.0	71.4	196.1	263.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.5	31.9	7.6	138.6	210.8	11.9	231.5	66.3	51.0	71.4	196.1	263.6
LOS	E	C	A	F	F	B	F	E	D	E	F	F
Approach Delay		30.9			199.9			169.9			220.5	
Approach LOS		C			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 160			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.48			
Intersection Signal Delay: 135.1		Intersection LOS: F	
Intersection Capacity Utilization 121.0%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 102: US 74 & Indian Trail - Fairview Rd

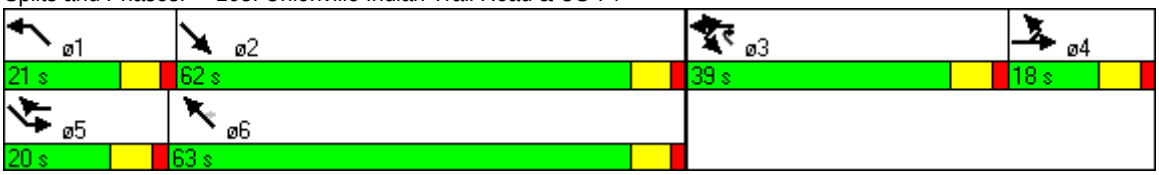


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	40	151	139	454	364	688	399	1404	56	238	1714	321
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Frt		0.937				0.850		0.994				0.850
Flt Protected		0.994		0.950	0.994		0.950			0.950		
Satd. Flow (prot)	0	3264	0	1665	1742	1568	3335	3417	0	1719	3438	1538
Flt Permitted		0.994		0.950	0.994		0.950			0.950		
Satd. Flow (perm)	0	3264	0	1665	1742	1568	3335	3417	0	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			45			55			55	
Link Distance (ft)		795			1304			1032			1062	
Travel Time (s)		15.5			19.8			12.8			13.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	44	168	154	504	404	764	443	1560	62	264	1904	357
Shared Lane Traffic (%)				12%								
Lane Group Flow (vph)	0	366	0	444	464	764	443	1622	0	264	1904	357
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	1	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	1	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pt+ov	Prot			Prot		pm+ov
Protected Phases	4	4		3	3	3 5	5	2		1	6	3
Permitted Phases												6
Detector Phase	4	4		3	3	3 5	5	2		1	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	14.0		7.0	14.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	21.0		14.0	21.0	14.0
Total Split (s)	18.0	18.0	0.0	39.0	39.0	59.0	20.0	62.0	0.0	21.0	63.0	39.0
Total Split (%)	12.9%	12.9%	0.0%	27.9%	27.9%	42.1%	14.3%	44.3%	0.0%	15.0%	45.0%	27.9%
Maximum Green (s)	11.0	11.0		32.0	32.0		13.0	55.0		14.0	56.0	32.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	None
Act Effct Green (s)		13.0		34.0	34.0	49.0	15.0	57.0		16.0	58.0	97.0
Actuated g/C Ratio		0.09		0.24	0.24	0.35	0.11	0.41		0.11	0.41	0.69
v/c Ratio		1.21		1.10	1.10	1.39	1.24	1.17		1.35	1.34	0.33
Control Delay		172.2		122.8	121.2	214.6	179.8	120.7		231.5	190.8	9.6
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay		172.2		122.8	121.2	214.6	179.8	120.7		231.5	190.8	9.6
LOS		F		F	F	F	F	F		F	F	A
Approach Delay		172.2			164.3			133.4			169.4	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.39			
Intersection Signal Delay: 157.1		Intersection LOS: F	
Intersection Capacity Utilization 112.3%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 103: Unionville Indian Trail Road & US 74

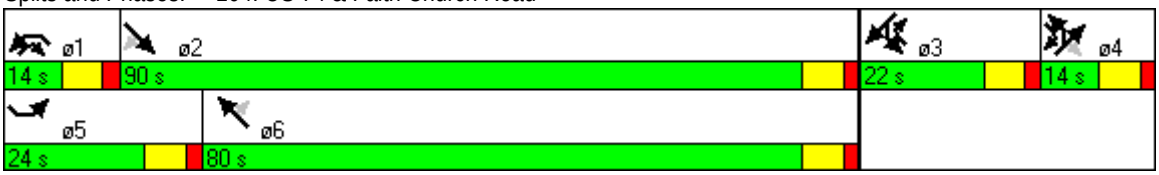


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	256	1677	24	39	2078	320	40	14	53	201	7	199
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.855	
Flt Protected	0.950			0.950				0.965		0.950		
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	0	1682	1482	1770	1593	0
Flt Permitted	0.950			0.950				0.965		0.950		
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	0	1682	1482	1770	1593	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			15			35	
Link Distance (ft)		1177			2588			625			368	
Travel Time (s)		14.6			32.1			28.4			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	9%	9%	9%	2%	2%	2%
Adj. Flow (vph)	284	1863	27	43	2309	356	44	16	59	223	8	221
Shared Lane Traffic (%)												
Lane Group Flow (vph)	284	1863	27	43	2309	356	0	60	59	223	229	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	5	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	5	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Split		pm+ov	Split		
Protected Phases	5	2	4	1	6	3	4	4	1	3	3	
Permitted Phases			2			6			4			
Detector Phase	5	2	4	1	6	3	4	4	1	3	3	
Switch Phase												
Minimum Initial (s)	7.0	14.0	7.0	7.0	14.0	7.0	7.0	7.0	7.0	7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	21.0	14.0	14.0	21.0	14.0	14.0	14.0	14.0	14.0	14.0	
Total Split (s)	24.0	90.0	14.0	14.0	80.0	22.0	14.0	14.0	14.0	22.0	22.0	0.0
Total Split (%)	17.1%	64.3%	10.0%	10.0%	57.1%	15.7%	10.0%	10.0%	10.0%	15.7%	15.7%	0.0%
Maximum Green (s)	17.0	83.0	7.0	7.0	73.0	15.0	7.0	7.0	7.0	15.0	15.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	
Act Effct Green (s)	21.8	90.6	97.8	9.0	75.0	97.0		9.0	20.2	17.0	17.0	
Actuated g/C Ratio	0.16	0.65	0.70	0.06	0.54	0.69		0.06	0.14	0.12	0.12	
v/c Ratio	1.06	0.84	0.03	0.39	1.25	0.33		0.56	0.28	1.04	1.19	
Control Delay	127.5	25.5	4.0	73.5	149.1	9.6		83.3	55.2	130.0	175.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	127.5	25.5	4.0	73.5	149.1	9.6		83.3	55.2	130.0	175.3	
LOS	F	C	A	E	F	A		F	E	F	F	
Approach Delay		38.6			129.6			69.4			152.9	
Approach LOS		D			F			E			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.25			
Intersection Signal Delay: 93.9		Intersection LOS: F	
Intersection Capacity Utilization 106.8%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 104: US 74 & Faith Church Road



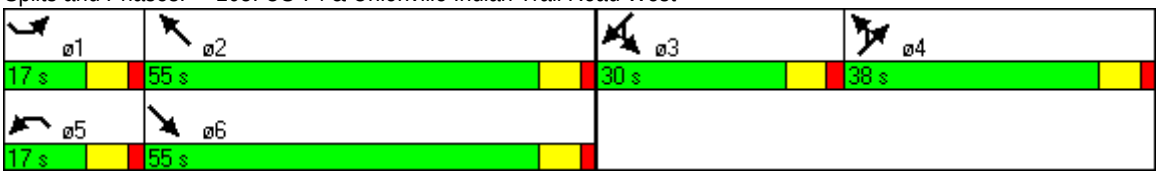
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	191	994	786	192	1338	256	726	98	132	322	180	323
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.934			0.976			0.914			0.904	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3211	0	1719	3356	0	1770	1703	0	1770	1684	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3211	0	1719	3356	0	1770	1703	0	1770	1684	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		606			973			698			813	
Travel Time (s)		7.5			12.1			10.6			12.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	212	1104	873	213	1487	284	807	109	147	358	200	359
Shared Lane Traffic (%)												
Lane Group Flow (vph)	212	1977	0	213	1771	0	807	256	0	358	559	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	5	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	5	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Split			Split		
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases												
Detector Phase	1	6		5	2		4	4		3	3	
Switch Phase												
Minimum Initial (s)	7.0	14.0		7.0	14.0		7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	21.0		14.0	21.0		14.0	14.0		14.0	14.0	
Total Split (s)	17.0	55.0	0.0	17.0	55.0	0.0	38.0	38.0	0.0	30.0	30.0	0.0
Total Split (%)	12.1%	39.3%	0.0%	12.1%	39.3%	0.0%	27.1%	27.1%	0.0%	21.4%	21.4%	0.0%
Maximum Green (s)	10.0	48.0		10.0	48.0		31.0	31.0		23.0	23.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	12.0	50.0		12.0	50.0		33.0	33.0		25.0	25.0	
Actuated g/C Ratio	0.09	0.36		0.09	0.36		0.24	0.24		0.18	0.18	
v/c Ratio	1.44	1.72		1.45	1.48		1.94	0.64		1.13	1.86	
Control Delay	276.4	359.1		279.0	253.0		458.9	56.4		142.2	429.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	276.4	359.1		279.0	253.0		458.9	56.4		142.2	429.8	
LOS	F	F		F	F		F	E		F	F	
Approach Delay		351.1			255.8			362.0			317.6	
Approach LOS		F			F			F			F	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 170
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.94
Intersection Signal Delay: 317.2 Intersection LOS: F
Intersection Capacity Utilization 149.5% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 105: US 74 & Unionville Indian Trail Road West



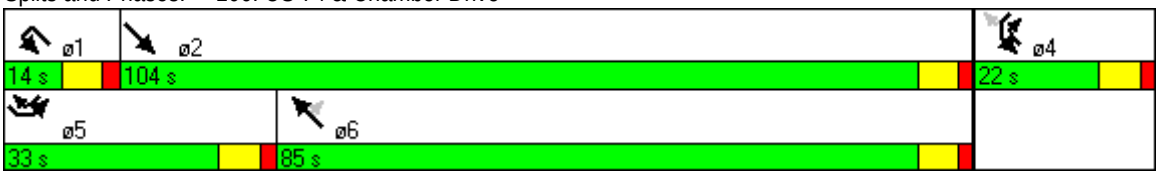
Lane Group	SEL	SET	NWU	NWT	NWR	SWL	SWR
Lane Configurations							
Volume (vph)	130	1260	10	1492	52	125	372
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Frt					0.850		0.850
Flt Protected	0.950		0.950			0.950	
Satd. Flow (prot)	1719	3438	1719	3438	1538	1770	1583
Flt Permitted	0.950		0.950			0.950	
Satd. Flow (perm)	1719	3438	1719	3438	1538	1770	1583
Right Turn on Red					No		No
Satd. Flow (RTOR)							
Link Speed (mph)		55		55		35	
Link Distance (ft)		2407		1378		1258	
Travel Time (s)		29.8		17.1		24.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	2%	2%
Adj. Flow (vph)	144	1400	11	1658	58	139	413
Shared Lane Traffic (%)							
Lane Group Flow (vph)	144	1400	11	1658	58	139	413
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Left	R NA	Left	Right	Left	Right
Median Width(ft)		12		12		12	
Link Offset(ft)		0		0		0	
Crosswalk Width(ft)		0		0		0	
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9		9	15	9
Number of Detectors	1	2	1	2	1	1	1
Detector Template	Left	Thru	Left	Thru	Right	Left	Right
Leading Detector (ft)	20	100	20	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94		94			
Detector 2 Size(ft)		6		6			
Detector 2 Type		Cl+Ex		Cl+Ex			
Detector 2 Channel							
Detector 2 Extend (s)		0.0		0.0			
Turn Type	Prot		Prot		pm+ov		pm+ov
Protected Phases	5	2	1	6	4	4	5
Permitted Phases					6		4
Detector Phase	5	2	1	6	4	4	5
Switch Phase							
Minimum Initial (s)	7.0	14.0	7.0	14.0	7.0	7.0	7.0

Lane Group	SEL	SET	NWU	NWT	NWR	SWL	SWR
Minimum Split (s)	14.0	21.0	14.0	21.0	14.0	14.0	14.0
Total Split (s)	33.0	104.0	14.0	85.0	22.0	22.0	33.0
Total Split (%)	23.6%	74.3%	10.0%	60.7%	15.7%	15.7%	23.6%
Maximum Green (s)	26.0	97.0	7.0	78.0	15.0	15.0	26.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag			Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	C-Max	None	None	None
Act Effct Green (s)	25.4	108.6	9.0	83.8	104.6	15.8	46.2
Actuated g/C Ratio	0.18	0.78	0.06	0.60	0.75	0.11	0.33
v/c Ratio	0.46	0.53	0.10	0.81	0.05	0.70	0.79
Control Delay	55.8	7.8	63.9	26.5	5.2	78.0	54.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.8	7.8	63.9	26.5	5.2	78.0	54.0
LOS	E	A	E	C	A	E	D
Approach Delay		12.2		26.1		60.1	
Approach LOS		B		C		E	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 25.4 Intersection LOS: C
Intersection Capacity Utilization 72.6% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 106: US 74 & Chamber Drive



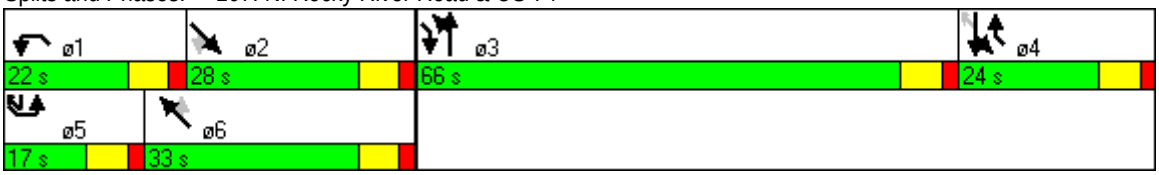
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	731	126	414	236	109	296	194	595	418	302	758	198
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.956				0.850			0.850			0.850
Flt Protected		0.972			0.967		0.950			0.950		
Satd. Flow (prot)	0	1731	0	0	1801	1583	1719	3438	1538	1719	3438	1538
Flt Permitted		0.972			0.967		0.950			0.950		
Satd. Flow (perm)	0	1731	0	0	1801	1583	1719	3438	1538	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		1176			418			3021			3350	
Travel Time (s)		17.8			6.3			37.5			41.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	812	140	460	262	121	329	216	661	464	336	842	220
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1412	0	0	383	329	216	661	464	336	842	220
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	3	3		4	4	5	5	2	3	1	6	4
Permitted Phases						4			2			6
Detector Phase	3	3		4	4	5	5	2	3	1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	14.0	7.0	7.0	14.0	7.0

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0	14.0	14.0	21.0	14.0	14.0	21.0	14.0
Total Split (s)	66.0	66.0	0.0	24.0	24.0	17.0	17.0	28.0	66.0	22.0	33.0	24.0
Total Split (%)	47.1%	47.1%	0.0%	17.1%	17.1%	12.1%	12.1%	20.0%	47.1%	15.7%	23.6%	17.1%
Maximum Green (s)	59.0	59.0		17.0	17.0	10.0	10.0	21.0	59.0	15.0	26.0	17.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead		Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)		61.0			19.0	36.0	12.0	23.0	89.0	17.0	28.0	47.0
Actuated g/C Ratio		0.44			0.14	0.26	0.09	0.16	0.64	0.12	0.20	0.34
v/c Ratio		1.87			1.57	0.81	1.47	1.17	0.47	1.61	1.22	0.43
Control Delay		423.9			313.7	65.2	286.9	144.3	15.3	332.5	159.7	26.0
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		423.9			313.7	65.2	286.9	144.3	15.3	332.5	159.7	26.0
LOS		F			F	E	F	F	B	F	F	C
Approach Delay		423.9			198.9			122.6			180.2	
Approach LOS		F			F			F			F	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green
Natural Cycle: 170
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.87
Intersection Signal Delay: 237.8 Intersection LOS: F
Intersection Capacity Utilization 124.8% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 107: N. Rocky River Road & US 74

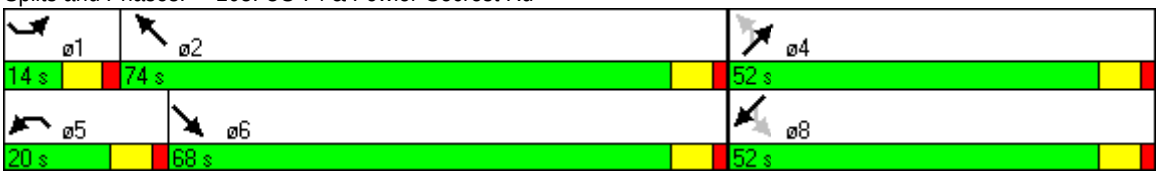


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	54	1026	33	82	1280	138	29	66	58	174	120	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.985			0.949			0.969	
Flt Protected	0.950			0.950				0.991			0.978	
Satd. Flow (prot)	1719	3421	0	1719	3387	0	0	1752	0	0	1765	0
Flt Permitted	0.950			0.950				0.869			0.724	
Satd. Flow (perm)	1719	3421	0	1719	3387	0	0	1536	0	0	1307	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		2601			2354			277			1205	
Travel Time (s)		39.4			35.7			5.4			18.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	60	1140	37	91	1422	153	32	73	64	193	133	96
Shared Lane Traffic (%)												
Lane Group Flow (vph)	60	1177	0	91	1575	0	0	169	0	0	422	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		
Detector Phase	1	6		5	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		21.0	21.0	
Total Split (s)	14.0	68.0	0.0	20.0	74.0	0.0	52.0	52.0	0.0	52.0	52.0	0.0
Total Split (%)	10.0%	48.6%	0.0%	14.3%	52.9%	0.0%	37.1%	37.1%	0.0%	37.1%	37.1%	0.0%
Maximum Green (s)	7.0	61.0		13.0	67.0		45.0	45.0		45.0	45.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	9.0	64.9		13.4	72.2			46.6			46.6	
Actuated g/C Ratio	0.06	0.46		0.10	0.52			0.33			0.33	
v/c Ratio	0.54	0.74		0.55	0.90			0.33			0.97	
Control Delay	81.8	34.7		73.0	40.0			37.1			82.1	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	81.8	34.7		73.0	40.0			37.1			82.1	
LOS	F	C		E	D			D			F	
Approach Delay		36.9			41.8			37.1			82.1	
Approach LOS		D			D			D			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.97			
Intersection Signal Delay: 44.7		Intersection LOS: D	
Intersection Capacity Utilization 92.1%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 108: US 74 & Fowler-Secrest Rd

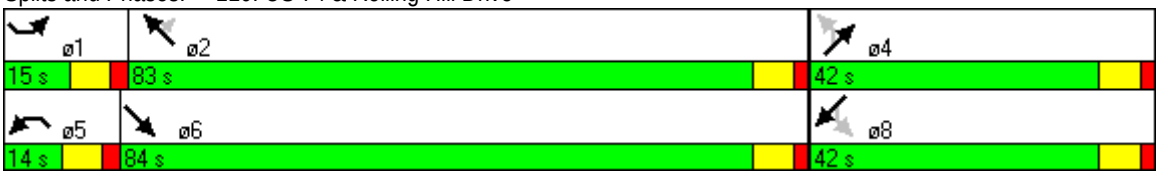


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	47	1101	123	16	1339	7	157	11	16	9	13	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.985				0.850		0.988			0.896	
Flt Protected	0.950			0.950				0.959			0.995	
Satd. Flow (prot)	1719	3387	0	1719	3438	1538	0	1765	0	0	1661	0
Flt Permitted	0.950			0.950				0.624			0.966	
Satd. Flow (perm)	1719	3387	0	1719	3438	1538	0	1148	0	0	1612	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		309			978			474			425	
Travel Time (s)		4.7			14.8			12.9			11.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	52	1223	137	18	1488	8	174	12	18	10	14	82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	52	1360	0	18	1488	8	0	204	0	0	106	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot		Perm	Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases						2	4			8		
Detector Phase	1	6		5	2	2	4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	12.0	7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0		14.0	19.0	19.0	14.0	14.0		14.0	14.0	
Total Split (s)	15.0	84.0	0.0	14.0	83.0	83.0	42.0	42.0	0.0	42.0	42.0	0.0
Total Split (%)	10.7%	60.0%	0.0%	10.0%	59.3%	59.3%	30.0%	30.0%	0.0%	30.0%	30.0%	0.0%
Maximum Green (s)	8.0	77.0		7.0	76.0	76.0	35.0	35.0		35.0	35.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		None	None	
Act Effct Green (s)	10.5	94.1		9.2	87.2	87.2		30.2			30.2	
Actuated g/C Ratio	0.08	0.67		0.07	0.62	0.62		0.22			0.22	
v/c Ratio	0.41	0.60		0.16	0.70	0.01		0.83			0.31	
Control Delay	71.5	16.2		65.2	21.9	13.6		77.6			46.9	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	
Total Delay	71.5	16.2		65.2	21.9	13.6		77.6			46.9	
LOS	E	B		E	C	B		E			D	
Approach Delay		18.3			22.4			77.6			46.9	
Approach LOS		B			C			E			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 24.9		Intersection LOS: C	
Intersection Capacity Utilization 64.3%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 110: US 74 & Rolling Hill Drive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	125	10	113	72	10	79	84	919	133	150	1144	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.862			0.934			0.981				0.850
Flt Protected	0.950				0.978		0.950			0.950		
Satd. Flow (prot)	1770	1606	0	0	1702	0	1719	3373	0	1719	3438	1538
Flt Permitted	0.585				0.720		0.950			0.950		
Satd. Flow (perm)	1090	1606	0	0	1253	0	1719	3373	0	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		510			371			748			991	
Travel Time (s)		13.9			10.1			11.3			15.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	139	11	126	80	11	88	93	1021	148	167	1271	106
Shared Lane Traffic (%)												
Lane Group Flow (vph)	139	137	0	0	179	0	93	1169	0	167	1271	106
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm			Perm			Prot			Prot		Perm
Protected Phases		3			8		1	6		5	2	
Permitted Phases	3			8								2
Detector Phase	3	3		8	8		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	12.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0		14.0	19.0	19.0
Total Split (s)	39.0	39.0	0.0	39.0	39.0	0.0	20.0	73.0	0.0	28.0	81.0	81.0
Total Split (%)	27.9%	27.9%	0.0%	27.9%	27.9%	0.0%	14.3%	52.1%	0.0%	20.0%	57.9%	57.9%
Maximum Green (s)	32.0	32.0		32.0	32.0		13.0	66.0		21.0	74.0	74.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?								Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	Max		None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	34.0	34.0			34.0		13.5	71.2		19.8	77.5	77.5
Actuated g/C Ratio	0.24	0.24			0.24		0.10	0.51		0.14	0.55	0.55
v/c Ratio	0.52	0.35			0.59		0.56	0.68		0.69	0.67	0.12
Control Delay	54.3	47.0			55.9		73.4	29.0		71.6	24.6	15.9
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	54.3	47.0			55.9		73.4	29.0		71.6	24.6	15.9
LOS	D	D			E		E	C		E	C	B
Approach Delay		50.7			55.9			32.2			29.1	
Approach LOS		D			E			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 33.6		Intersection LOS: C	
Intersection Capacity Utilization 71.5%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 111: Roland Drive & US 74

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	87	988	50	237	1196	96	33	22	129	123	51	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993				0.850		0.872				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3414	0	1719	3438	1538	1770	1624	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3414	0	1719	3438	1538	1770	1624	0	1770	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		822			734			281			279	
Travel Time (s)		12.5			11.1			5.5			7.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	97	1098	56	263	1329	107	37	24	143	137	57	149
Shared Lane Traffic (%)												
Lane Group Flow (vph)	97	1154	0	263	1329	107	37	167	0	137	57	149
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot		pm+ov	Split			Split		pm+ov
Protected Phases	1	6		5	2	8	4	4		8	8	1
Permitted Phases						2						8
Detector Phase	1	6		5	2	8	4	4		8	8	1
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	7.0	7.0	7.0		7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0		14.0	19.0	14.0	14.0	14.0		14.0	14.0	14.0
Total Split (s)	20.0	62.0	0.0	33.0	75.0	20.0	25.0	25.0	0.0	20.0	20.0	20.0
Total Split (%)	14.3%	44.3%	0.0%	23.6%	53.6%	14.3%	17.9%	17.9%	0.0%	14.3%	14.3%	14.3%
Maximum Green (s)	13.0	55.0		26.0	68.0	13.0	18.0	18.0		13.0	13.0	13.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	C-Max		None	C-Max	Max	None	None		Max	Max	Max
Act Effct Green (s)	15.0	59.0		26.0	70.0	86.2	18.8	18.8		16.2	16.2	36.2
Actuated g/C Ratio	0.11	0.42		0.19	0.50	0.62	0.13	0.13		0.12	0.12	0.26
v/c Ratio	0.53	0.80		0.82	0.77	0.11	0.16	0.77		0.67	0.26	0.36
Control Delay	70.3	41.1		75.5	32.4	6.1	54.6	80.8		76.3	60.9	46.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	70.3	41.1		75.5	32.4	6.1	54.6	80.8		76.3	60.9	46.1
LOS	E	D		E	C	A	D	F		E	E	D
Approach Delay		43.4			37.4			76.0			60.6	
Approach LOS		D			D			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 44.1		Intersection LOS: D	
Intersection Capacity Utilization 74.6%		ICU Level of Service D	
Analysis Period (min) 15			

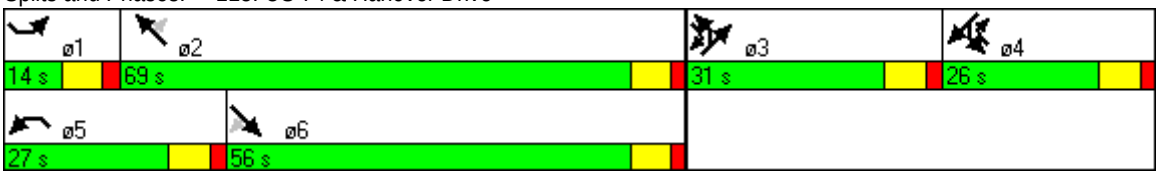
Splits and Phases: 112: US 74 & Williams Road

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	16	1133	110	257	1390	589	101	103	193	467	109	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850			0.850		0.902			0.982	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	1752	1664	0	3400	1811	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	1752	1664	0	3400	1811	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		338			529			376			313	
Travel Time (s)		5.1			8.0			7.3			8.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	18	1259	122	286	1544	654	112	114	214	519	121	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	18	1259	122	286	1544	654	112	328	0	519	138	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Split			Split		
Protected Phases	1	6	3	5	2	4	3	3		4	4	
Permitted Phases			6			2						
Detector Phase	1	6	3	5	2	4	3	3		4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0		14.0	14.0	
Total Split (s)	14.0	56.0	31.0	27.0	69.0	26.0	31.0	31.0	0.0	26.0	26.0	0.0
Total Split (%)	10.0%	40.0%	22.1%	19.3%	49.3%	18.6%	22.1%	22.1%	0.0%	18.6%	18.6%	0.0%
Maximum Green (s)	7.0	49.0	24.0	20.0	62.0	19.0	24.0	24.0		19.0	19.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Act Effct Green (s)	9.0	51.0	82.0	22.0	72.4	96.4	26.0	26.0		21.0	21.0	
Actuated g/C Ratio	0.06	0.36	0.59	0.16	0.52	0.69	0.19	0.19		0.15	0.15	
v/c Ratio	0.16	1.01	0.14	1.06	0.87	0.62	0.34	1.06		1.02	0.51	
Control Delay	65.6	70.9	13.5	126.5	37.0	14.3	53.1	121.8		102.3	62.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	65.6	70.9	13.5	126.5	37.0	14.3	53.1	121.8		102.3	62.0	
LOS	E	E	B	F	D	B	D	F		F	E	
Approach Delay		65.8			41.3			104.3			93.9	
Approach LOS		E			D			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.06			
Intersection Signal Delay: 60.7		Intersection LOS: E	
Intersection Capacity Utilization 92.8%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 113: US 74 & Hanover Drive

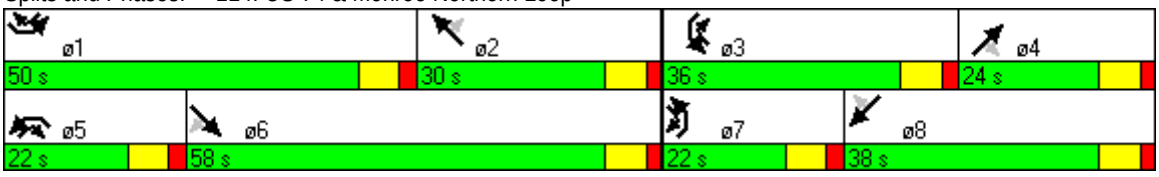


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	742	606	485	229	829	687	395	502	136	652	800	963
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3335	4940	1538	3335	4940	1538	3335	3438	1538	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	4940	1538	3335	4940	1538	3335	3438	1538	3433	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		858			915			405			209	
Travel Time (s)		13.0			13.9			7.9			3.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	2%	2%	2%
Adj. Flow (vph)	824	673	539	254	921	763	439	558	151	724	889	1070
Shared Lane Traffic (%)												
Lane Group Flow (vph)	824	673	539	254	921	763	439	558	151	724	889	1070
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	50.0	58.0	22.0	22.0	30.0	36.0	22.0	24.0	22.0	36.0	38.0	50.0
Total Split (%)	35.7%	41.4%	15.7%	15.7%	21.4%	25.7%	15.7%	17.1%	15.7%	25.7%	27.1%	35.7%
Maximum Green (s)	43.0	51.0	15.0	15.0	23.0	29.0	15.0	17.0	15.0	29.0	31.0	43.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	45.0	53.8	75.8	16.2	25.0	61.0	17.0	19.0	40.2	31.0	33.0	83.0
Actuated g/C Ratio	0.32	0.38	0.54	0.12	0.18	0.44	0.12	0.14	0.29	0.22	0.24	0.59
v/c Ratio	0.77	0.35	0.65	0.66	1.04	1.14	1.08	1.19	0.34	0.95	1.07	1.14
Control Delay	48.6	31.5	27.4	68.0	97.3	116.5	125.3	157.5	41.9	76.5	100.6	104.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.6	31.5	27.4	68.0	97.3	116.5	125.3	157.5	41.9	76.5	100.6	104.6
LOS	D	C	C	E	F	F	F	F	D	E	F	F
Approach Delay		37.3			101.0			130.0			95.7	
Approach LOS		D			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.19			
Intersection Signal Delay: 86.8		Intersection LOS: F	
Intersection Capacity Utilization 99.4%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 114: US 74 & Monroe Northern Loop

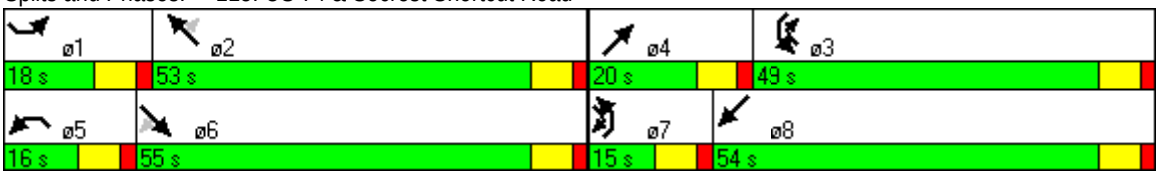


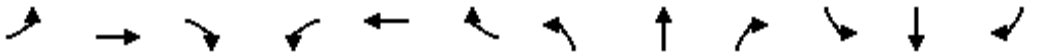
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	149	1178	57	141	1499	479	55	58	107	518	83	206
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.902			0.893	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	3335	4940	1538	1770	1680	0	1770	1663	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	3335	4940	1538	1770	1680	0	1770	1663	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		413			1354			238			233	
Travel Time (s)		6.3			20.5			6.5			4.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	166	1309	63	157	1666	532	61	64	119	576	92	229
Shared Lane Traffic (%)												
Lane Group Flow (vph)	166	1309	63	157	1666	532	61	183	0	576	321	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot			Prot		
Protected Phases	1	6	7	5	2	3	7	4		3	8	
Permitted Phases			6			2						
Detector Phase	1	6	7	5	2	3	7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0		14.0	14.0	
Total Split (s)	18.0	55.0	15.0	16.0	53.0	49.0	15.0	20.0	0.0	49.0	54.0	0.0
Total Split (%)	12.9%	39.3%	10.7%	11.4%	37.9%	35.0%	10.7%	14.3%	0.0%	35.0%	38.6%	0.0%
Maximum Green (s)	11.0	48.0	8.0	9.0	46.0	42.0	8.0	13.0		42.0	47.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Act Effct Green (s)	13.0	50.1	64.9	10.9	48.0	92.0	9.8	15.0		44.0	49.2	
Actuated g/C Ratio	0.09	0.36	0.46	0.08	0.34	0.66	0.07	0.11		0.31	0.35	
v/c Ratio	1.04	0.74	0.09	0.60	0.98	0.53	0.49	1.02		1.04	0.55	
Control Delay	141.6	42.4	21.5	72.8	63.7	8.4	76.7	132.0		94.2	40.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	141.6	42.4	21.5	72.8	63.7	8.4	76.7	132.0		94.2	40.9	
LOS	F	D	C	E	E	A	E	F		F	D	
Approach Delay		52.3			51.9			118.2			75.1	
Approach LOS		D			D			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 120			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.04			
Intersection Signal Delay: 59.3		Intersection LOS: E	
Intersection Capacity Utilization 92.2%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 115: US 74 & Secrest Shortcut Road





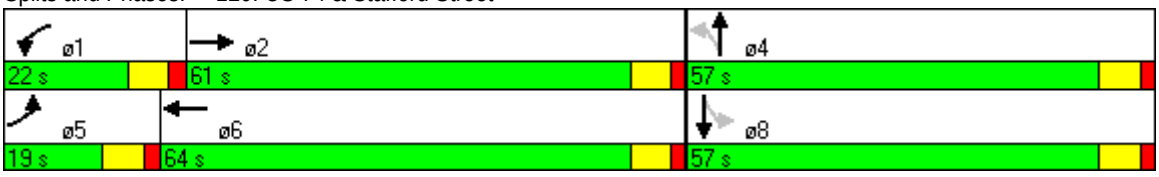
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	184	1740	151	225	2173	138	254	136	303	156	114	260
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.988			0.991			0.896			0.896	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4881	0	1719	4896	0	1770	1669	0	1770	1669	0
Flt Permitted	0.950			0.950			0.305			0.227		
Satd. Flow (perm)	1719	4881	0	1719	4896	0	568	1669	0	423	1669	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		443			590			549			636	
Travel Time (s)		6.7			8.9			15.0			12.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	204	1933	168	250	2414	153	282	151	337	173	127	289
Shared Lane Traffic (%)												
Lane Group Flow (vph)	204	2101	0	250	2567	0	282	488	0	173	416	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

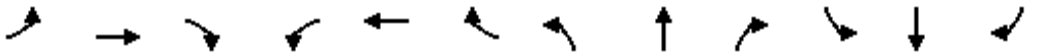
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	19.0	61.0	0.0	22.0	64.0	0.0	57.0	57.0	0.0	57.0	57.0	0.0
Total Split (%)	13.6%	43.6%	0.0%	15.7%	45.7%	0.0%	40.7%	40.7%	0.0%	40.7%	40.7%	0.0%
Maximum Green (s)	12.0	54.0		15.0	57.0		50.0	50.0		50.0	50.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	14.0	56.0		17.0	59.0		52.0	52.0		52.0	52.0	
Actuated g/C Ratio	0.10	0.40		0.12	0.42		0.37	0.37		0.37	0.37	
v/c Ratio	1.19	1.08		1.20	1.24		1.34	0.79		1.10	0.67	
Control Delay	179.8	84.5		176.2	149.8		215.8	49.7		143.2	43.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	179.8	84.5		176.2	149.8		215.8	49.7		143.2	43.3	
LOS	F	F		F	F		F	D		F	D	
Approach Delay		92.9			152.2			110.5			72.7	
Approach LOS		F			F			F			E	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 170
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.34
Intersection Signal Delay: 118.9 Intersection LOS: F
Intersection Capacity Utilization 108.0% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 120: US 74 & Stafford Street





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	78	1888	159	195	2310	53	117	10	117	107	10	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.988			0.997			0.862			0.857	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4881	0	1719	4925	0	1770	1606	0	1770	1596	0
Flt Permitted	0.950			0.950			0.371			0.561		
Satd. Flow (perm)	1719	4881	0	1719	4925	0	691	1606	0	1045	1596	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			20	
Link Distance (ft)		493			536			238			211	
Travel Time (s)		7.5			8.1			6.5			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	87	2098	177	217	2567	59	130	11	130	119	11	217
Shared Lane Traffic (%)												
Lane Group Flow (vph)	87	2275	0	217	2626	0	130	141	0	119	228	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	15.0	77.0	0.0	27.0	89.0	0.0	36.0	36.0	0.0	36.0	36.0	0.0
Total Split (%)	10.7%	55.0%	0.0%	19.3%	63.6%	0.0%	25.7%	25.7%	0.0%	25.7%	25.7%	0.0%
Maximum Green (s)	8.0	70.0		20.0	82.0		29.0	29.0		29.0	29.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	10.6	75.5		21.3	86.2		28.2	28.2		28.2	28.2	
Actuated g/C Ratio	0.08	0.54		0.15	0.62		0.20	0.20		0.20	0.20	
v/c Ratio	0.67	0.86		0.83	0.87		0.94	0.44		0.57	0.71	
Control Delay	87.4	33.1		82.9	26.7		115.0	52.7		60.8	64.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	87.4	33.1		82.9	26.7		115.0	52.7		60.8	64.4	
LOS	F	C		F	C		F	D		E	E	
Approach Delay		35.1			31.0			82.6			63.2	
Approach LOS		D			C			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 37.0		Intersection LOS: D	
Intersection Capacity Utilization 87.4%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 121: US 74 & Boyte Street

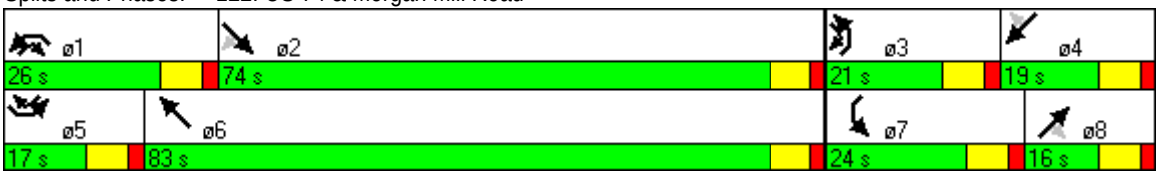
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	118	1809	161	138	2241	124	158	86	110	159	139	188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.992				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	1719	4900	0	1687	1776	1509	1687	1776	1509
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	1719	4900	0	1687	1776	1509	1687	1776	1509
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		515			499			502			475	
Travel Time (s)		7.8			7.6			9.8			9.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	7%	7%	7%	7%	7%	7%
Adj. Flow (vph)	131	2010	179	153	2490	138	176	96	122	177	154	209
Shared Lane Traffic (%)												
Lane Group Flow (vph)	131	2010	179	153	2628	0	176	96	122	177	154	209
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot			Prot		pm+ov	Prot		pm+ov
Protected Phases	5	2	3	1	6		3	8	1	7	4	5
Permitted Phases			2						8			4
Detector Phase	5	2	3	1	6		3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0		7.0	7.0	7.0	7.0	7.0	7.0

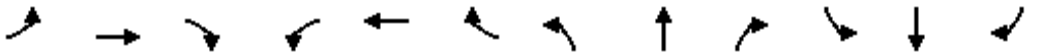
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0		14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	17.0	74.0	21.0	26.0	83.0	0.0	21.0	16.0	26.0	24.0	19.0	17.0
Total Split (%)	12.1%	52.9%	15.0%	18.6%	59.3%	0.0%	15.0%	11.4%	18.6%	17.1%	13.6%	12.1%
Maximum Green (s)	10.0	67.0	14.0	19.0	76.0		14.0	9.0	19.0	17.0	12.0	10.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max		None	None	None	None	None	None
Act Effct Green (s)	12.0	71.6	92.6	18.4	78.0		16.0	11.7	35.1	18.3	14.0	31.0
Actuated g/C Ratio	0.09	0.51	0.66	0.13	0.56		0.11	0.08	0.25	0.13	0.10	0.22
v/c Ratio	0.89	0.80	0.18	0.68	0.96		0.91	0.64	0.32	0.80	0.87	0.63
Control Delay	112.6	31.6	10.0	72.9	40.3		106.1	82.6	45.1	84.7	101.2	58.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	112.6	31.6	10.0	72.9	40.3		106.1	82.6	45.1	84.7	101.2	58.7
LOS	F	C	B	E	D		F	F	D	F	F	E
Approach Delay		34.5			42.1			81.5			79.3	
Approach LOS		C			D			F			E	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 45.1 Intersection LOS: D
Intersection Capacity Utilization 85.3% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 122: US 74 & Morgan Mill Road





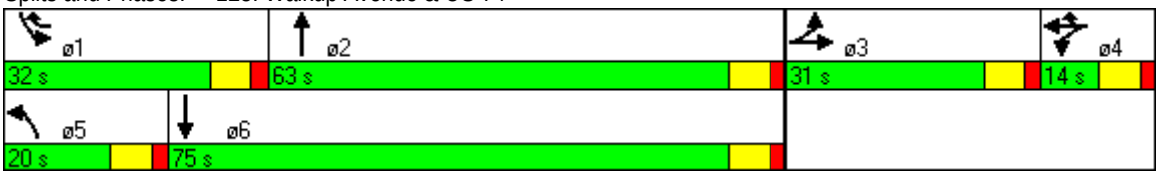
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	88	188	92	31	135	348	91	2058	43	383	1633	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.966				0.850		0.997			0.994	
Flt Protected		0.988		0.950			0.950			0.950		
Satd. Flow (prot)	0	1778	0	1770	1863	1583	1719	4925	0	1719	4910	0
Flt Permitted		0.988		0.950			0.950			0.950		
Satd. Flow (perm)	0	1778	0	1770	1863	1583	1719	4925	0	1719	4910	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		443			502			602			356	
Travel Time (s)		12.1			9.8			9.1			5.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	98	209	102	34	150	387	101	2287	48	426	1814	78
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	409	0	34	150	387	101	2335	0	426	1892	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pt+ov	Prot			Prot		
Protected Phases	3	3		4	4	4 1	5	2		1	6	
Permitted Phases												
Detector Phase	3	3		4	4	4 1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0		14.0	19.0	
Total Split (s)	31.0	31.0	0.0	14.0	14.0	46.0	20.0	63.0	0.0	32.0	75.0	0.0
Total Split (%)	22.1%	22.1%	0.0%	10.0%	10.0%	32.9%	14.3%	45.0%	0.0%	22.9%	53.6%	0.0%
Maximum Green (s)	24.0	24.0		7.0	7.0		13.0	56.0		25.0	68.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lead		Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)		26.0		9.0	9.0	41.0	13.7	58.0		27.0	71.3	
Actuated g/C Ratio		0.19		0.06	0.06	0.29	0.10	0.41		0.19	0.51	
v/c Ratio		1.24		0.30	1.25	0.83	0.60	1.14		1.28	0.76	
Control Delay		177.2		69.7	215.0	63.0	75.3	109.3		193.0	30.2	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		177.2		69.7	215.0	63.0	75.3	109.3		193.0	30.2	
LOS		F		E	F	E	E	F		F	C	
Approach Delay		177.2			103.4			107.9			60.1	
Approach LOS		F			F			F			E	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 160
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.28
Intersection Signal Delay: 93.1 Intersection LOS: F
Intersection Capacity Utilization 106.1% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 123: Walkup Avenue & US 74

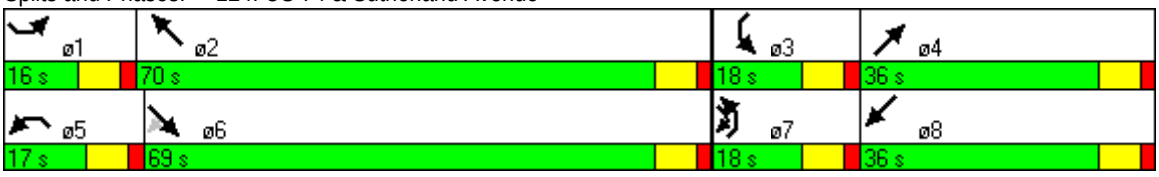


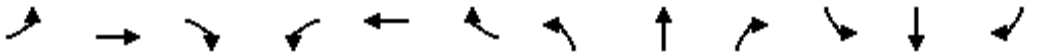
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	118	1505	192	66	1876	209	151	254	41	137	264	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.985			0.979			0.960	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	1719	4866	0	1752	1806	0	1752	1771	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	1719	4866	0	1752	1806	0	1752	1771	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		425			487			426			331	
Travel Time (s)		6.4			7.4			11.6			6.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	131	1672	213	73	2084	232	168	282	46	152	293	107
Shared Lane Traffic (%)												
Lane Group Flow (vph)	131	1672	213	73	2316	0	168	328	0	152	400	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot			Prot			Prot		
Protected Phases	1	6	7	5	2		7	4		3	8	
Permitted Phases			6									
Detector Phase	1	6	7	5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	16.0	69.0	18.0	17.0	70.0	0.0	18.0	36.0	0.0	18.0	36.0	0.0
Total Split (%)	11.4%	49.3%	12.9%	12.1%	50.0%	0.0%	12.9%	25.7%	0.0%	12.9%	25.7%	0.0%
Maximum Green (s)	9.0	62.0	11.0	10.0	63.0		11.0	29.0		11.0	29.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes			Yes			Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max		None	None		None	None	
Act Effct Green (s)	11.0	67.5	85.5	11.3	65.0		13.0	31.0		13.0	31.0	
Actuated g/C Ratio	0.08	0.48	0.61	0.08	0.46		0.09	0.22		0.09	0.22	
v/c Ratio	0.97	0.70	0.23	0.53	1.03		1.03	0.82		0.93	1.02	
Control Delay	133.2	31.2	14.0	75.7	62.6		139.4	69.3		117.0	103.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	133.2	31.2	14.0	75.7	62.6		139.4	69.3		117.0	103.8	
LOS	F	C	B	E	E		F	E		F	F	
Approach Delay		36.0			63.0			93.0			107.4	
Approach LOS		D			E			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.03			
Intersection Signal Delay: 60.3		Intersection LOS: E	
Intersection Capacity Utilization 92.2%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 124: US 74 & Sutherland Avenue





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	2	34	26	23	48	115	61	1960	38	150	1591	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.935			0.894				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1742	0	1770	1665	0	1719	4940	1538	1719	4940	1538
Flt Permitted	0.395			0.713			0.950			0.950		
Satd. Flow (perm)	736	1742	0	1328	1665	0	1719	4940	1538	1719	4940	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		163			218			356			257	
Travel Time (s)		5.6			4.2			5.4			3.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	2	38	29	26	53	128	68	2178	42	167	1768	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	67	0	26	181	0	68	2178	42	167	1768	4
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm			Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	12.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	19.0
Total Split (s)	30.0	30.0	0.0	30.0	30.0	0.0	17.0	83.0	83.0	27.0	93.0	93.0
Total Split (%)	21.4%	21.4%	0.0%	21.4%	21.4%	0.0%	12.1%	59.3%	59.3%	19.3%	66.4%	66.4%
Maximum Green (s)	23.0	23.0		23.0	23.0		10.0	76.0	76.0	20.0	86.0	86.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	21.4	21.4		21.4	21.4		11.4	84.2	84.2	19.4	95.0	95.0
Actuated g/C Ratio	0.15	0.15		0.15	0.15		0.08	0.60	0.60	0.14	0.68	0.68
v/c Ratio	0.02	0.25		0.13	0.71		0.49	0.73	0.05	0.70	0.53	0.00
Control Delay	48.5	53.4		50.9	71.6		73.3	22.8	13.6	73.3	13.2	9.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.5	53.4		50.9	71.6		73.3	22.8	13.6	73.3	13.2	9.8
LOS	D	D		D	E		E	C	B	E	B	A
Approach Delay		53.3			69.0			24.1			18.3	
Approach LOS		D			E			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 24.1		Intersection LOS: C	
Intersection Capacity Utilization 68.3%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 125: Dove Street & US 74

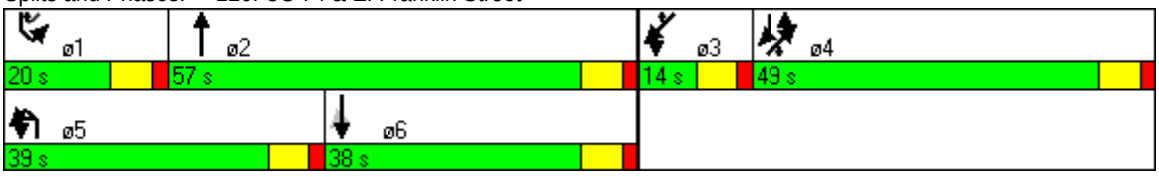
Lane Group	NBU	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT
Lane Configurations												
Volume (vph)	13	981	1591	127	128	1217	255	355	83	1046	130	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.86	0.97	0.86	0.86	1.00	0.91	1.00	1.00	1.00	0.88	1.00	1.00
Frt			0.989				0.850			0.850		
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	3335	6156	0	1719	4940	1538	1752	1845	2760	1752	1845
Flt Permitted		0.950			0.950			0.950			0.950	
Satd. Flow (perm)	0	3335	6156	0	1719	4940	1538	1752	1845	2760	1752	1845
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			45			35			20
Link Distance (ft)			341			436			391			335
Travel Time (s)			5.2			6.6			7.6			11.4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%
Adj. Flow (vph)	14	1090	1768	141	142	1352	283	394	92	1162	144	89
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1104	1909	0	142	1352	283	394	92	1162	144	89
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			24			24			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1	1	2		1	2	1	1	2	1	1	2
Detector Template	Left	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru
Leading Detector (ft)	20	20	100		20	100	20	20	100	20	20	100
Trailing Detector (ft)	0	0	0		0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0		0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	6		20	6	20	20	6	20	20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94			94			94			94
Detector 2 Size(ft)			6			6			6			6
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			0.0
Turn Type	Prot	Prot			Prot		pm+ov	Split		Prot	Split	
Protected Phases	5	5	2		1	6	4	4	4	4	3	3
Permitted Phases							6					
Detector Phase	5	5	2		1	6	4	4	4	4	3	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	12.0		7.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SWR
Lane Configurations	
Volume (vph)	171
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1568
Flt Permitted	
Satd. Flow (perm)	1568
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	3%
Adj. Flow (vph)	190
Shared Lane Traffic (%)	
Lane Group Flow (vph)	190
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	pt+ov
Protected Phases	3 1
Permitted Phases	
Detector Phase	3 1
Switch Phase	
Minimum Initial (s)	

Lane Group	NBU	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT
Minimum Split (s)	14.0	14.0	19.0		14.0	19.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	39.0	39.0	57.0	0.0	20.0	38.0	49.0	49.0	49.0	49.0	14.0	14.0
Total Split (%)	27.9%	27.9%	40.7%	0.0%	14.3%	27.1%	35.0%	35.0%	35.0%	35.0%	10.0%	10.0%
Maximum Green (s)	32.0	32.0	50.0		13.0	31.0	42.0	42.0	42.0	42.0	7.0	7.0
Yellow Time (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag		Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max		None	C-Max	None	None	None	None	None	None
Act Effct Green (s)		34.0	52.3		14.7	33.0	77.0	44.0	44.0	44.0	9.0	9.0
Actuated g/C Ratio		0.24	0.37		0.10	0.24	0.55	0.31	0.31	0.31	0.06	0.06
v/c Ratio		1.36	0.83		0.79	1.16	0.33	0.72	0.16	1.34	1.27	0.75
Control Delay		211.5	43.7		90.0	129.2	11.3	51.0	35.6	199.0	225.6	98.8
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		211.5	43.7		90.0	129.2	11.3	51.0	35.6	199.0	225.6	98.8
LOS		F	D		F	F	B	D	D	F	F	F
Approach Delay			105.2			107.3			154.5			118.7
Approach LOS			F			F			F			F

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 170			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.36			
Intersection Signal Delay: 118.4		Intersection LOS: F	
Intersection Capacity Utilization 112.3%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 126: US 74 & E. Franklin Street



Lane Group	SWR
Minimum Split (s)	
Total Split (s)	34.0
Total Split (%)	24.3%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Act Effct Green (s)	23.7
Actuated g/C Ratio	0.17
v/c Ratio	0.72
Control Delay	47.0
Queue Delay	0.0
Total Delay	47.0
LOS	D
Approach Delay	
Approach LOS	

Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	10	0	1253	916	228	1451	18	1535	0	330	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.91	0.91	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.998			0.946			
Flt Protected	0.950				0.950			0.950	0.969			
Satd. Flow (prot)	1719	0	4940	1538	1736	4978	0	1504	1451	0	0	0
Flt Permitted	0.950				0.950			0.950	0.969			
Satd. Flow (perm)	1719	0	4940	1538	1736	4978	0	1504	1451	0	0	0
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			55			45			25
Link Distance (ft)			239			375			459			142
Travel Time (s)			3.6			4.6			7.0			3.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	4%	4%	4%	14%	14%	14%	2%	2%
Adj. Flow (vph)	11	0	1392	1018	253	1612	20	1706	0	367	0	0
Shared Lane Traffic (%)								38%				
Lane Group Flow (vph)	11	0	1392	1018	253	1632	0	1058	1015	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			12			12			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1		2	1	1	2		1	2			
Detector Template	Left		Thru	Right	Left	Thru		Left	Thru			
Leading Detector (ft)	20		100	20	20	100		20	100			
Trailing Detector (ft)	0		0	0	0	0		0	0			
Detector 1 Position(ft)	0		0	0	0	0		0	0			
Detector 1 Size(ft)	20		6	20	20	6		20	6			
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 2 Position(ft)			94			94			94			
Detector 2 Size(ft)			6			6			6			
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			
Turn Type	Prot			pm+ov	Prot			Split				
Protected Phases	5		2	8	1	6		8	8			
Permitted Phases				2								
Detector Phase	5		2	8	1	6		8	8			
Switch Phase												
Minimum Initial (s)	7.0		12.0	12.0	7.0	14.0		12.0	12.0			

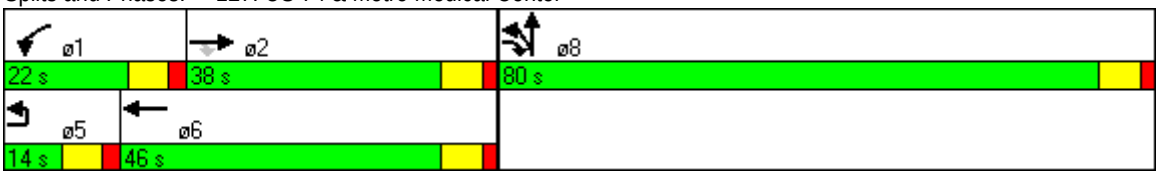
Lane Group	SBR
Lane Configurations	
Volume (vph)	29
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.865
Flt Protected	
Satd. Flow (prot)	1611
Flt Permitted	
Satd. Flow (perm)	1611
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	2%
Adj. Flow (vph)	32
Shared Lane Traffic (%)	
Lane Group Flow (vph)	32
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Detector Phase	
Switch Phase	
Minimum Initial (s)	

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Minimum Split (s)	14.0		19.0	19.0	14.0	21.0		19.0	19.0			
Total Split (s)	14.0	0.0	38.0	80.0	22.0	46.0	0.0	80.0	80.0	0.0	0.0	0.0
Total Split (%)	10.0%	0.0%	27.1%	57.1%	15.7%	32.9%	0.0%	57.1%	57.1%	0.0%	0.0%	0.0%
Maximum Green (s)	7.0		31.0	73.0	15.0	39.0		73.0	73.0			
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0		5.0	5.0			
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0		2.0	2.0			
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	2.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	2.0	2.0
Lead/Lag	Lead		Lag		Lead	Lag						
Lead-Lag Optimize?			Yes			Yes						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0		3.0	3.0			
Recall Mode	None		C-Max	None	None	C-Max		None	None			
Act Effct Green (s)	9.0		33.0	113.0	17.0	49.4		75.0	75.0			
Actuated g/C Ratio	0.06		0.24	0.81	0.12	0.35		0.54	0.54			
v/c Ratio	0.10		1.20	0.82	1.20	0.93		1.31	1.31			
Control Delay	63.9		142.3	14.9	176.9	53.7		179.3	176.9			
Queue Delay	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Total Delay	63.9		142.3	14.9	176.9	53.7		179.3	176.9			
LOS	E		F	B	F	D		F	F			
Approach Delay			88.4			70.3			178.1			
Approach LOS			F			E			F			

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 170
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.31
Intersection Signal Delay: 111.6 Intersection LOS: F
Intersection Capacity Utilization 101.9% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 127: US 74 & Metro Medical Center



Lane Group	SBR
Minimum Split (s)	
Total Split (s)	0.0
Total Split (%)	0.0%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	2.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Act Effct Green (s)	140.0
Actuated g/C Ratio	1.00
v/c Ratio	0.02
Control Delay	0.0
Queue Delay	0.0
Total Delay	0.0
LOS	A
Approach Delay	
Approach LOS	

Intersection Summary

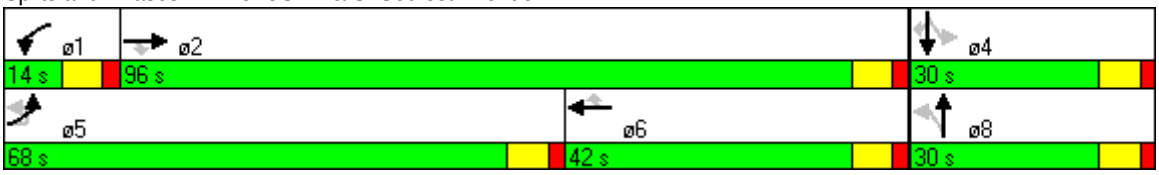
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	12	302	1201	36	9	1507	251	47	237	9	108	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850			0.850		0.996			
Flt Protected		0.950			0.950				0.992			0.975
Satd. Flow (prot)	0	1736	3471	1553	1736	3471	1553	0	1840	0	0	1816
Flt Permitted		0.063			0.950				0.511			0.338
Satd. Flow (perm)	0	115	3471	1553	1736	3471	1553	0	948	0	0	630
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			55			55			35			35
Link Distance (ft)			411			374			242			283
Travel Time (s)			5.1			4.6			4.7			5.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%
Adj. Flow (vph)	13	336	1334	40	10	1674	279	52	263	10	120	110
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	349	1334	40	10	1674	279	0	325	0	0	230
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			12			12			0			0
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1	1	2	1	1	2	1	1	2		1	2
Detector Template	Left	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru
Leading Detector (ft)	20	20	100	20	20	100	20	20	100		20	100
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0		0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0		0	0
Detector 1 Size(ft)	20	20	6	20	20	6	20	20	6		20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)			94			94			94			94
Detector 2 Size(ft)			6			6			6			6
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			0.0
Turn Type	custom	Prot		Perm	Prot		Perm	Perm			Perm	
Protected Phases		5	2		1	6			8			4
Permitted Phases	5			2			6	8			4	
Detector Phase	5	5	2	2	1	6	6	8	8		4	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	14.0	14.0	7.0	14.0	14.0	7.0	7.0		7.0	7.0

Lane Group	SBR
Lane Configurations	
Volume (vph)	164
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	2%
Adj. Flow (vph)	182
Shared Lane Traffic (%)	
Lane Group Flow (vph)	182
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Detector Phase	4
Switch Phase	
Minimum Initial (s)	7.0

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Minimum Split (s)	14.0	14.0	21.0	21.0	14.0	21.0	21.0	14.0	14.0		14.0	14.0
Total Split (s)	68.0	68.0	96.0	96.0	14.0	42.0	42.0	30.0	30.0	0.0	30.0	30.0
Total Split (%)	48.6%	48.6%	68.6%	68.6%	10.0%	30.0%	30.0%	21.4%	21.4%	0.0%	21.4%	21.4%
Maximum Green (s)	61.0	61.0	89.0	89.0	7.0	35.0	35.0	23.0	23.0		23.0	23.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Time Before Reduce (s)	0.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0	0.0		0.0	0.0
Time To Reduce (s)	0.0	0.0	50.0	50.0	0.0	50.0	50.0	0.0	0.0		0.0	0.0
Recall Mode	None	None	C-Min	C-Min	None	C-Min	C-Min	None	None		None	None
Act Effct Green (s)		63.0	102.2	102.2	9.0	37.0	37.0		25.0			25.0
Actuated g/C Ratio		0.45	0.73	0.73	0.06	0.26	0.26		0.18			0.18
v/c Ratio		6.71	0.53	0.04	0.09	1.83	0.68		1.92			2.04
Control Delay		2618.7	9.8	6.4	63.7	406.1	55.9		467.0			524.3
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0
Total Delay		2618.7	9.8	6.4	63.7	406.1	55.9		467.0			524.3
LOS		F	A	A	E	F	E		F			F
Approach Delay			538.2			354.6			467.0			321.4
Approach LOS			F			F			F			F

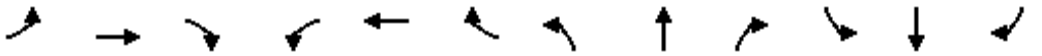
Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 6.71			
Intersection Signal Delay: 431.3		Intersection LOS: F	
Intersection Capacity Utilization 101.5%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 128: US 74 & S. Secrest Avenue



Lane Group	SBR
Minimum Split (s)	14.0
Total Split (s)	30.0
Total Split (%)	21.4%
Maximum Green (s)	23.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Minimum Gap (s)	3.0
Time Before Reduce (s)	0.0
Time To Reduce (s)	0.0
Recall Mode	None
Act Effct Green (s)	25.0
Actuated g/C Ratio	0.18
v/c Ratio	0.64
Control Delay	64.9
Queue Delay	0.0
Total Delay	64.9
LOS	E
Approach Delay	
Approach LOS	

Intersection Summary

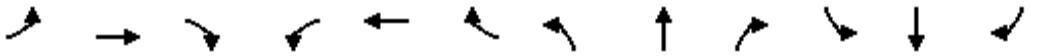


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	109	1260	31	6	1560	101	20	13	3	59	15	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.991			0.990				0.850
Flt Protected	0.950			0.950				0.973			0.962	
Satd. Flow (prot)	1736	3457	0	1736	3440	0	0	1794	0	0	1792	1583
Flt Permitted	0.950			0.950				0.719			0.797	
Satd. Flow (perm)	1736	3457	0	1736	3440	0	0	1326	0	0	1485	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			20			25	
Link Distance (ft)		245			259			179			276	
Travel Time (s)		4.8			5.0			6.1			7.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	121	1400	34	7	1733	112	22	14	3	66	17	88
Shared Lane Traffic (%)												
Lane Group Flow (vph)	121	1434	0	7	1845	0	0	39	0	0	83	88
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		pm+ov
Protected Phases	5	2		1	6			8			4	5
Permitted Phases							8			4		4
Detector Phase	5	2		1	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	17.0		14.0	17.0		14.0	14.0		14.0	14.0	14.0
Total Split (s)	23.0	107.0	0.0	14.0	98.0	0.0	19.0	19.0	0.0	19.0	19.0	23.0
Total Split (%)	16.4%	76.4%	0.0%	10.0%	70.0%	0.0%	13.6%	13.6%	0.0%	13.6%	13.6%	16.4%
Maximum Green (s)	16.0	100.0		7.0	91.0		12.0	12.0		12.0	12.0	16.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None
Act Effct Green (s)	15.8	114.1		9.0	96.1			13.1			13.1	33.9
Actuated g/C Ratio	0.11	0.82		0.06	0.69			0.09			0.09	0.24
v/c Ratio	0.62	0.51		0.06	0.78			0.31			0.59	0.23
Control Delay	72.8	5.5		63.0	18.6			65.7			78.4	43.1
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Delay	72.8	5.5		63.0	18.6			65.7			78.4	43.1
LOS	E	A		E	B			E			E	D
Approach Delay		10.7			18.8			65.7			60.2	
Approach LOS		B			B			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay: 17.8		Intersection LOS: B	
Intersection Capacity Utilization 73.5%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 129: US 74 & Bivens Street

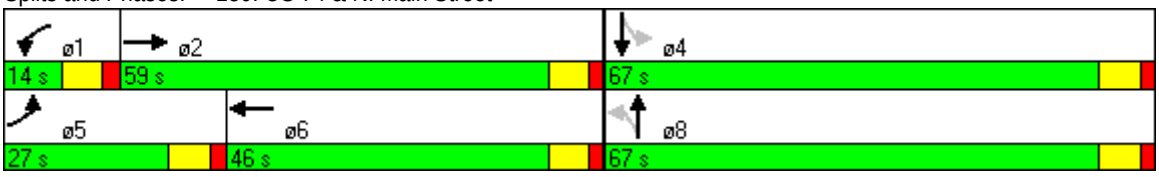


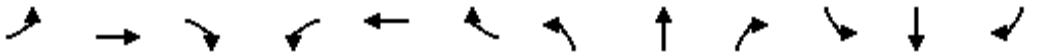
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	377	948	39	56	1206	102	49	373	55	77	283	360
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.994			0.988			0.984			0.916	
Flt Protected	0.950			0.950				0.995		0.950		
Satd. Flow (prot)	1736	3450	0	1736	3429	0	0	1824	0	1770	1706	0
Flt Permitted	0.950			0.950				0.378		0.356		
Satd. Flow (perm)	1736	3450	0	1736	3429	0	0	693	0	663	1706	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		282			333			173			197	
Travel Time (s)		5.5			6.5			3.4			3.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	419	1053	43	62	1340	113	54	414	61	86	314	400
Shared Lane Traffic (%)												
Lane Group Flow (vph)	419	1096	0	62	1453	0	0	529	0	86	714	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	17.0		14.0	17.0		14.0	14.0		14.0	14.0	
Total Split (s)	27.0	59.0	0.0	14.0	46.0	0.0	67.0	67.0	0.0	67.0	67.0	0.0
Total Split (%)	19.3%	42.1%	0.0%	10.0%	32.9%	0.0%	47.9%	47.9%	0.0%	47.9%	47.9%	0.0%
Maximum Green (s)	20.0	52.0		7.0	39.0		60.0	60.0		60.0	60.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	None		None	None		None	None	
Act Effct Green (s)	22.0	56.8		9.0	41.0			62.0		62.0	62.0	
Actuated g/C Ratio	0.16	0.41		0.06	0.29			0.44		0.44	0.44	
v/c Ratio	1.53	0.78		0.55	1.45			1.72		0.29	0.94	
Control Delay	297.0	41.9		82.6	243.3			366.6		28.5	59.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	297.0	41.9		82.6	243.3			366.6		28.5	59.5	
LOS	F	D		F	F			F		C	E	
Approach Delay		112.4			236.7			366.6			56.1	
Approach LOS		F			F			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.72			
Intersection Signal Delay: 176.2		Intersection LOS: F	
Intersection Capacity Utilization 134.6%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 130: US 74 & N. Main Street





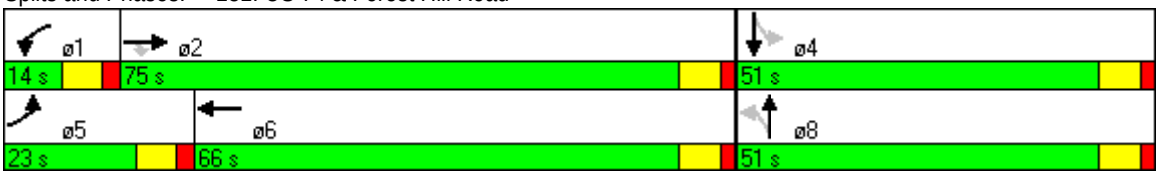
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	97	736	111	34	908	10	120	26	29	11	30	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.998			0.978			0.898	
Flt Protected	0.950			0.950				0.967			0.997	
Satd. Flow (prot)	1736	3471	1553	1736	3464	0	0	1679	0	0	1636	0
Flt Permitted	0.950			0.950				0.541			0.974	
Satd. Flow (perm)	1736	3471	1553	1736	3464	0	0	940	0	0	1598	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			35	
Link Distance (ft)		576			646			376			353	
Travel Time (s)		7.1			8.0			4.7			6.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	7%	7%	7%	4%	4%	4%
Adj. Flow (vph)	108	818	123	38	1009	11	133	29	32	12	33	137
Shared Lane Traffic (%)												
Lane Group Flow (vph)	108	818	123	38	1020	0	0	194	0	0	182	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		Perm	Prot			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8			4		
Detector Phase	5	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	14.0	14.0	7.0	14.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	21.0	21.0	14.0	21.0		14.0	14.0		14.0	14.0	
Total Split (s)	23.0	75.0	75.0	14.0	66.0	0.0	51.0	51.0	0.0	51.0	51.0	0.0
Total Split (%)	16.4%	53.6%	53.6%	10.0%	47.1%	0.0%	36.4%	36.4%	0.0%	36.4%	36.4%	0.0%
Maximum Green (s)	16.0	68.0	68.0	7.0	59.0		44.0	44.0		44.0	44.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	
Act Effct Green (s)	16.0	84.0	84.0	10.8	76.0			33.0			33.0	
Actuated g/C Ratio	0.11	0.60	0.60	0.08	0.54			0.24			0.24	
v/c Ratio	0.55	0.39	0.13	0.29	0.54			0.87			0.48	
Control Delay	68.2	17.7	15.8	65.9	24.3			85.4			48.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Delay	68.2	17.7	15.8	65.9	24.3			85.4			48.9	
LOS	E	B	B	E	C			F			D	
Approach Delay		22.6			25.8			85.4			48.9	
Approach LOS		C			C			F			D	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 30.8 Intersection LOS: C
Intersection Capacity Utilization 67.5% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 131: US 74 & Forest Hill Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	497	204	60	37	125	74	111	3031	463	44	2428	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1719	3438	1538	1719	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	1719	3438	1538	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			45			55			55	
Link Distance (ft)		1096			1168			1536			3465	
Travel Time (s)		21.4			17.7			19.0			43.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	552	227	67	41	139	82	123	3368	514	49	2698	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	552	227	67	41	139	82	123	3368	514	49	2698	49
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	1	6	7	5	2	3
Permitted Phases			4			8			6			2
Detector Phase	7	4	5	3	8	1	1	6	7	5	2	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	14.0	7.0	7.0	14.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0	14.0	14.0	21.0	14.0	14.0	21.0	14.0
Total Split (s)	21.0	21.0	14.0	14.0	14.0	14.0	14.0	91.0	21.0	14.0	91.0	14.0
Total Split (%)	15.0%	15.0%	10.0%	10.0%	10.0%	10.0%	10.0%	65.0%	15.0%	10.0%	65.0%	10.0%
Maximum Green (s)	14.0	14.0	7.0	7.0	7.0	7.0	7.0	84.0	14.0	7.0	84.0	7.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	16.0	18.8	32.8	9.0	9.0	23.0	9.0	88.8	109.8	9.0	86.0	100.0
Actuated g/C Ratio	0.11	0.13	0.23	0.06	0.06	0.16	0.06	0.63	0.78	0.06	0.61	0.71
v/c Ratio	1.41	0.48	0.18	0.19	0.61	0.32	1.11	1.54	0.43	0.44	1.28	0.04
Control Delay	241.9	61.1	46.4	64.2	75.7	55.4	175.2	271.6	6.6	76.1	155.4	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	241.9	61.1	46.4	64.2	75.7	55.4	175.2	271.6	6.6	76.1	155.4	6.0
LOS	F	E	D	E	E	E	F	F	A	E	F	A
Approach Delay		177.9			67.6			234.7			151.4	
Approach LOS		F			E			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.54			
Intersection Signal Delay: 193.6		Intersection LOS: F	
Intersection Capacity Utilization 124.8%		ICU Level of Service H	
Analysis Period (min) 15			

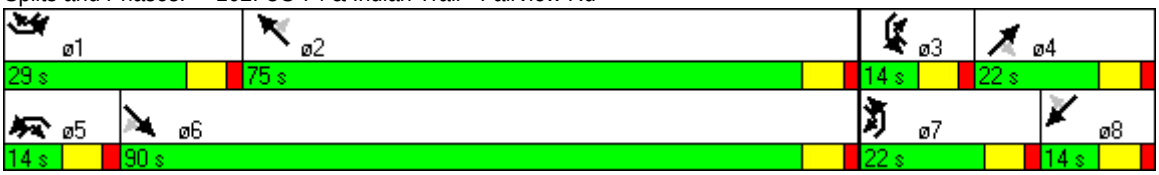
Splits and Phases: 101: Stallings Road & US 74

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	615	2123	413	86	1738	132	427	279	108	88	147	335
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3335	3438	1538	1719	3438	1538	3335	3438	1538	3335	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3438	1538	1719	3438	1538	3335	3438	1538	3335	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			35			35	
Link Distance (ft)		2103			2380			902			1112	
Travel Time (s)		26.1			29.5			17.6			21.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	683	2359	459	96	1931	147	474	310	120	98	163	372
Shared Lane Traffic (%)												
Lane Group Flow (vph)	683	2359	459	96	1931	147	474	310	120	98	163	372
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	7.0	14.0	7.0	7.0	14.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	21.0	14.0	14.0	21.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	29.0	90.0	22.0	14.0	75.0	14.0	22.0	22.0	14.0	14.0	14.0	29.0
Total Split (%)	20.7%	64.3%	15.7%	10.0%	53.6%	10.0%	15.7%	15.7%	10.0%	10.0%	10.0%	20.7%
Maximum Green (s)	22.0	83.0	15.0	7.0	68.0	7.0	15.0	15.0	7.0	7.0	7.0	22.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	24.0	85.0	107.0	9.0	70.0	84.0	17.0	17.0	31.0	9.0	9.0	38.0
Actuated g/C Ratio	0.17	0.61	0.76	0.06	0.50	0.60	0.12	0.12	0.22	0.06	0.06	0.27
v/c Ratio	1.19	1.13	0.39	0.86	1.12	0.16	1.17	0.74	0.35	0.46	0.74	0.89
Control Delay	152.4	93.0	6.7	118.9	97.3	12.9	152.2	71.1	49.5	70.4	84.0	73.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	152.4	93.0	6.7	118.9	97.3	12.9	152.2	71.1	49.5	70.4	84.0	73.3
LOS	F	F	A	F	F	B	F	E	D	E	F	E
Approach Delay		93.2			92.6			110.8			75.6	
Approach LOS		F			F			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.19			
Intersection Signal Delay: 93.7		Intersection LOS: F	
Intersection Capacity Utilization 100.3%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 102: US 74 & Indian Trail - Fairview Rd

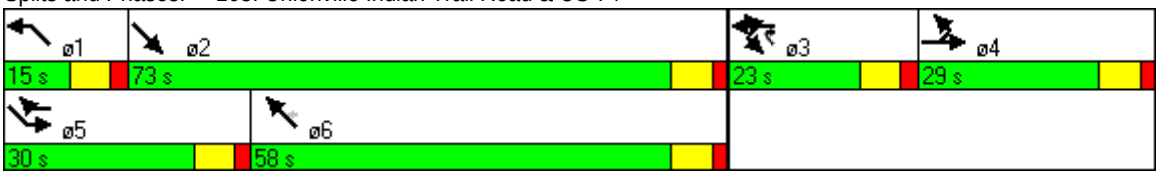


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	56	364	238	321	151	399	688	1714	40	139	1404	454
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Frt		0.946				0.850		0.997				0.850
Flt Protected		0.996		0.950	0.982		0.950			0.950		
Satd. Flow (prot)	0	3302	0	1665	1721	1568	3335	3428	0	1719	3438	1538
Flt Permitted		0.996		0.950	0.982		0.950			0.950		
Satd. Flow (perm)	0	3302	0	1665	1721	1568	3335	3428	0	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			45			55			55	
Link Distance (ft)		795			1304			1032			1062	
Travel Time (s)		15.5			19.8			12.8			13.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	62	404	264	357	168	443	764	1904	44	154	1560	504
Shared Lane Traffic (%)				28%								
Lane Group Flow (vph)	0	730	0	257	268	443	764	1948	0	154	1560	504
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	1	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	1	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pt+ov	Prot			Prot		pm+ov
Protected Phases	4	4		3	3	3 5	5	2		1	6	3
Permitted Phases												6
Detector Phase	4	4		3	3	3 5	5	2		1	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	14.0		7.0	14.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	21.0		14.0	21.0	14.0
Total Split (s)	29.0	29.0	0.0	23.0	23.0	53.0	30.0	73.0	0.0	15.0	58.0	23.0
Total Split (%)	20.7%	20.7%	0.0%	16.4%	16.4%	37.9%	21.4%	52.1%	0.0%	10.7%	41.4%	16.4%
Maximum Green (s)	22.0	22.0		16.0	16.0		23.0	66.0		8.0	51.0	16.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	None
Act Effct Green (s)		24.0		18.0	18.0	43.0	25.0	68.0		10.0	53.0	76.0
Actuated g/C Ratio		0.17		0.13	0.13	0.31	0.18	0.49		0.07	0.38	0.54
v/c Ratio		1.29		1.20	1.21	0.92	1.28	1.17		1.25	1.20	0.60
Control Delay		188.5		176.7	179.8	57.3	184.6	117.0		214.4	135.5	25.6
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay		188.5		176.7	179.8	57.3	184.6	117.0		214.4	135.5	25.6
LOS		F		F	F	E	F	F		F	F	C
Approach Delay		188.5			122.9			136.1			116.0	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 170			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.29			
Intersection Signal Delay: 133.2		Intersection LOS: F	
Intersection Capacity Utilization 107.3%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 103: Unionville Indian Trail Road & US 74

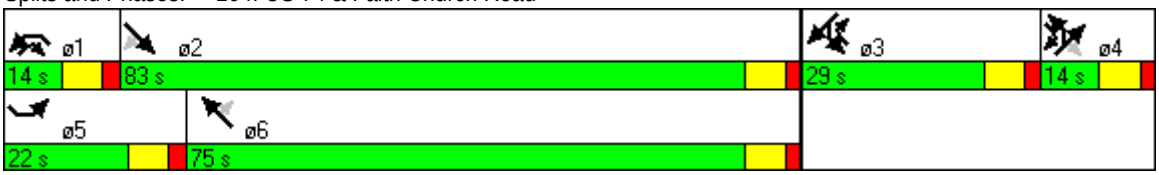


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	199	2078	40	53	1677	201	24	7	39	320	14	256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.858	
Flt Protected	0.950			0.950				0.963		0.950		
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	0	1679	1482	1770	1598	0
Flt Permitted	0.950			0.950				0.963		0.950		
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	0	1679	1482	1770	1598	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			15			35	
Link Distance (ft)		1177			2588			625			368	
Travel Time (s)		14.6			32.1			28.4			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	9%	9%	9%	2%	2%	2%
Adj. Flow (vph)	221	2309	44	59	1863	223	27	8	43	356	16	284
Shared Lane Traffic (%)												
Lane Group Flow (vph)	221	2309	44	59	1863	223	0	35	43	356	300	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	5	100	20	20	100	20	0	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	5	6	20	20	6	20	0	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Split		pm+ov	Split		
Protected Phases	5	2	4	1	6	3	4	4	1	3	3	
Permitted Phases			2			6			4			
Detector Phase	5	2	4	1	6	3	4	4	1	3	3	
Switch Phase												
Minimum Initial (s)	7.0	14.0	7.0	7.0	14.0	7.0	7.0	7.0	7.0	7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	21.0	14.0	14.0	21.0	14.0	14.0	14.0	14.0	14.0	14.0	
Total Split (s)	22.0	83.0	14.0	14.0	75.0	29.0	14.0	14.0	14.0	29.0	29.0	0.0
Total Split (%)	15.7%	59.3%	10.0%	10.0%	53.6%	20.7%	10.0%	10.0%	10.0%	20.7%	20.7%	0.0%
Maximum Green (s)	15.0	76.0	7.0	7.0	68.0	22.0	7.0	7.0	7.0	22.0	22.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	
Act Effct Green (s)	19.4	83.6	90.8	9.0	70.4	99.4		9.0	20.2	24.0	24.0	
Actuated g/C Ratio	0.14	0.60	0.65	0.06	0.50	0.71		0.06	0.14	0.17	0.17	
v/c Ratio	0.92	1.12	0.04	0.53	1.08	0.20		0.32	0.20	1.17	1.09	
Control Delay	101.4	91.7	5.7	81.2	79.9	7.5		71.1	53.2	157.2	134.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	101.4	91.7	5.7	81.2	79.9	7.5		71.1	53.2	157.2	134.8	
LOS	F	F	A	F	E	A		E	D	F	F	
Approach Delay		91.1			72.4			61.2			147.0	
Approach LOS		F			E			E			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.17			
Intersection Signal Delay: 90.1		Intersection LOS: F	
Intersection Capacity Utilization 100.2%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 104: US 74 & Faith Church Road



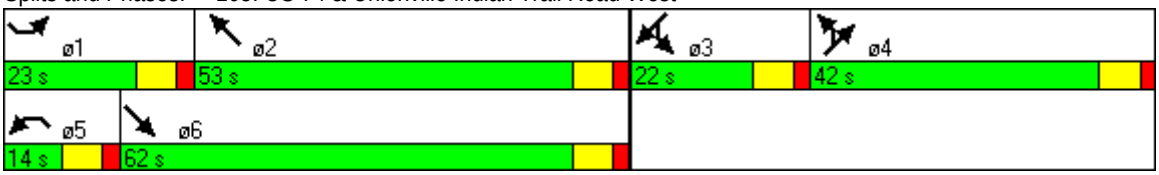
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	323	1338	726	132	994	322	786	180	192	256	98	191
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.947			0.963			0.923			0.901	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3256	0	1719	3311	0	1770	1719	0	1770	1678	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3256	0	1719	3311	0	1770	1719	0	1770	1678	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		606			973			698			813	
Travel Time (s)		7.5			12.1			10.6			12.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	359	1487	807	147	1104	358	873	200	213	284	109	212
Shared Lane Traffic (%)												
Lane Group Flow (vph)	359	2294	0	147	1462	0	873	413	0	284	321	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		5	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		5	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Split			Split		
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases												
Detector Phase	1	6		5	2		4	4		3	3	
Switch Phase												
Minimum Initial (s)	7.0	14.0		7.0	14.0		7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	21.0		14.0	21.0		14.0	14.0		14.0	14.0	
Total Split (s)	23.0	62.0	0.0	14.0	53.0	0.0	42.0	42.0	0.0	22.0	22.0	0.0
Total Split (%)	16.4%	44.3%	0.0%	10.0%	37.9%	0.0%	30.0%	30.0%	0.0%	15.7%	15.7%	0.0%
Maximum Green (s)	16.0	55.0		7.0	46.0		35.0	35.0		15.0	15.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	18.0	57.0		9.0	48.0		37.0	37.0		17.0	17.0	
Actuated g/C Ratio	0.13	0.41		0.06	0.34		0.26	0.26		0.12	0.12	
v/c Ratio	1.62	1.73		1.32	1.29		1.87	0.91		1.32	1.57	
Control Delay	338.1	360.2		243.5	174.5		427.3	74.9		219.3	319.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	338.1	360.2		243.5	174.5		427.3	74.9		219.3	319.1	
LOS	F	F		F	F		F	E		F	F	
Approach Delay		357.2			180.8			314.1			272.2	
Approach LOS		F			F			F			F	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 180
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.87
Intersection Signal Delay: 293.7 Intersection LOS: F
Intersection Capacity Utilization 144.6% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 105: US 74 & Unionville Indian Trail Road West



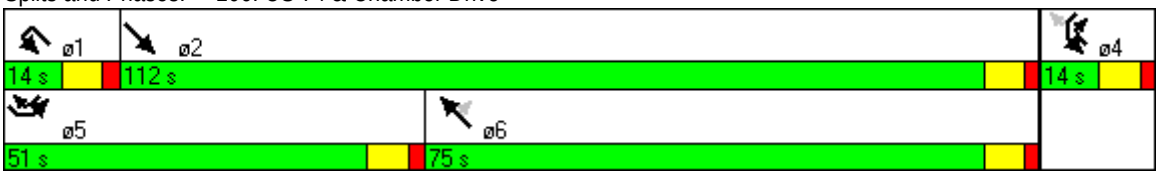
Lane Group	SEL	SET	NWU	NWT	NWR	SWL	SWR
Lane Configurations							
Volume (vph)	372	1492	10	1260	125	52	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Frt					0.850		0.850
Flt Protected	0.950		0.950			0.950	
Satd. Flow (prot)	1719	3438	1719	3438	1538	1770	1583
Flt Permitted	0.950		0.950			0.950	
Satd. Flow (perm)	1719	3438	1719	3438	1538	1770	1583
Right Turn on Red					No		No
Satd. Flow (RTOR)							
Link Speed (mph)		55		55		35	
Link Distance (ft)		2407		1378		1258	
Travel Time (s)		29.8		17.1		24.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	2%	2%
Adj. Flow (vph)	413	1658	11	1400	139	58	144
Shared Lane Traffic (%)							
Lane Group Flow (vph)	413	1658	11	1400	139	58	144
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Left	R NA	Left	Right	Left	Right
Median Width(ft)		12		12		12	
Link Offset(ft)		0		0		0	
Crosswalk Width(ft)		0		0		0	
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9		9	15	9
Number of Detectors	1	2	1	2	1	1	1
Detector Template	Left	Thru	Left	Thru	Right	Left	Right
Leading Detector (ft)	20	100	20	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94		94			
Detector 2 Size(ft)		6		6			
Detector 2 Type		Cl+Ex		Cl+Ex			
Detector 2 Channel							
Detector 2 Extend (s)		0.0		0.0			
Turn Type	Prot		Prot		pm+ov		pm+ov
Protected Phases	5	2	1	6	4	4	5
Permitted Phases					6		4
Detector Phase	5	2	1	6	4	4	5
Switch Phase							
Minimum Initial (s)	7.0	14.0	7.0	14.0	7.0	7.0	7.0

Lane Group	SEL	SET	NWU	NWT	NWR	SWL	SWR
Minimum Split (s)	14.0	21.0	14.0	21.0	14.0	14.0	14.0
Total Split (s)	51.0	112.0	14.0	75.0	14.0	14.0	51.0
Total Split (%)	36.4%	80.0%	10.0%	53.6%	10.0%	10.0%	36.4%
Maximum Green (s)	44.0	105.0	7.0	68.0	7.0	7.0	44.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag			Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	C-Max	None	None	None
Act Effct Green (s)	39.8	115.4	9.0	76.2	90.2	9.0	53.8
Actuated g/C Ratio	0.28	0.82	0.06	0.54	0.64	0.06	0.38
v/c Ratio	0.84	0.59	0.10	0.75	0.14	0.51	0.24
Control Delay	63.0	5.9	63.9	28.8	11.2	79.4	29.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.0	5.9	63.9	28.8	11.2	79.4	29.1
LOS	E	A	E	C	B	E	C
Approach Delay		17.3		27.4		43.6	
Approach LOS		B		C		D	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 22.8 Intersection LOS: C
Intersection Capacity Utilization 73.8% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 106: US 74 & Chamber Drive

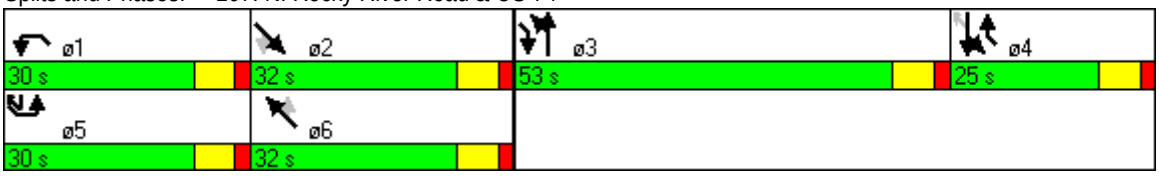


Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	418	109	302	198	126	194	296	758	731	414	595	236
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.951				0.850			0.850			0.850
Flt Protected		0.975			0.970		0.950			0.950		
Satd. Flow (prot)	0	1727	0	0	1807	1583	1719	3438	1538	1719	3438	1538
Flt Permitted		0.975			0.970		0.950			0.950		
Satd. Flow (perm)	0	1727	0	0	1807	1583	1719	3438	1538	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		1176			418			3021			3350	
Travel Time (s)		17.8			6.3			37.5			41.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	464	121	336	220	140	216	329	842	812	460	661	262
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	921	0	0	360	216	329	842	812	460	661	262
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	3	3		4	4	5	5	2	3	1	6	4
Permitted Phases						4			2			6
Detector Phase	3	3		4	4	5	5	2	3	1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	14.0	7.0	7.0	14.0	7.0

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0	14.0	14.0	21.0	14.0	14.0	21.0	14.0
Total Split (s)	53.0	53.0	0.0	25.0	25.0	30.0	30.0	32.0	53.0	30.0	32.0	25.0
Total Split (%)	37.9%	37.9%	0.0%	17.9%	17.9%	21.4%	21.4%	22.9%	37.9%	21.4%	22.9%	17.9%
Maximum Green (s)	46.0	46.0		18.0	18.0	23.0	23.0	25.0	46.0	23.0	25.0	18.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead		Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)		48.0			20.0	50.0	25.0	27.0	80.0	25.0	27.0	47.0
Actuated g/C Ratio		0.34			0.14	0.36	0.18	0.19	0.57	0.18	0.19	0.34
v/c Ratio		1.56			1.40	0.38	1.07	1.27	0.92	1.50	1.00	0.51
Control Delay		291.1			242.7	36.0	125.1	178.2	44.8	279.6	90.2	23.6
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		291.1			242.7	36.0	125.1	178.2	44.8	279.6	90.2	23.6
LOS		F			F	D	F	F	D	F	F	C
Approach Delay		291.1			165.2			114.8			140.6	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.56			
Intersection Signal Delay: 161.5		Intersection LOS: F	
Intersection Capacity Utilization 125.5%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 107: N. Rocky River Road & US 74

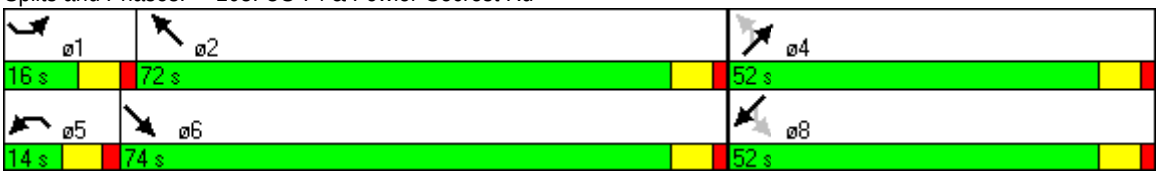


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	86	1280	29	58	1026	174	33	120	82	138	66	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.978			0.953			0.972	
Flt Protected	0.950			0.950				0.993			0.974	
Satd. Flow (prot)	1719	3428	0	1719	3362	0	0	1763	0	0	1764	0
Flt Permitted	0.950			0.950				0.916			0.570	
Satd. Flow (perm)	1719	3428	0	1719	3362	0	0	1626	0	0	1032	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		2601			2354			277			1205	
Travel Time (s)		39.4			35.7			5.4			18.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	96	1422	32	64	1140	193	37	133	91	153	73	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	96	1454	0	64	1333	0	0	261	0	0	286	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		
Detector Phase	1	6		5	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	16.0	74.0	0.0	14.0	72.0	0.0	52.0	52.0	0.0	52.0	52.0	0.0
Total Split (%)	11.4%	52.9%	0.0%	10.0%	51.4%	0.0%	37.1%	37.1%	0.0%	37.1%	37.1%	0.0%
Maximum Green (s)	9.0	67.0		7.0	65.0		45.0	45.0		45.0	45.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	11.7	75.9		9.7	71.1			42.2			42.2	
Actuated g/C Ratio	0.08	0.54		0.07	0.51			0.30			0.30	
v/c Ratio	0.67	0.78		0.53	0.78			0.53			0.92	
Control Delay	84.2	31.4		79.7	33.2			44.2			81.0	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	84.2	31.4		79.7	33.2			44.2			81.0	
LOS	F	C		E	C			D			F	
Approach Delay		34.7			35.3			44.2			81.0	
Approach LOS		C			D			D			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 39.4		Intersection LOS: D	
Intersection Capacity Utilization 86.4%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 108: US 74 & Fowler-Secrest Rd



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	74	1339	157	16	1100	9	124	13	15	7	10	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00											
Frt		0.984				0.850		0.986			0.901	
Flt Protected	0.950			0.950				0.961			0.994	
Satd. Flow (prot)	1719	3383	0	1719	3266	1538	0	1765	0	0	1668	0
Flt Permitted	0.950			0.950				0.700			0.965	
Satd. Flow (perm)	1717	3383	0	1719	3266	1538	0	1286	0	0	1620	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		309			978			474			425	
Travel Time (s)		4.7			14.8			12.9			11.6	
Confl. Peds. (#/hr)	1											
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Parking (#/hr)					0							
Adj. Flow (vph)	82	1488	174	18	1222	10	138	14	17	8	11	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	82	1662	0	18	1222	10	0	169	0	0	71	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.07	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot		Perm	Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases						2	4			8		

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector Phase	1	6		5	2	2	4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	12.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	19.0		14.0	19.0	19.0	14.0	14.0		14.0	14.0	
Total Split (s)	18.0	92.0	0.0	14.0	88.0	88.0	34.0	34.0	0.0	34.0	34.0	0.0
Total Split (%)	12.9%	65.7%	0.0%	10.0%	62.9%	62.9%	24.3%	24.3%	0.0%	24.3%	24.3%	0.0%
Maximum Green (s)	11.0	85.0		7.0	81.0	81.0	27.0	27.0		27.0	27.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		None	None	
Act Effct Green (s)	12.3	100.2		9.0	88.5	88.5		24.2			24.2	
Actuated g/C Ratio	0.09	0.72		0.06	0.63	0.63		0.17			0.17	
v/c Ratio	0.54	0.69		0.16	0.59	0.01		0.76			0.25	
Control Delay	74.6	15.2		65.6	17.5	11.6		76.1			50.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	
Total Delay	74.6	15.2		65.6	17.5	11.6		76.1			50.8	
LOS	E	B		E	B	B		E			D	
Approach Delay		18.0			18.2			76.1			50.8	
Approach LOS		B			B			E			D	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 21.8 Intersection LOS: C
Intersection Capacity Utilization 75.5% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 110: US 74 & Rolling Hill Drive

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	133	10	150	95	10	84	79	1144	125	113	919	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.859			0.940			0.985				0.850
Flt Protected	0.950				0.975		0.950			0.950		
Satd. Flow (prot)	1770	1600	0	0	1707	0	1719	3387	0	1719	3438	1538
Flt Permitted	0.589				0.628		0.950			0.950		
Satd. Flow (perm)	1097	1600	0	0	1100	0	1719	3387	0	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		510			371			748			991	
Travel Time (s)		13.9			10.1			11.3			15.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	148	11	167	106	11	93	88	1271	139	126	1021	80
Shared Lane Traffic (%)												
Lane Group Flow (vph)	148	178	0	0	210	0	88	1410	0	126	1021	80
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm			Perm			Prot			Prot		Perm
Protected Phases		3			8		1	6		5	2	
Permitted Phases	3			8								2
Detector Phase	3	3		8	8		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	12.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0		14.0	19.0	19.0
Total Split (s)	43.0	43.0	0.0	43.0	43.0	0.0	19.0	76.0	0.0	21.0	78.0	78.0
Total Split (%)	30.7%	30.7%	0.0%	30.7%	30.7%	0.0%	13.6%	54.3%	0.0%	15.0%	55.7%	55.7%
Maximum Green (s)	36.0	36.0		36.0	36.0		12.0	69.0		14.0	71.0	71.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?								Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	Max		None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	38.0	38.0			38.0		12.8	72.0		15.0	74.2	74.2
Actuated g/C Ratio	0.27	0.27			0.27		0.09	0.51		0.11	0.53	0.53
v/c Ratio	0.50	0.41			0.70		0.56	0.81		0.68	0.56	0.10
Control Delay	49.8	45.3			60.1		74.5	33.2		79.3	23.7	17.2
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	49.8	45.3			60.1		74.5	33.2		79.3	23.7	17.2
LOS	D	D			E		E	C		E	C	B
Approach Delay		47.3			60.1			35.6			29.0	
Approach LOS		D			E			D			C	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 35.9 Intersection LOS: D
Intersection Capacity Utilization 79.3% ICU Level of Service D
Analysis Period (min) 15

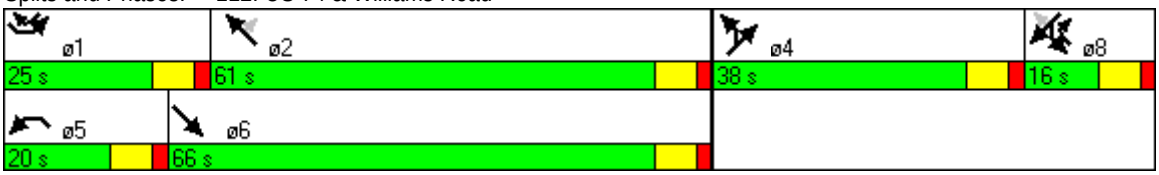
Splits and Phases: 111: Roland Drive & US 74

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	134	1196	33	129	988	123	50	51	237	96	22	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996				0.850		0.877				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3424	0	1719	3438	1538	1770	1634	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3424	0	1719	3438	1538	1770	1634	0	1770	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		822			734			281			279	
Travel Time (s)		12.5			11.1			5.5			7.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	149	1329	37	143	1098	137	56	57	263	107	24	97
Shared Lane Traffic (%)												
Lane Group Flow (vph)	149	1366	0	143	1098	137	56	320	0	107	24	97
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot		pm+ov	Split			Split		pm+ov
Protected Phases	1	6		5	2	8	4	4		8	8	1
Permitted Phases						2						8
Detector Phase	1	6		5	2	8	4	4		8	8	1
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	7.0	7.0	7.0		7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0		14.0	19.0	14.0	14.0	14.0		14.0	14.0	14.0
Total Split (s)	25.0	66.0	0.0	20.0	61.0	16.0	38.0	38.0	0.0	16.0	16.0	25.0
Total Split (%)	17.9%	47.1%	0.0%	14.3%	43.6%	11.4%	27.1%	27.1%	0.0%	11.4%	11.4%	17.9%
Maximum Green (s)	18.0	59.0		13.0	54.0	9.0	31.0	31.0		9.0	9.0	18.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	C-Max		None	C-Max	Max	None	None		Max	Max	Max
Act Effct Green (s)	20.0	61.3		14.7	56.0	68.8	31.2	31.2		12.8	12.8	37.8
Actuated g/C Ratio	0.14	0.44		0.10	0.40	0.49	0.22	0.22		0.09	0.09	0.27
v/c Ratio	0.61	0.91		0.79	0.80	0.18	0.14	0.88		0.66	0.14	0.23
Control Delay	67.7	47.1		90.4	42.4	11.2	43.8	77.0		82.1	62.4	42.4
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	67.7	47.1		90.4	42.4	11.2	43.8	77.0		82.1	62.4	42.4
LOS	E	D		F	D	B	D	E		F	E	D
Approach Delay		49.1			44.3			72.1			63.1	
Approach LOS		D			D			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay: 50.6		Intersection LOS: D	
Intersection Capacity Utilization 81.0%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 112: US 74 & Williams Road

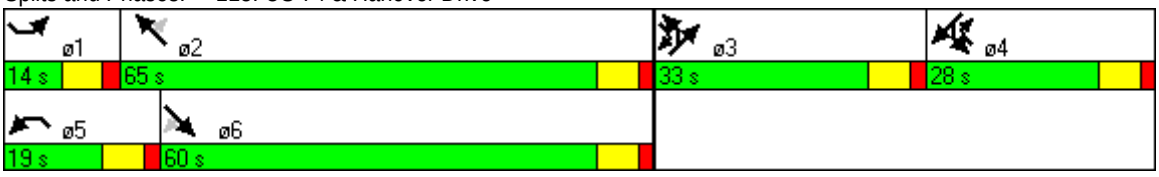


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	15	1390	101	193	1133	467	110	109	257	589	103	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850			0.850		0.895			0.980	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	1752	1651	0	3400	1808	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	1752	1651	0	3400	1808	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		338			529			376			313	
Travel Time (s)		5.1			8.0			7.3			8.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	17	1544	112	214	1259	519	122	121	286	654	114	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	1544	112	214	1259	519	122	407	0	654	132	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Split			Split		
Protected Phases	1	6	3	5	2	4	3	3		4	4	
Permitted Phases			6			2						
Detector Phase	1	6	3	5	2	4	3	3		4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0		14.0	14.0	
Total Split (s)	14.0	60.0	33.0	19.0	65.0	28.0	33.0	33.0	0.0	28.0	28.0	0.0
Total Split (%)	10.0%	42.9%	23.6%	13.6%	46.4%	20.0%	23.6%	23.6%	0.0%	20.0%	20.0%	0.0%
Maximum Green (s)	7.0	53.0	26.0	12.0	58.0	21.0	26.0	26.0		21.0	21.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Act Effct Green (s)	9.0	55.0	88.0	14.0	68.4	94.4	28.0	28.0		23.0	23.0	
Actuated g/C Ratio	0.06	0.39	0.63	0.10	0.49	0.67	0.20	0.20		0.16	0.16	
v/c Ratio	0.15	1.14	0.12	1.24	0.75	0.50	0.35	1.23		1.17	0.44	
Control Delay	65.3	112.6	10.8	199.0	33.6	11.3	51.5	174.4		144.5	58.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	65.3	112.6	10.8	199.0	33.6	11.3	51.5	174.4		144.5	58.2	
LOS	E	F	B	F	C	B	D	F		F	E	
Approach Delay		105.3			45.6			146.0			130.0	
Approach LOS		F			D			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 160			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.24			
Intersection Signal Delay: 89.6		Intersection LOS: F	
Intersection Capacity Utilization 104.1%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 113: US 74 & Hanover Drive

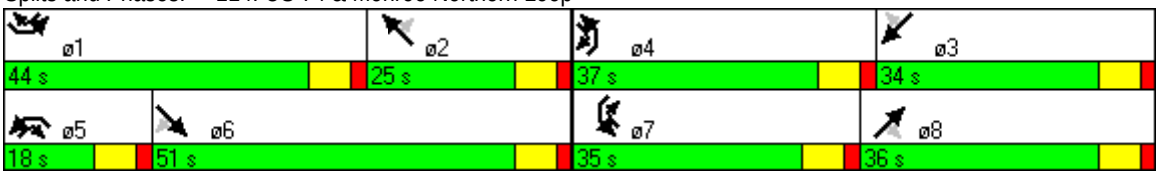


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	963	829	395	136	606	652	485	800	229	687	502	742
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3335	4940	1538	3335	4940	1538	3335	3438	1538	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	4940	1538	3335	4940	1538	3335	3438	1538	3433	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		858			915			405			209	
Travel Time (s)		13.0			13.9			7.9			3.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	2%	2%	2%
Adj. Flow (vph)	1070	921	439	151	673	724	539	889	254	763	558	824
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1070	921	439	151	673	724	539	889	254	763	558	824
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	1	6	4	5	2	7	4	8	5	7	3	1
Permitted Phases			6			2			8			3
Detector Phase	1	6	4	5	2	7	4	8	5	7	3	1
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	44.0	51.0	37.0	18.0	25.0	35.0	37.0	36.0	18.0	35.0	34.0	44.0
Total Split (%)	31.4%	36.4%	26.4%	12.9%	17.9%	25.0%	26.4%	25.7%	12.9%	25.0%	24.3%	31.4%
Maximum Green (s)	37.0	44.0	30.0	11.0	18.0	28.0	30.0	29.0	11.0	28.0	27.0	37.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	39.0	46.7	80.9	12.3	20.0	55.0	29.2	31.0	48.3	30.0	31.8	75.8
Actuated g/C Ratio	0.28	0.33	0.58	0.09	0.14	0.39	0.21	0.22	0.34	0.21	0.23	0.54
v/c Ratio	1.15	0.56	0.49	0.51	0.95	1.20	0.77	1.17	0.48	1.04	0.69	0.96
Control Delay	125.6	40.0	19.5	67.3	83.4	142.5	60.4	136.8	39.5	95.9	55.6	54.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	125.6	40.0	19.5	67.3	83.4	142.5	60.4	136.8	39.5	95.9	55.6	54.3
LOS	F	D	B	E	F	F	E	F	D	F	E	D
Approach Delay		74.0			109.5			97.6			69.4	
Approach LOS		E			F			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 140			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.20			
Intersection Signal Delay: 84.9		Intersection LOS: F	
Intersection Capacity Utilization 102.5%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 114: US 74 & Monroe Northern Loop

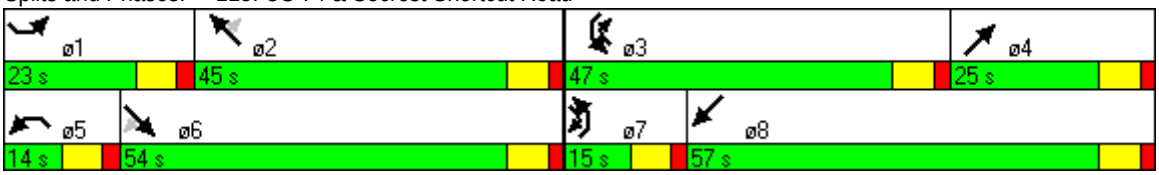


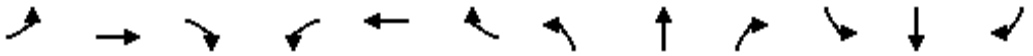
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	206	1499	55	107	1178	518	57	83	141	479	58	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.905			0.892	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	3335	4940	1538	1770	1686	0	1770	1662	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	3335	4940	1538	1770	1686	0	1770	1662	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		413			1354			238			233	
Travel Time (s)		6.3			20.5			6.5			4.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	229	1666	61	119	1309	576	63	92	157	532	64	166
Shared Lane Traffic (%)												
Lane Group Flow (vph)	229	1666	61	119	1309	576	63	249	0	532	230	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot			Prot		
Protected Phases	1	6	7	5	2	3	7	4		3	8	
Permitted Phases			6			2						
Detector Phase	1	6	7	5	2	3	7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0		14.0	14.0	
Total Split (s)	23.0	54.0	15.0	14.0	45.0	47.0	15.0	25.0	0.0	47.0	57.0	0.0
Total Split (%)	16.4%	38.6%	10.7%	10.0%	32.1%	33.6%	10.7%	17.9%	0.0%	33.6%	40.7%	0.0%
Maximum Green (s)	16.0	47.0	8.0	7.0	38.0	40.0	8.0	18.0		40.0	50.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Act Effct Green (s)	18.0	49.0	63.8	9.0	40.0	87.0	9.8	20.0		42.0	52.2	
Actuated g/C Ratio	0.13	0.35	0.46	0.06	0.29	0.62	0.07	0.14		0.30	0.37	
v/c Ratio	1.04	0.96	0.09	0.56	0.93	0.60	0.51	1.03		1.00	0.37	
Control Delay	128.4	59.2	22.0	74.0	60.6	19.4	77.6	124.3		88.2	34.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	128.4	59.2	22.0	74.0	60.6	19.4	77.6	124.3		88.2	34.2	
LOS	F	E	C	E	E	B	E	F		F	C	
Approach Delay		66.1			49.6			114.9			71.9	
Approach LOS		E			D			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.04			
Intersection Signal Delay: 63.4		Intersection LOS: E	
Intersection Capacity Utilization 91.0%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 115: US 74 & Secrest Shortcut Road



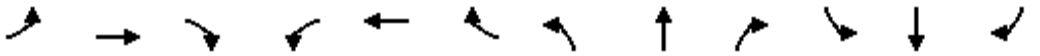


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	260	2173	254	303	1740	156	151	114	225	138	136	184
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00											
Frt		0.984			0.988			0.901			0.914	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4861	0	1719	4881	0	1770	1678	0	1770	1703	0
Flt Permitted	0.950			0.950			0.270			0.238		
Satd. Flow (perm)	1719	4861	0	1719	4881	0	503	1678	0	443	1703	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		443			590			549			636	
Travel Time (s)		6.7			8.9			15.0			12.4	
Confl. Peds. (#/hr)	1											
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	289	2414	282	337	1933	173	168	127	250	153	151	204
Shared Lane Traffic (%)												
Lane Group Flow (vph)	289	2696	0	337	2106	0	168	377	0	153	355	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Detector Phase	5	2		1	6		4	4		8	8	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	28.0	69.0	0.0	27.0	68.0	0.0	44.0	44.0	0.0	44.0	44.0	0.0
Total Split (%)	20.0%	49.3%	0.0%	19.3%	48.6%	0.0%	31.4%	31.4%	0.0%	31.4%	31.4%	0.0%
Maximum Green (s)	21.0	62.0		20.0	61.0		37.0	37.0		37.0	37.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	23.0	64.0		22.0	63.0		39.0	39.0		39.0	39.0	
Actuated g/C Ratio	0.16	0.46		0.16	0.45		0.28	0.28		0.28	0.28	
v/c Ratio	1.02	1.21		1.25	0.96		1.20	0.81		1.24	0.75	
Control Delay	116.6	134.9		185.9	49.1		183.0	61.6		202.7	57.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	116.6	134.9		185.9	49.1		183.0	61.6		202.7	57.2	
LOS	F	F		F	D		F	E		F	E	
Approach Delay		133.1			68.0			99.0			101.0	
Approach LOS		F			E			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.25			
Intersection Signal Delay: 103.2		Intersection LOS: F	
Intersection Capacity Utilization 108.6%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 120: US 74 & Stafford Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	195	2310	117	117	1888	107	159	10	195	53	10	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993			0.992			0.857			0.867	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4905	0	1719	4900	0	1770	1596	0	1770	1615	0
Flt Permitted	0.950			0.950			0.647			0.319		
Satd. Flow (perm)	1719	4905	0	1719	4900	0	1205	1596	0	594	1615	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			20	
Link Distance (ft)		493			536			238			211	
Travel Time (s)		7.5			8.1			6.5			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	217	2567	130	130	2098	119	177	11	217	59	11	87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	217	2697	0	130	2217	0	177	228	0	59	98	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	27.0	90.0	0.0	19.0	82.0	0.0	31.0	31.0	0.0	31.0	31.0	0.0
Total Split (%)	19.3%	64.3%	0.0%	13.6%	58.6%	0.0%	22.1%	22.1%	0.0%	22.1%	22.1%	0.0%
Maximum Green (s)	20.0	83.0		12.0	75.0		24.0	24.0		24.0	24.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	21.3	86.6		14.0	79.3		24.4	24.4		24.4	24.4	
Actuated g/C Ratio	0.15	0.62		0.10	0.57		0.17	0.17		0.17	0.17	
v/c Ratio	0.83	0.89		0.76	0.80		0.84	0.82		0.57	0.35	
Control Delay	82.9	27.8		87.6	27.3		87.6	78.8		75.0	54.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	82.9	27.8		87.6	27.3		87.6	78.8		75.0	54.0	
LOS	F	C		F	C		F	E		E	D	
Approach Delay		31.9			30.7			82.7			61.9	
Approach LOS		C			C			F			E	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 35.7 Intersection LOS: D
Intersection Capacity Utilization 88.8% ICU Level of Service E
Analysis Period (min) 15

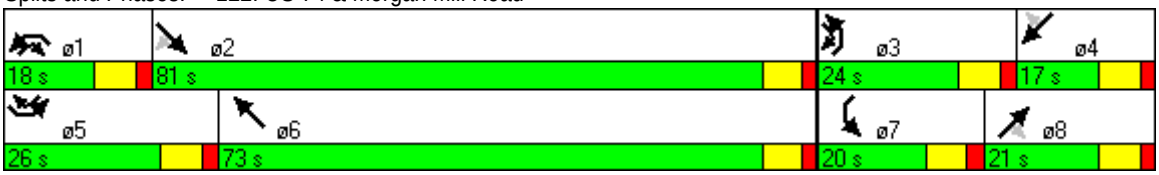
Splits and Phases: 121: US 74 & Boyte Street

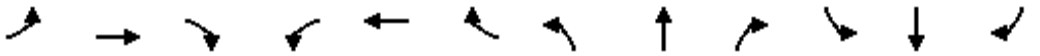
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	188	2241	158	110	1809	159	161	139	138	124	86	118
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.988				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	1719	4881	0	1687	1776	1509	1687	1776	1509
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	1719	4881	0	1687	1776	1509	1687	1776	1509
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		515			499			502			475	
Travel Time (s)		7.8			7.6			9.8			9.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	7%	7%	7%	7%	7%	7%
Adj. Flow (vph)	209	2490	176	122	2010	177	179	154	153	138	96	131
Shared Lane Traffic (%)												
Lane Group Flow (vph)	209	2490	176	122	2187	0	179	154	153	138	96	131
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot			Prot		pm+ov	Prot		pm+ov
Protected Phases	5	2	3	1	6		3	8	1	7	4	5
Permitted Phases			2						8			4
Detector Phase	5	2	3	1	6		3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0		7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0		14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	26.0	81.0	24.0	18.0	73.0	0.0	24.0	21.0	18.0	20.0	17.0	26.0
Total Split (%)	18.6%	57.9%	17.1%	12.9%	52.1%	0.0%	17.1%	15.0%	12.9%	14.3%	12.1%	18.6%
Maximum Green (s)	19.0	74.0	17.0	11.0	66.0		17.0	14.0	11.0	13.0	10.0	19.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max		None	None	None	None	None	None
Act Effct Green (s)	20.3	77.0	100.3	12.8	69.5		18.3	15.5	33.4	14.6	11.8	37.2
Actuated g/C Ratio	0.14	0.55	0.72	0.09	0.50		0.13	0.11	0.24	0.10	0.08	0.27
v/c Ratio	0.84	0.92	0.16	0.77	0.90		0.81	0.78	0.43	0.78	0.64	0.33
Control Delay	85.3	35.4	6.8	92.3	38.9		85.7	86.4	49.3	89.5	81.6	43.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	85.3	35.4	6.8	92.3	38.9		85.7	86.4	49.3	89.5	81.6	43.7
LOS	F	D	A	F	D		F	F	D	F	F	D
Approach Delay		37.3			41.7			74.5			71.0	
Approach LOS		D			D			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 44.0		Intersection LOS: D	
Intersection Capacity Utilization 80.8%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 122: US 74 & Morgan Mill Road



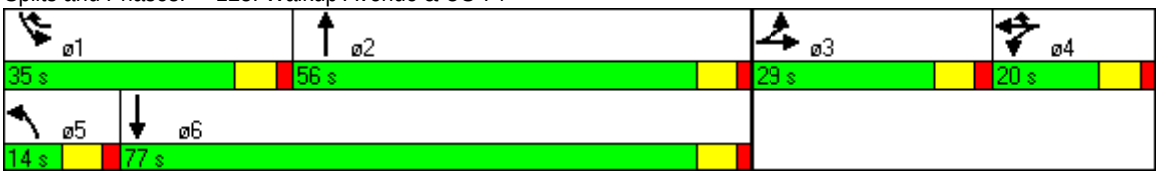


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	70	135	91	43	188	383	92	1633	31	348	2058	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.959				0.850		0.997			0.994	
Flt Protected		0.988		0.950			0.950			0.950		
Satd. Flow (prot)	0	1765	0	1770	1863	1583	1719	4925	0	1719	4910	0
Flt Permitted		0.988		0.950			0.950			0.950		
Satd. Flow (perm)	0	1765	0	1770	1863	1583	1719	4925	0	1719	4910	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		443			502			602			356	
Travel Time (s)		12.1			9.8			9.1			5.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	78	150	101	48	209	426	102	1814	34	387	2287	99
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	329	0	48	209	426	102	1848	0	387	2386	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pt+ov	Prot			Prot		
Protected Phases	3	3		4	4	4 1	5	2		1	6	
Permitted Phases												
Detector Phase	3	3		4	4	4 1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0		14.0	19.0	
Total Split (s)	29.0	29.0	0.0	20.0	20.0	55.0	14.0	56.0	0.0	35.0	77.0	0.0
Total Split (%)	20.7%	20.7%	0.0%	14.3%	14.3%	39.3%	10.0%	40.0%	0.0%	25.0%	55.0%	0.0%
Maximum Green (s)	22.0	22.0		13.0	13.0		7.0	49.0		28.0	70.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lead		Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)		24.0		15.0	15.0	50.0	9.0	51.0		30.0	72.0	
Actuated g/C Ratio		0.17		0.11	0.11	0.36	0.06	0.36		0.21	0.51	
v/c Ratio		1.09		0.25	1.04	0.75	0.92	1.03		1.05	0.94	
Control Delay		129.7		61.2	134.9	49.5	129.9	72.8		113.2	41.4	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		129.7		61.2	134.9	49.5	129.9	72.8		113.2	41.4	
LOS		F		E	F	D	F	E		F	D	
Approach Delay		129.7			76.5			75.8			51.4	
Approach LOS		F			E			E			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 140			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.09			
Intersection Signal Delay: 67.2		Intersection LOS: E	
Intersection Capacity Utilization 94.6%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 123: Walkup Avenue & US 74

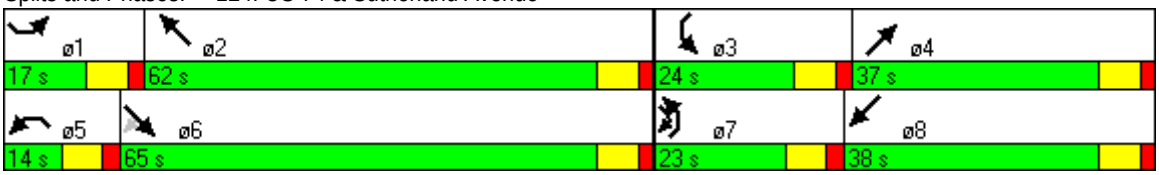


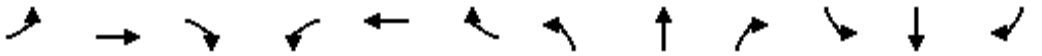
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	96	1876	151	41	1505	137	192	264	66	209	254	118
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.988			0.970			0.952	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	1719	4881	0	1752	1789	0	1752	1756	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	1719	4881	0	1752	1789	0	1752	1756	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		425			487			426			331	
Travel Time (s)		6.4			7.4			11.6			6.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	107	2084	168	46	1672	152	213	293	73	232	282	131
Shared Lane Traffic (%)												
Lane Group Flow (vph)	107	2084	168	46	1824	0	213	366	0	232	413	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot			Prot			Prot		
Protected Phases	1	6	7	5	2		7	4		3	8	
Permitted Phases			6									
Detector Phase	1	6	7	5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	17.0	65.0	23.0	14.0	62.0	0.0	23.0	37.0	0.0	24.0	38.0	0.0
Total Split (%)	12.1%	46.4%	16.4%	10.0%	44.3%	0.0%	16.4%	26.4%	0.0%	17.1%	27.1%	0.0%
Maximum Green (s)	10.0	58.0	16.0	7.0	55.0		16.0	30.0		17.0	31.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes			Yes			Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max		None	None		None	None	
Act Effct Green (s)	11.8	62.8	85.8	9.0	57.2		18.0	32.0		19.0	33.0	
Actuated g/C Ratio	0.08	0.45	0.61	0.06	0.41		0.13	0.23		0.14	0.24	
v/c Ratio	0.74	0.94	0.18	0.41	0.92		0.95	0.89		0.97	1.00	
Control Delay	90.8	47.0	13.1	74.7	47.5		107.6	77.2		111.9	96.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	90.8	47.0	13.1	74.7	47.5		107.6	77.2		111.9	96.7	
LOS	F	D	B	E	D		F	E		F	F	
Approach Delay		46.6			48.1			88.4			102.1	
Approach LOS		D			D			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 120			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.00			
Intersection Signal Delay: 58.1		Intersection LOS: E	
Intersection Capacity Utilization 89.9%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 124: US 74 & Sutherland Avenue





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	48	61	36	34	151	26	1590	22	116	1962	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.916			0.878				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1706	0	1770	1635	0	1719	4940	1538	1719	4940	1538
Flt Permitted	0.377			0.588			0.950			0.950		
Satd. Flow (perm)	702	1706	0	1095	1635	0	1719	4940	1538	1719	4940	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		163			218			356			257	
Travel Time (s)		5.6			4.2			5.4			3.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	4	53	68	40	38	168	29	1767	24	129	2180	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	121	0	40	206	0	29	1767	24	129	2180	2
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm			Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	12.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	19.0
Total Split (s)	37.0	37.0	0.0	37.0	37.0	0.0	14.0	78.0	78.0	25.0	89.0	89.0
Total Split (%)	26.4%	26.4%	0.0%	26.4%	26.4%	0.0%	10.0%	55.7%	55.7%	17.9%	63.6%	63.6%
Maximum Green (s)	30.0	30.0		30.0	30.0		7.0	71.0	71.0	18.0	82.0	82.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	24.7	24.7		24.7	24.7		9.5	83.3	83.3	17.0	96.3	96.3
Actuated g/C Ratio	0.18	0.18		0.18	0.18		0.07	0.60	0.60	0.12	0.69	0.69
v/c Ratio	0.03	0.40		0.21	0.71		0.25	0.60	0.03	0.62	0.64	0.00
Control Delay	44.5	53.8		49.5	67.5		67.3	20.2	14.6	71.0	15.2	10.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.5	53.8		49.5	67.5		67.3	20.2	14.6	71.0	15.2	10.5
LOS	D	D		D	E		E	C	B	E	B	B
Approach Delay		53.5			64.6			20.9			18.3	
Approach LOS		D			E			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 22.9		Intersection LOS: C	
Intersection Capacity Utilization 67.3%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 125: Dove Street & US 74

Lane Group	NBU	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT
Lane Configurations												
Volume (vph)	9	1046	1217	130	171	1591	355	255	80	981	127	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.86	0.97	0.86	0.86	1.00	0.91	1.00	1.00	1.00	0.88	1.00	1.00
Frt			0.986				0.850			0.850		
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	3335	6138	0	1719	4940	1538	1752	1845	2760	1752	1845
Flt Permitted		0.950			0.950			0.950			0.950	
Satd. Flow (perm)	0	3335	6138	0	1719	4940	1538	1752	1845	2760	1752	1845
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			45			35			20
Link Distance (ft)			341			436			391			335
Travel Time (s)			5.2			6.6			7.6			11.4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%
Adj. Flow (vph)	10	1162	1352	144	190	1768	394	283	89	1090	141	92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1172	1496	0	190	1768	394	283	89	1090	141	92
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			24			24			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1	1	2		1	2	1	1	2	1	1	2
Detector Template	Left	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru
Leading Detector (ft)	20	20	100		20	100	20	20	100	20	20	100
Trailing Detector (ft)	0	0	0		0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0		0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	6		20	6	20	20	6	20	20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94			94			94			94
Detector 2 Size(ft)			6			6			6			6
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			0.0
Turn Type	Prot	Prot			Prot		pm+ov	Split		Prot	Split	
Protected Phases	5	5	2		1	6	4	4	4	4	3	3
Permitted Phases							6					
Detector Phase	5	5	2		1	6	4	4	4	4	3	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	12.0		7.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SWR
Lane Configurations	
Volume (vph)	128
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1568
Flt Permitted	
Satd. Flow (perm)	1568
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	3%
Adj. Flow (vph)	142
Shared Lane Traffic (%)	
Lane Group Flow (vph)	142
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	pt+ov
Protected Phases	3 1
Permitted Phases	
Detector Phase	3 1
Switch Phase	
Minimum Initial (s)	

Lane Group	NBU	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT
Minimum Split (s)	14.0	14.0	19.0		14.0	19.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	39.0	39.0	53.0	0.0	30.0	44.0	43.0	43.0	43.0	43.0	14.0	14.0
Total Split (%)	27.9%	27.9%	37.9%	0.0%	21.4%	31.4%	30.7%	30.7%	30.7%	30.7%	10.0%	10.0%
Maximum Green (s)	32.0	32.0	46.0		23.0	37.0	36.0	36.0	36.0	36.0	7.0	7.0
Yellow Time (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag		Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max		None	C-Max	None	None	None	None	None	None
Act Effct Green (s)		34.0	51.4		21.6	39.0	77.0	38.0	38.0	38.0	9.0	9.0
Actuated g/C Ratio		0.24	0.37		0.15	0.28	0.55	0.27	0.27	0.27	0.06	0.06
v/c Ratio		1.45	0.66		0.72	1.28	0.47	0.59	0.18	1.46	1.25	0.77
Control Delay		246.2	39.3		71.4	174.8	13.1	50.4	40.2	249.2	216.7	102.0
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		246.2	39.3		71.4	174.8	13.1	50.4	40.2	249.2	216.7	102.0
LOS		F	D		E	F	B	D	D	F	F	F
Approach Delay			130.2			139.3			198.0			116.9
Approach LOS			F			F			F			F

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 170			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.46			
Intersection Signal Delay: 147.1		Intersection LOS: F	
Intersection Capacity Utilization 118.9%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 126: US 74 & E. Franklin Street

Lane Group	SWR
Minimum Split (s)	
Total Split (s)	44.0
Total Split (%)	31.4%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Act Effct Green (s)	30.6
Actuated g/C Ratio	0.22
v/c Ratio	0.42
Control Delay	27.6
Queue Delay	0.0
Total Delay	27.6
LOS	C
Approach Delay	
Approach LOS	

Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	10	0	1473	1538	327	1235	29	912	0	232	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.91	0.91	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.997			0.938			
Flt Protected	0.950				0.950			0.950	0.972			
Satd. Flow (prot)	1719	0	4940	1538	1736	4973	0	1504	1444	0	0	0
Flt Permitted	0.950				0.950			0.950	0.972			
Satd. Flow (perm)	1719	0	4940	1538	1736	4973	0	1504	1444	0	0	0
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			55			45			25
Link Distance (ft)			239			375			459			145
Travel Time (s)			3.6			4.6			7.0			4.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	4%	4%	4%	14%	14%	14%	2%	2%
Adj. Flow (vph)	11	0	1637	1709	363	1372	32	1013	0	258	0	0
Shared Lane Traffic (%)								36%				
Lane Group Flow (vph)	11	0	1637	1709	363	1404	0	648	623	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			12			12			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1		2	1	1	2		1	2			
Detector Template	Left		Thru	Right	Left	Thru		Left	Thru			
Leading Detector (ft)	20		100	20	20	100		20	100			
Trailing Detector (ft)	0		0	0	0	0		0	0			
Detector 1 Position(ft)	0		0	0	0	0		0	0			
Detector 1 Size(ft)	20		6	20	20	6		20	6			
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 2 Position(ft)			94			94			94			
Detector 2 Size(ft)			6			6			6			
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			
Turn Type	Prot			pm+ov	Prot			Split				
Protected Phases	5		2	8	1	6		8	8			
Permitted Phases				2								
Detector Phase	5		2	8	1	6		8	8			
Switch Phase												
Minimum Initial (s)	7.0		12.0	12.0	7.0	14.0		12.0	12.0			

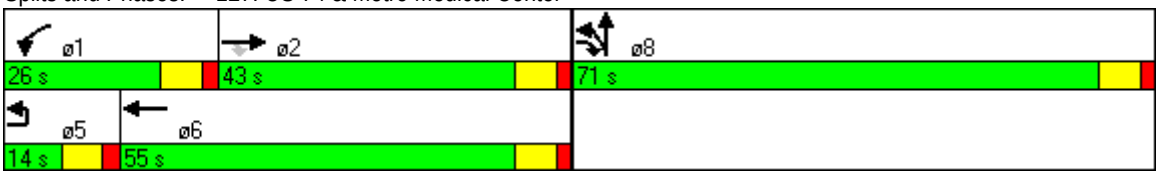
Lane Group	SBR
Lane Configurations	
Volume (vph)	18
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.865
Flt Protected	
Satd. Flow (prot)	1611
Flt Permitted	
Satd. Flow (perm)	1611
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	2%
Adj. Flow (vph)	20
Shared Lane Traffic (%)	
Lane Group Flow (vph)	20
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Detector Phase	
Switch Phase	
Minimum Initial (s)	

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Minimum Split (s)	14.0		19.0	19.0	14.0	21.0		19.0	19.0			
Total Split (s)	14.0	0.0	43.0	71.0	26.0	55.0	0.0	71.0	71.0	0.0	0.0	0.0
Total Split (%)	10.0%	0.0%	30.7%	50.7%	18.6%	39.3%	0.0%	50.7%	50.7%	0.0%	0.0%	0.0%
Maximum Green (s)	7.0		36.0	64.0	19.0	48.0		64.0	64.0			
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0		5.0	5.0			
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0		2.0	2.0			
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	2.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	2.0	2.0
Lead/Lag	Lead		Lag		Lead	Lag						
Lead-Lag Optimize?			Yes			Yes						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0		3.0	3.0			
Recall Mode	None		C-Max	None	None	C-Max		None	None			
Act Effct Green (s)	9.0		38.0	109.0	21.0	58.4		66.0	66.0			
Actuated g/C Ratio	0.06		0.27	0.78	0.15	0.42		0.47	0.47			
v/c Ratio	0.10		1.22	1.43	1.40	0.68		0.91	0.91			
Control Delay	63.9		149.4	217.6	242.6	36.2		53.4	54.1			
Queue Delay	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Total Delay	63.9		149.4	217.6	242.6	36.2		53.4	54.1			
LOS	E		F	F	F	D		D	D			
Approach Delay			183.8			78.6			53.8			
Approach LOS			F			E			D			

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.43
Intersection Signal Delay: 128.5 Intersection LOS: F
Intersection Capacity Utilization 121.7% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 127: US 74 & Metro Medical Center



Lane Group	SBR
Minimum Split (s)	
Total Split (s)	0.0
Total Split (%)	0.0%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	2.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Act Effct Green (s)	140.0
Actuated g/C Ratio	1.00
v/c Ratio	0.01
Control Delay	0.0
Queue Delay	0.0
Total Delay	0.0
LOS	A
Approach Delay	
Approach LOS	

Intersection Summary

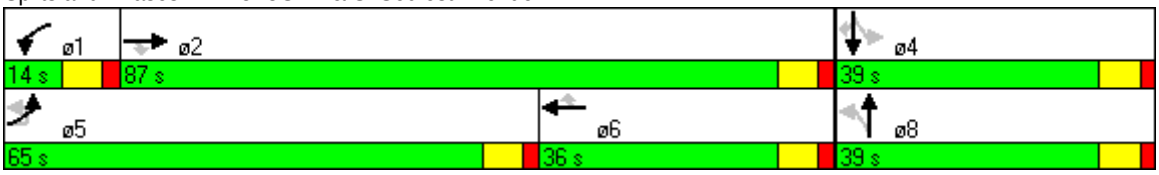
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	20	164	1507	47	9	1201	108	36	99	9	251	237
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850			0.850		0.992			
Flt Protected		0.950			0.950				0.988			0.975
Satd. Flow (prot)	0	1736	3471	1553	1736	3471	1553	0	1826	0	0	1816
Flt Permitted		0.067			0.950				0.155			0.679
Satd. Flow (perm)	0	122	3471	1553	1736	3471	1553	0	286	0	0	1265
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			55			55			35			35
Link Distance (ft)			411			374			242			283
Travel Time (s)			5.1			4.6			4.7			5.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%
Adj. Flow (vph)	22	182	1674	52	10	1334	120	40	110	10	279	263
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	204	1674	52	10	1334	120	0	160	0	0	542
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			12			12			0			0
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1	1	2	1	1	2	1	1	2		1	2
Detector Template	Left	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru
Leading Detector (ft)	20	20	100	20	20	100	20	20	100		20	100
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0		0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0		0	0
Detector 1 Size(ft)	20	20	6	20	20	6	20	20	6		20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)			94			94			94			94
Detector 2 Size(ft)			6			6			6			6
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			0.0
Turn Type	custom	Prot		Perm	Prot		Perm	Perm			Perm	
Protected Phases		5	2		1	6			8			4
Permitted Phases	5			2			6	8			4	
Detector Phase	5	5	2	2	1	6	6	8	8		4	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	14.0	14.0	7.0	14.0	14.0	7.0	7.0		7.0	7.0

Lane Group	SBR
Lane Configurations	
Volume (vph)	302
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	2%
Adj. Flow (vph)	336
Shared Lane Traffic (%)	
Lane Group Flow (vph)	336
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Detector Phase	4
Switch Phase	
Minimum Initial (s)	7.0

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Minimum Split (s)	14.0	14.0	21.0	21.0	14.0	21.0	21.0	14.0	14.0		14.0	14.0
Total Split (s)	65.0	65.0	87.0	87.0	14.0	36.0	36.0	39.0	39.0	0.0	39.0	39.0
Total Split (%)	46.4%	46.4%	62.1%	62.1%	10.0%	25.7%	25.7%	27.9%	27.9%	0.0%	27.9%	27.9%
Maximum Green (s)	58.0	58.0	80.0	80.0	7.0	29.0	29.0	32.0	32.0		32.0	32.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Time Before Reduce (s)	0.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0	0.0		0.0	0.0
Time To Reduce (s)	0.0	0.0	50.0	50.0	0.0	50.0	50.0	0.0	0.0		0.0	0.0
Recall Mode	None	None	C-Min	C-Min	None	C-Min	C-Min	None	None		None	None
Act Effct Green (s)		60.0	93.2	93.2	9.0	31.0	31.0		34.0			34.0
Actuated g/C Ratio		0.43	0.67	0.67	0.06	0.22	0.22		0.24			0.24
v/c Ratio		3.92	0.72	0.05	0.09	1.73	0.35		2.32			1.77
Control Delay		1374.3	18.3	9.4	63.7	368.8	49.4		660.8			389.2
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0
Total Delay		1374.3	18.3	9.4	63.7	368.8	49.4		660.8			389.2
LOS		F	B	A	E	F	D		F			F
Approach Delay			161.4			340.6			660.8			268.8
Approach LOS			F			F			F			F

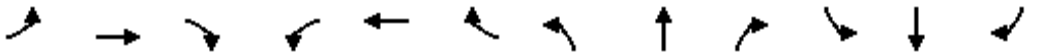
Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 3.92			
Intersection Signal Delay: 259.9		Intersection LOS: F	
Intersection Capacity Utilization 97.5%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 128: US 74 & S. Secrest Avenue



Lane Group	SBR
Minimum Split (s)	14.0
Total Split (s)	39.0
Total Split (%)	27.9%
Maximum Green (s)	32.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Minimum Gap (s)	3.0
Time Before Reduce (s)	0.0
Time To Reduce (s)	0.0
Recall Mode	None
Act Effct Green (s)	34.0
Actuated g/C Ratio	0.24
v/c Ratio	0.88
Control Delay	74.6
Queue Delay	0.0
Total Delay	74.6
LOS	E
Approach Delay	
Approach LOS	

Intersection Summary

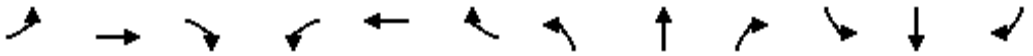


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	79	1560	20	3	1260	59	32	15	6	101	13	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.993			0.984				0.850
Flt Protected	0.950			0.950				0.971			0.957	
Satd. Flow (prot)	1736	3464	0	1736	3447	0	0	1780	0	0	1783	1583
Flt Permitted	0.950			0.950				0.637			0.724	
Satd. Flow (perm)	1736	3464	0	1736	3447	0	0	1168	0	0	1349	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			20			25	
Link Distance (ft)		242			246			170			270	
Travel Time (s)		4.7			4.8			5.8			7.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	88	1733	22	3	1400	66	36	17	7	112	14	121
Shared Lane Traffic (%)												
Lane Group Flow (vph)	88	1755	0	3	1466	0	0	60	0	0	126	121
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		pm+ov
Protected Phases	5	2		1	6			8			4	5
Permitted Phases							8			4		4
Detector Phase	5	2		1	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	17.0		14.0	17.0		14.0	14.0		14.0	14.0	14.0
Total Split (s)	18.0	98.0	0.0	14.0	94.0	0.0	28.0	28.0	0.0	28.0	28.0	18.0
Total Split (%)	12.9%	70.0%	0.0%	10.0%	67.1%	0.0%	20.0%	20.0%	0.0%	20.0%	20.0%	12.9%
Maximum Green (s)	11.0	91.0		7.0	87.0		21.0	21.0		21.0	21.0	11.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None
Act Effct Green (s)	13.2	107.9		9.0	92.5			19.3			19.3	37.5
Actuated g/C Ratio	0.09	0.77		0.06	0.66			0.14			0.14	0.27
v/c Ratio	0.54	0.66		0.03	0.64			0.37			0.67	0.29
Control Delay	72.8	10.3		62.0	16.5			60.3			74.8	41.2
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Delay	72.8	10.3		62.0	16.5			60.3			74.8	41.2
LOS	E	B		E	B			E			E	D
Approach Delay		13.3			16.6			60.3			58.3	
Approach LOS		B			B			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 18.5		Intersection LOS: B	
Intersection Capacity Utilization 71.7%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 129: US 74 & Bivens Street

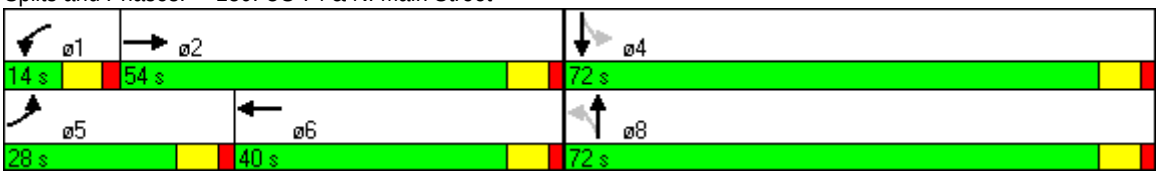


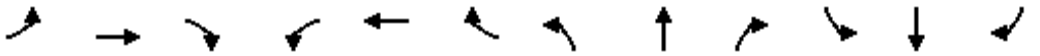
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	360	1206	49	55	948	77	39	283	56	102	373	377
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.994			0.989			0.980			0.925	
Flt Protected	0.950			0.950				0.995		0.950		
Satd. Flow (prot)	1736	3450	0	1736	3433	0	0	1816	0	1770	1723	0
Flt Permitted	0.950			0.950				0.332		0.438		
Satd. Flow (perm)	1736	3450	0	1736	3433	0	0	606	0	816	1723	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		282			333			173			197	
Travel Time (s)		5.5			6.5			3.4			3.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	400	1340	54	61	1053	86	43	314	62	113	414	419
Shared Lane Traffic (%)												
Lane Group Flow (vph)	400	1394	0	61	1139	0	0	419	0	113	833	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	17.0		14.0	17.0		14.0	14.0		14.0	14.0	
Total Split (s)	28.0	54.0	0.0	14.0	40.0	0.0	72.0	72.0	0.0	72.0	72.0	0.0
Total Split (%)	20.0%	38.6%	0.0%	10.0%	28.6%	0.0%	51.4%	51.4%	0.0%	51.4%	51.4%	0.0%
Maximum Green (s)	21.0	47.0		7.0	33.0		65.0	65.0		65.0	65.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	None		None	None		None	None	
Act Effct Green (s)	23.0	51.8		9.0	35.0			67.0		67.0	67.0	
Actuated g/C Ratio	0.16	0.37		0.06	0.25			0.48		0.48	0.48	
v/c Ratio	1.40	1.09		0.54	1.33			1.44		0.29	1.01	
Control Delay	243.3	95.5		82.0	196.4			248.9		24.7	70.1	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	243.3	95.5		82.0	196.4			248.9		24.7	70.1	
LOS	F	F		F	F			F		C	E	
Approach Delay		128.5			190.5			248.9			64.7	
Approach LOS		F			F			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.44			
Intersection Signal Delay: 143.3		Intersection LOS: F	
Intersection Capacity Utilization 112.7%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 130: US 74 & N. Main Street





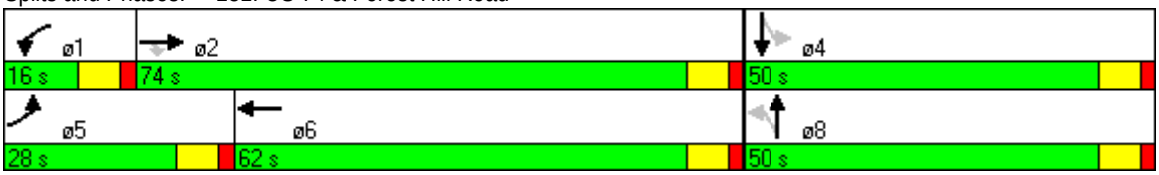
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	123	908	121	29	736	11	111	30	34	10	26	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.998			0.974			0.901	
Flt Protected	0.950			0.950				0.969			0.996	
Satd. Flow (prot)	1736	3471	1553	1736	3464	0	0	1676	0	0	1639	0
Flt Permitted	0.950			0.950				0.605			0.972	
Satd. Flow (perm)	1736	3471	1553	1736	3464	0	0	1046	0	0	1600	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			35	
Link Distance (ft)		576			646			376			353	
Travel Time (s)		7.1			8.0			4.7			6.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	7%	7%	7%	4%	4%	4%
Adj. Flow (vph)	137	1009	134	32	818	12	123	33	38	11	29	108
Shared Lane Traffic (%)												
Lane Group Flow (vph)	137	1009	134	32	830	0	0	194	0	0	148	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		Perm	Prot			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8			4		
Detector Phase	5	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	14.0	14.0	7.0	14.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	21.0	21.0	14.0	21.0		14.0	14.0		14.0	14.0	
Total Split (s)	28.0	74.0	74.0	16.0	62.0	0.0	50.0	50.0	0.0	50.0	50.0	0.0
Total Split (%)	20.0%	52.9%	52.9%	11.4%	44.3%	0.0%	35.7%	35.7%	0.0%	35.7%	35.7%	0.0%
Maximum Green (s)	21.0	67.0	67.0	9.0	55.0		43.0	43.0		43.0	43.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	
Act Effct Green (s)	18.3	89.3	89.3	10.4	75.9			30.9			30.9	
Actuated g/C Ratio	0.13	0.64	0.64	0.07	0.54			0.22			0.22	
v/c Ratio	0.60	0.46	0.14	0.25	0.44			0.84			0.42	
Control Delay	68.1	16.4	13.8	65.2	22.3			80.4			48.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Delay	68.1	16.4	13.8	65.2	22.3			80.4			48.8	
LOS	E	B	B	E	C			F			D	
Approach Delay		21.6			23.9			80.4			48.8	
Approach LOS		C			C			F			D	

Intersection Summary

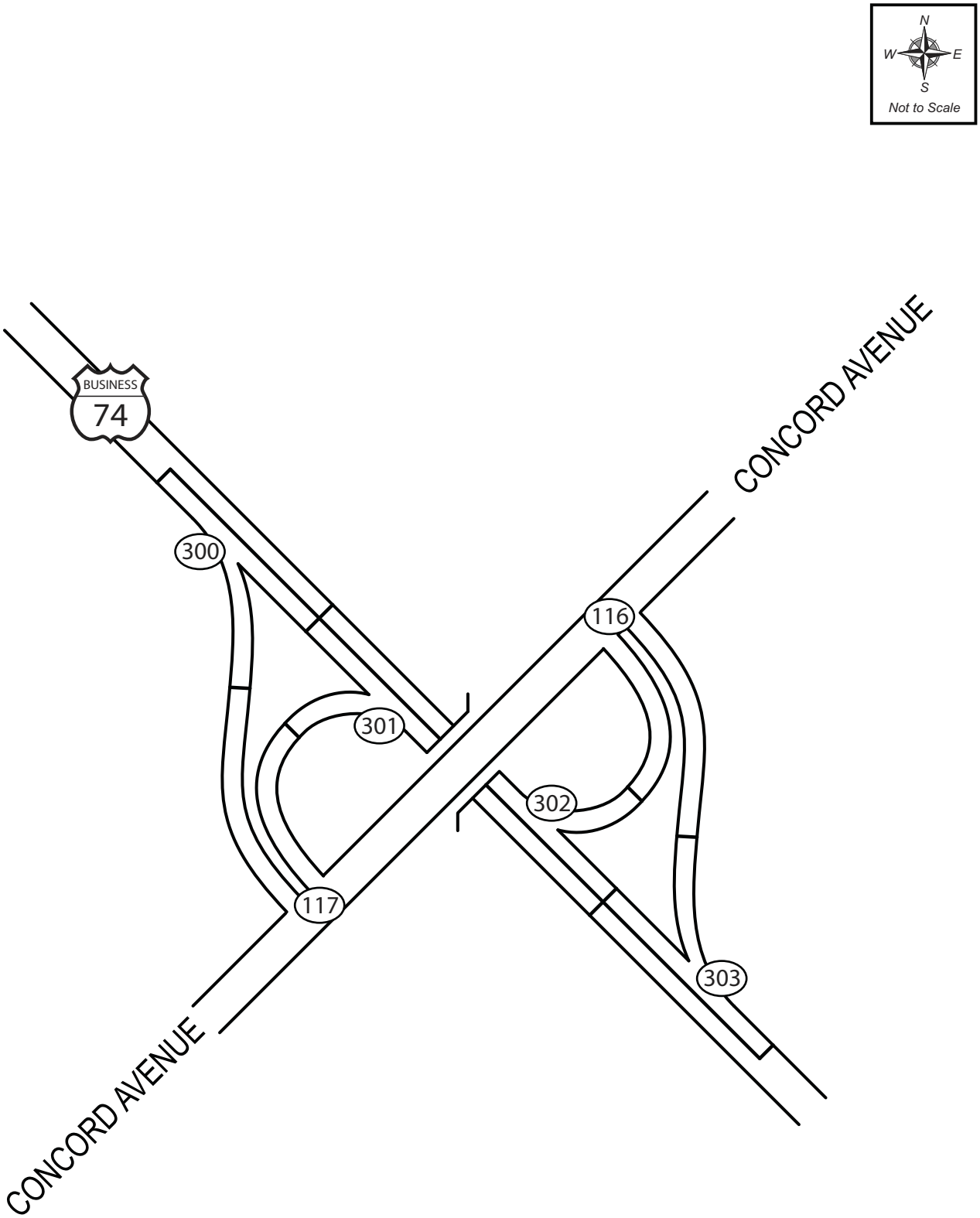
Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 28.6 Intersection LOS: C
Intersection Capacity Utilization 65.3% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 131: US 74 & Forest Hill Road



E-6-2

Business US 74 / Concord Ave I/C



NORTH CAROLINA Turnpike Authority

MONROE CONNECTOR / BYPASS

TIP Project Numbers R-3329 & R-2559

Mecklenburg and Union Counties

Business US 74 Corridor
Concord Avenue
Key Sheet

Appendix E

KeySheetUS74CorridorConcordAve.ai

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*WB US 74 Ramp at Concord Ave*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 2B*
Analysis Time Period	*AM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *WB US 74 Ramp*	North/South Street: *Concord Ave.*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*371*	*114*	*106*	*431*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*412*	*126*	*117*	*478*	*0*
Percent Heavy Vehicles		--	--	*4*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*183*	*0*	*67*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*203*	*0*	*74*	*0*	*0*	*0*
Percent Heavy Vehicles	*5*		*5*			
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (vph)		*117*		*277*				
C (m) (vph)		*1020*		*222*				
v/c		*0.11*		*1.25*				
95% queue length		*0.39*		*14.19*				
Control Delay		*9.0*		*187.5*				
LOS		*A*		*F*				
Approach Delay	--	--	*187.5*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*WB US 74 Ramp at Concord Ave*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 2B*
Analysis Time Period	*PM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *WB US 74 Ramp*	North/South Street: *Concord Ave.*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*469*	*117*	*86*	*352*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*521*	*130*	*95*	*391*	*0*
Percent Heavy Vehicles		--	--	*4*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*145*	*0*	*68*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*161*	*0*	*75*	*0*	*0*	*0*
Percent Heavy Vehicles	*5*		*5*			
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (vph)		*95*		*236*				
C (m) (vph)		*926*		*236*				
v/c		*0.10*		*1.00*				
95% queue length		*0.34*		*9.41*				
Control Delay		*9.3*		*103.1*				
LOS		*A*		*F*				
Approach Delay	--	--	*103.1*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*EB US 74 Ramp at Concord Ave*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 2B*
Analysis Time Period	*AM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *EB US 74 Ramp*	North/South Street: *Concord Ave.*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*145*	*399*			*546*	*68*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*161*	*443*	*0*	*0*	*606*	*75*
Percent Heavy Vehicles	*4*	--	--		--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume		*0*		*86*	*0*	*116*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*95*	*0*	*128*
Percent Heavy Vehicles				*5*		*5*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*161*						*223*	
C (m) (vph)	*902*						*213*	
v/c	*0.18*						*1.05*	
95% queue length	*0.65*						*9.79*	
Control Delay	*9.9*						*122.3*	
LOS	*A*						*F*	
Approach Delay	--	--				*122.3*		
Approach LOS	--	--				*F*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*EB US 74 Ramp at Concord Ave*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 2B*
Analysis Time Period	*PM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *EB US 74 Ramp*	North/South Street: *Concord Ave.*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*183*	*480*			*430*	*67*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*203*	*533*	*0*	*0*	*477*	*74*
Percent Heavy Vehicles	*4*	--	--		--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume		*0*		*106*	*0*	*114*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*117*	*0*	*126*
Percent Heavy Vehicles				*5*		*5*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*203*						*243*	
C (m) (vph)	*1009*						*192*	
v/c	*0.20*						*1.27*	
95% queue length	*0.75*						*13.25*	
Control Delay	*9.5*						*202.9*	
LOS	*A*						*F*	
Approach Delay	--	--				*202.9*		
Approach LOS	--	--				*F*		

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Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB off to Concord Ave.
Junction:	300
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2B
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1741	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	202	vph
Length of first accel/decel lane	680	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	213	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1741	202	213	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	484	56	59	v
Trucks and buses	5	5	4	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.943	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2080	241	251	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.697 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1523 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2080	6750	No
v_{12}	1523	4400	No
$v_{FO} = v_F - v_R$	1839	6750	No
v_R	241	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 11.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.385

Space mean speed in ramp influence area, S_R = 50.0 mph

Space mean speed in outer lanes, S_0 = 60.3 mph

Space mean speed for all vehicles, S = 52.4 mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB off to Concord Ave.
Junction:	300
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2B
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2156	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	220	vph
Length of first accel/decel lane	680	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	250	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2156	220	250	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	599	61	69	v
Trucks and buses	5	5	4	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.943	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2575	263	294	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.684 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1843 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2575	6750	No
v_{12}	1843	4400	No
$v_{FO} = v_F - v_R$	2312	6750	No
v_R	263	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 14.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.387

Space mean speed in ramp influence area, S_R = 50.0 mph

Space mean speed in outer lanes, S_0 = 60.3 mph

Space mean speed for all vehicles, S = 52.5 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB on from Concord Ave.
Junction:	301
Jurisdiction:	
Analysis Year:	2035 Build Alternative2B
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1539	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	213	vph
Length of first accel/decel lane	100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	202	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1539	213	202	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	428	59	56	v
Trucks and buses	5	4	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1838	251	241	pcph

Estimation of V12 Merge Areas

L_{EQ} = -603.55 (Equation 25-2 or 25-3)

P_{FM} = 0.580 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1067 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2089	6750	No
v_{R12}	1318	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 15.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.331	
Space mean speed in ramp influence area,	S_R = 50.7	mph
Space mean speed in outer lanes,	S_O = 54.0	mph
Space mean speed for all vehicles,	S = 51.9	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB on from Concord Ave.
Junction:	301
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2B
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1936	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	250	vph
Length of first accel/decel lane	100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	220	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1936	250	220	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	538	69	61	v
Trucks and buses	5	4	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2312	294	263	pcph

Estimation of V12 Merge Areas

L_{EQ} = -492.92 (Equation 25-2 or 25-3)

P_{FM} = 0.580 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1342 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2606	6750	No
v_{R12}	1636	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 17.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.336	
Space mean speed in ramp influence area,	S_R = 50.6	mph
Space mean speed in outer lanes,	S_O = 53.3	mph
Space mean speed for all vehicles,	S = 51.6	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB on from Concord Ave.
Junction:	302
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2B
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1936	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	220	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	250	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1936	220	250	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	538	61	69	v
Trucks and buses	5	4	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2312	259	299	pcph

Estimation of V12 Merge Areas

L_{EQ} = -411.61 (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1355 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2571	6750	No
v_{R12}	1614	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 16.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.326

Space mean speed in ramp influence area, S_R = 50.8 mph

Space mean speed in outer lanes, S_O = 53.4 mph

Space mean speed for all vehicles, S = 51.7 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB on from Concord Ave.
Junction:	302
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2B
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1569	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	203	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	213	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1569	203	213	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	436	56	59	v
Trucks and buses	5	4	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1874	239	254	pcph

Estimation of V12 Merge Areas

L_{EQ} = -509.62 (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1098 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2113	6750	No
v_{R12}	1337	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 13.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.321

Space mean speed in ramp influence area, S_R = 50.8 mph

Space mean speed in outer lanes, S_O = 54.0 mph

Space mean speed for all vehicles, S = 52.0 mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB off to Concord Ave.
Junction:	303
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2B
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2186	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	250	vph
Length of first accel/decel lane	680	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	220	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2186	250	220	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	607	69	61	v
Trucks and buses	5	5	4	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.943	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2611	299	259	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.681 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1873 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2611	6750	No
v_{12}	1873	4400	No
$v_{FO} = v_F - v_R$	2312	6750	No
v_R	299	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 14.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.390

Space mean speed in ramp influence area, S_R = 49.9 mph

Space mean speed in outer lanes, S_0 = 60.3 mph

Space mean speed for all vehicles, S = 52.5 mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB off to Concord Ave.
Junction:	303
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2B
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1782	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	213	vph
Length of first accel/decel lane	680	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	203	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1782	213	203	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	495	59	56	v
Trucks and buses	5	5	4	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.943	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2128	254	239	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.695 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1557 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2128	6750	No
v_{12}	1557	4400	No
$v_{FO} = v_F - v_R$	1874	6750	No
v_R	254	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 11.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.386

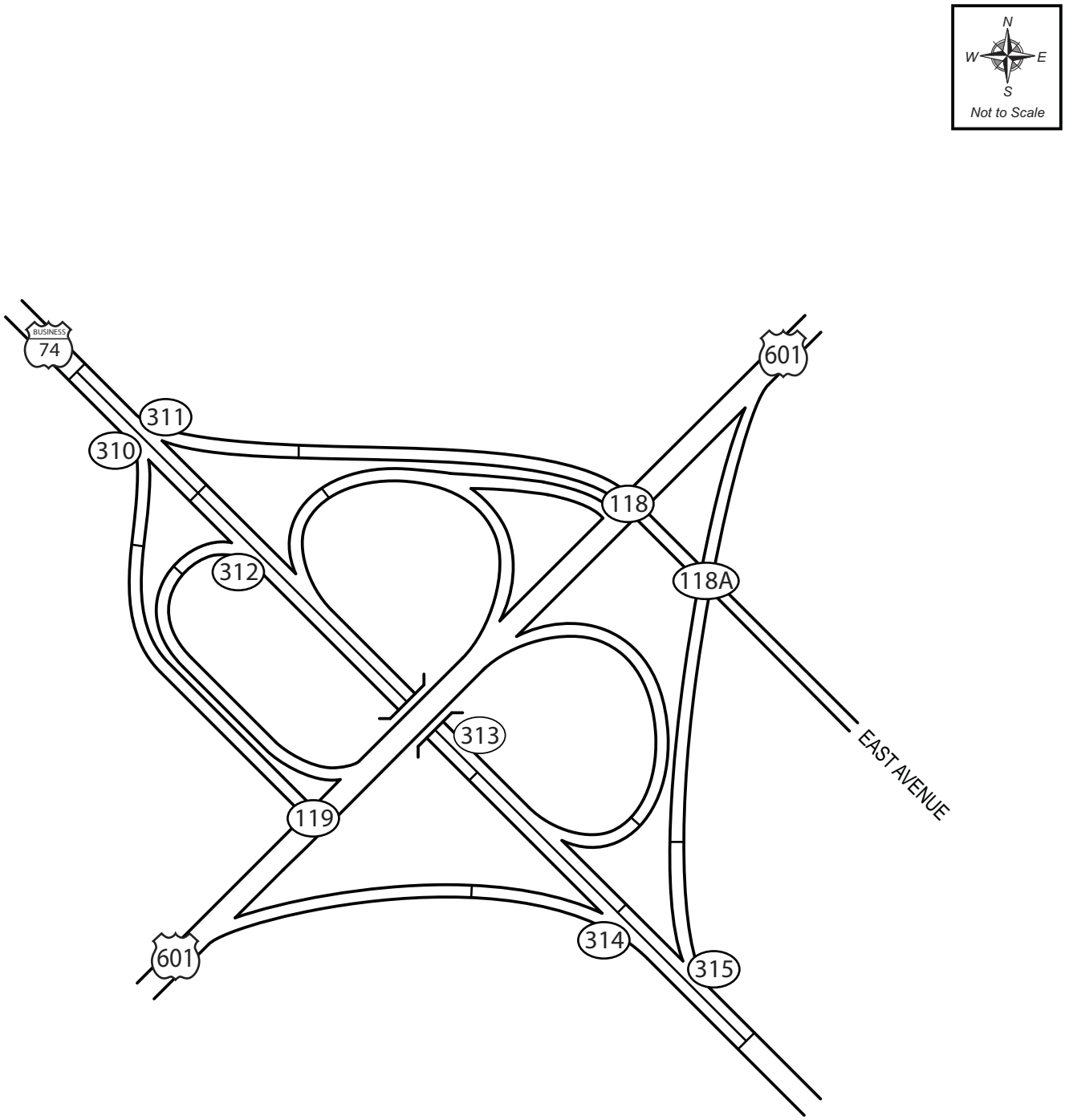
Space mean speed in ramp influence area, S_R = 50.0 mph

Space mean speed in outer lanes, S_0 = 60.3 mph

Space mean speed for all vehicles, S = 52.4 mph

E-6-3

Business US 74 / US 601I/C



NORTH CAROLINA Turnpike Authority

MONROE CONNECTOR / BYPASS

TIP Project Numbers R-3329 & R-2559

Mecklenburg and Union Counties

Business US 74 Corridor
US 601
Key Sheet

Appendix E

KeySheetUS74CorridorUS601.ai

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*East Ave. at US 74 Off Ramp*
Agency/Co.	*PBS&J*	Jurisdiction	*118A*
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 2B*
Analysis Time Period	*AM Peak Hour*		
Project Description	*Monroe Connector/Bypass*		
East/West Street:	*East Ave.*	North/South Street:	*US 74 Off Ramp*
Intersection Orientation:	*North-South*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*10*	*421*	*10*			
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*11*	*467*	*11*	*0*	*0*	*0*
Percent Heavy Vehicles	*5*	--	--		--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration	*LTR*					
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume		*120*	*150*	*10*	*270*	
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*133*	*166*	*11*	*300*	*0*
Percent Heavy Vehicles		*5*	*5*	*8*	*8*	
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*				*TR*	*LT*		
v (vph)	*11*				*299*	*311*		
C (m) (vph)	*1604*				*526*	*441*		
v/c	*0.01*				*0.57*	*0.71*		
95% queue length	*0.02*				*3.52*	*5.39*		
Control Delay	*7.3*				*20.5*	*30.4*		
LOS	*A*				*C*	*D*		
Approach Delay	--	--	*20.5*			*30.4*		
Approach LOS	--	--	*C*			*D*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*East Ave. at US 74 Off Ramp*
Agency/Co.	*PBS&J*	Jurisdiction	*118A*
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 2B*
Analysis Time Period	*PM Peak Hour*		
Project Description	*Monroe Connector/Bypass*		
East/West Street:	*East Ave.*	North/South Street:	*US 74 Off Ramp*
Intersection Orientation:	*North-South*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*10*	*316*	*10*			
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*11*	*351*	*11*	*0*	*0*	*0*
Percent Heavy Vehicles	*5*	--	--		--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration	*LTR*					
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume		*150*	*150*	*10*	*290*	
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*166*	*166*	*11*	*322*	*0*
Percent Heavy Vehicles		*5*	*5*	*8*	*8*	
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*				*TR*	*LT*		
v (vph)	*11*				*332*	*333*		
C (m) (vph)	*1604*				*605*	*516*		
v/c	*0.01*				*0.55*	*0.65*		
95% queue length	*0.02*				*3.32*	*4.55*		
Control Delay	*7.3*				*17.9*	*23.8*		
LOS	*A*				*C*	*C*		
Approach Delay	--	--	*17.9*			*23.8*		
Approach LOS	--	--	*C*			*C*		

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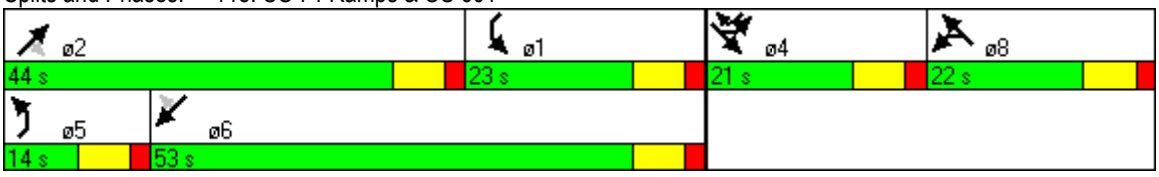
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	10	10	10	120	10	0	10	588	150	120	499	317
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.955							0.850			0.850
Flt Protected		0.984		0.950			0.950			0.950		
Satd. Flow (prot)	0	1700	0	1719	1810	0	1671	3343	1495	1671	3343	1495
Flt Permitted		0.984		0.950			0.950			0.950		
Satd. Flow (perm)	0	1700	0	1719	1810	0	1671	3343	1495	1671	3343	1495
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		412			451			446			441	
Travel Time (s)		8.0			8.8			6.8			6.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	8%	8%	8%	8%	8%	8%
Adj. Flow (vph)	11	11	11	133	11	0	11	653	167	133	554	352
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	33	0	133	11	0	11	653	167	133	554	352
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split			Prot		Perm	Prot		pm+ov
Protected Phases	4	4		8	8		5	2		1	6	4
Permitted Phases									2			6
Detector Phase	4	4		8	8		5	2	2	1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	14.0
Total Split (s)	21.0	21.0	0.0	22.0	22.0	0.0	14.0	44.0	44.0	23.0	53.0	21.0
Total Split (%)	19.1%	19.1%	0.0%	20.0%	20.0%	0.0%	12.7%	40.0%	40.0%	20.9%	48.2%	19.1%
Maximum Green (s)	14.0	14.0		15.0	15.0		7.0	37.0	37.0	16.0	46.0	14.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	None	None
Act Effct Green (s)		10.2		15.5	15.5		9.0	49.0	49.0	15.2	66.5	81.7
Actuated g/C Ratio		0.09		0.14	0.14		0.08	0.45	0.45	0.14	0.60	0.74
v/c Ratio		0.21		0.55	0.04		0.08	0.44	0.25	0.58	0.27	0.32
Control Delay		48.7		52.0	38.9		48.2	23.7	22.6	54.0	12.5	7.1
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		48.7		52.0	38.9		48.2	23.7	22.6	54.0	12.5	7.1
LOS		D		D	D		D	C	C	D	B	A
Approach Delay		48.7			51.0			23.8			16.0	
Approach LOS		D			D			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 2:NET, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay: 22.1		Intersection LOS: C	
Intersection Capacity Utilization 48.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 118: US 74 Ramps & US 601



Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (vph)	327	132	0	594	661	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	3335	1538	0	3343	3343	0
Flt Permitted	0.950					
Satd. Flow (perm)	3335	1538	0	3343	3343	0
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	35			45	45	
Link Distance (ft)	529			486	575	
Travel Time (s)	10.3			7.4	8.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	8%	8%	8%	8%
Adj. Flow (vph)	363	147	0	660	734	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	363	147	0	660	734	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (ft)	20	20		100	100	
Trailing Detector (ft)	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	
Detector 1 Size(ft)	20	20		6	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type		Perm				
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						
Minimum Initial (s)	7.0	7.0		12.0	12.0	

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Minimum Split (s)	14.0	14.0		19.0	19.0	
Total Split (s)	42.0	42.0	0.0	68.0	68.0	0.0
Total Split (%)	38.2%	38.2%	0.0%	61.8%	61.8%	0.0%
Maximum Green (s)	35.0	35.0		61.0	61.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		C-Max	C-Max	
Act Effct Green (s)	37.0	37.0		63.0	63.0	
Actuated g/C Ratio	0.34	0.34		0.57	0.57	
v/c Ratio	0.32	0.28		0.34	0.38	
Control Delay	28.2	28.7		13.1	13.6	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	28.2	28.7		13.1	13.6	
LOS	C	C		B	B	
Approach Delay	28.3			13.1	13.6	
Approach LOS	C			B	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 2:NET and 6:SWT, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.38			
Intersection Signal Delay: 17.4		Intersection LOS: B	
Intersection Capacity Utilization 35.9%		ICU Level of Service A	
Analysis Period (min) 15			

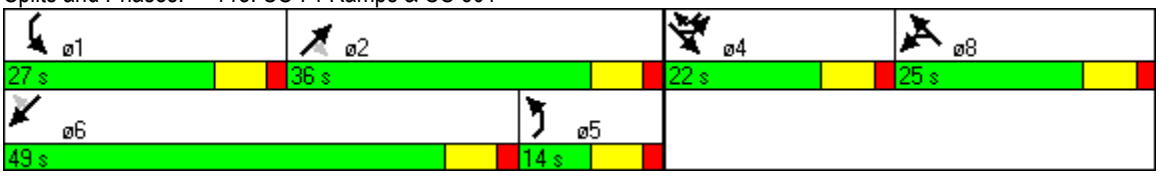
Splits and Phases: 119: EB US 74 Off Ramp & US 601

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	10	10	10	150	10	0	10	500	120	170	682	327
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.955							0.850			0.850
Flt Protected		0.984		0.950			0.950			0.950		
Satd. Flow (prot)	0	1700	0	1719	1810	0	1671	3343	1495	1671	3343	1495
Flt Permitted		0.984		0.950			0.950			0.950		
Satd. Flow (perm)	0	1700	0	1719	1810	0	1671	3343	1495	1671	3343	1495
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		412			451			446			441	
Travel Time (s)		8.0			8.8			6.8			6.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	8%	8%	8%	8%	8%	8%
Adj. Flow (vph)	11	11	11	167	11	0	11	556	133	189	758	363
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	33	0	167	11	0	11	556	133	189	758	363
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split			Prot		Perm	Prot		pm+ov
Protected Phases	4	4		8	8		5	2		1	6	4
Permitted Phases									2			6
Detector Phase	4	4		8	8		5	2	2	1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	14.0
Total Split (s)	22.0	22.0	0.0	25.0	25.0	0.0	14.0	36.0	36.0	27.0	49.0	22.0
Total Split (%)	20.0%	20.0%	0.0%	22.7%	22.7%	0.0%	12.7%	32.7%	32.7%	24.5%	44.5%	20.0%
Maximum Green (s)	15.0	15.0		18.0	18.0		7.0	29.0	29.0	20.0	42.0	15.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lag	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		Max	Max		None	C-Max	C-Max	None	None	None
Act Effct Green (s)		11.0		26.0	26.0		9.6	34.3	34.3	18.7	54.6	69.6
Actuated g/C Ratio		0.10		0.24	0.24		0.09	0.31	0.31	0.17	0.50	0.63
v/c Ratio		0.19		0.41	0.03		0.08	0.53	0.29	0.66	0.46	0.38
Control Delay		46.8		40.2	34.8		46.6	34.3	31.9	53.9	20.3	9.8
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		46.8		40.2	34.8		46.6	34.3	31.9	53.9	20.3	9.8
LOS		D		D	C		D	C	C	D	C	A
Approach Delay		46.8			39.8			34.0			22.3	
Approach LOS		D			D			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 2:NET, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 27.7		Intersection LOS: C	
Intersection Capacity Utilization 52.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 118: US 74 Ramps & US 601

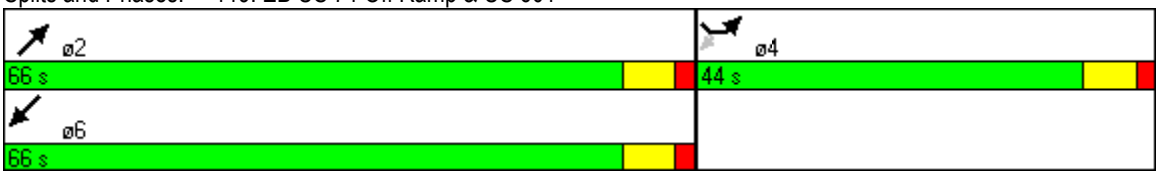


Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (vph)	317	183	0	435	775	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	3335	1538	0	3343	3343	0
Flt Permitted	0.950					
Satd. Flow (perm)	3335	1538	0	3343	3343	0
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	35			45	45	
Link Distance (ft)	529			486	575	
Travel Time (s)	10.3			7.4	8.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	8%	8%	8%	8%
Adj. Flow (vph)	352	203	0	483	861	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	352	203	0	483	861	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (ft)	20	20		100	100	
Trailing Detector (ft)	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	
Detector 1 Size(ft)	20	20		6	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type		Perm				
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						
Minimum Initial (s)	7.0	7.0		12.0	12.0	

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Minimum Split (s)	14.0	14.0		19.0	19.0	
Total Split (s)	44.0	44.0	0.0	66.0	66.0	0.0
Total Split (%)	40.0%	40.0%	0.0%	60.0%	60.0%	0.0%
Maximum Green (s)	37.0	37.0		59.0	59.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		None	None	
Act Effct Green (s)	39.2	39.2		28.4	28.4	
Actuated g/C Ratio	0.50	0.50		0.37	0.37	
v/c Ratio	0.21	0.26		0.39	0.70	
Control Delay	12.0	13.4		18.9	24.3	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	12.0	13.4		18.9	24.3	
LOS	B	B		B	C	
Approach Delay	12.5			18.9	24.3	
Approach LOS	B			B	C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 77.7			
Natural Cycle: 40			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay: 19.5		Intersection LOS: B	
Intersection Capacity Utilization 41.1%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 119: EB US 74 Off Ramp & US 601



Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB off to US 601
Junction:	310
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2B
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1775	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	459	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	316	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	700	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1775	459	316	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	493	128	88	v
Trucks and buses	5	5	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2120	548	393	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.682 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1620 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2120	6750	No
v_{12}	1620	4400	No
$v_{FO} = v_F - v_R$	1572	6750	No
v_R	548	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 16.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.412	
Space mean speed in ramp influence area,	S_R = 49.6	mph
Space mean speed in outer lanes,	S_O = 60.3	mph
Space mean speed for all vehicles,	S = 51.8	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB off to US 601
Junction:	310
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2B
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2195	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	500	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	421	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	700	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2195	500	421	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	610	139	117	v
Trucks and buses	5	5	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2622	597	524	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.667 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1948 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2622	6750	No
v_{12}	1948	4400	No
$v_{FO} = v_F - v_R$	2025	6750	No
v_R	597	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 19.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.417	
Space mean speed in ramp influence area,	S_R = 49.6	mph
Space mean speed in outer lanes,	S_0 = 60.3	mph
Space mean speed for all vehicles,	S = 52.0	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB on from US 601
Junction:	311
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2B
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1878	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	40.0	mph
Volume on ramp	327	vph
Length of first accel/decel lane	250	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	478	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1878	327	478	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	522	91	133	v
Trucks and buses	5	8	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2243	407	571	pcph

Estimation of V12 Merge Areas

L_{EQ} = 367.90 (Equation 25-2 or 25-3)

P_{FM} = 0.585 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1311 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2650	6750	No
v_{R12}	1718	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 17.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.323

Space mean speed in ramp influence area, S_R = 50.8 mph

Space mean speed in outer lanes, S_O = 53.4 mph

Space mean speed for all vehicles, S = 51.7 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB on from US 601
Junction:	311
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2B
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1448	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	40.0	mph
Volume on ramp	337	vph
Length of first accel/decel lane	250	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	514	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1448	337	514	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	402	94	143	v
Trucks and buses	5	8	7	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.905	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1730	419	631	pcph

Estimation of V12 Merge Areas

L_{EQ} = 260.69 (Equation 25-2 or 25-3)

P_{FM} = 0.585 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1011 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2149	6750	No
v_{R12}	1430	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 14.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.317	
Space mean speed in ramp influence area,	S_R = 50.9	mph
Space mean speed in outer lanes,	S_O = 54.2	mph
Space mean speed for all vehicles,	S = 51.9	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB on from US 601 SB
Junction:	312
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2B
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1316	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	316	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	459	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	700	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1316	316	459	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	366	88	128	v
Trucks and buses	5	8	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1572	393	548	pcph

Estimation of V12 Merge Areas

L_{EQ} = -541.29 (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 921 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	1965	6750	No
v_{R12}	1314	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 13.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.321

Space mean speed in ramp influence area, S_R = 50.8 mph

Space mean speed in outer lanes, S_O = 54.5 mph

Space mean speed for all vehicles, S = 52.0 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB on from US 601 SB
Junction:	312
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2B
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1695	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	421	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	500	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	700	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1695	421	500	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	471	117	139	v
Trucks and buses	5	8	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2025	524	597	pcph

Estimation of V12 Merge Areas

L_{EQ} = -416.31 (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1186 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2549	6750	No
v_{R12}	1710	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 16.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.328

Space mean speed in ramp influence area, S_R = 50.7 mph

Space mean speed in outer lanes, S_O = 53.8 mph

Space mean speed for all vehicles, S = 51.7 mph

FREEWAY WEAVING WORKSHEET

General Information

Analyst	OSR
Agency/Company	PBSJ
Date Performed	4/30/08
Analysis Time Period	AM Peak

Site Information

Freeway/Dir of Travel	US 74 WB
Weaving Seg Location	313
Jurisdiction	
Analysis Year	2035 Build Alternative 2B

Inputs

Freeway free-flow speed, SFF (mi/h)	55	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.28
Weaving seg length, L (ft)	550	Weaving ratio, R	0.27
Terrain	Rolling		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	1695	0.90	9	0	2.5	2.0	0.881	1.00	2137
Vo2	0	0.90	0	0	2.5	2.0	1.000	1.00	0
Vw1	478	0.90	9	0	2.5	2.0	0.881	1.00	602
Vw2	183	0.90	8	0	2.5	2.0	0.893	1.00	227
Vw				829	Vnw				2137
V									2966

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.15	0.00		
b (Exhibit 24-6)	2.20	4.00		
c (Exhibit 24-6)	0.97	1.30		
d (Exhibit 24-6)	0.80	0.75		
Weaving intensity factor, Wi	1.01	0.44		
Weaving and non-weaving speeds, Si (mi/h)	37.41	46.15		

Number of lanes required for unconstrained operation, Nw 1.28
Maximum number of lanes, Nw (max) 1.40

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	43.32
Weaving segment density, D (pc/mi/ln)	17.12
Level of service, LOS	B
Capacity of base condition, c_b (pc/h)	5881
Capacity as a 15-minute flow rate, c (veh/h)	5181
Capacity as a full-hour volume, c_h (veh/h)	4663

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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FREEWAY WEAVING WORKSHEET

General Information

Analyst	OSR
Agency/Company	PBSJ
Date Performed	4/30/08
Analysis Time Period	PM Peak

Site Information

Freeway/Dir of Travel	US 74 WB
Weaving Seg Location	313
Jurisdiction	
Analysis Year	2035 Build Alternative 2B

Inputs

Freeway free-flow speed, SFF (mi/h)	55	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.33
Weaving seg length, L (ft)	550	Weaving ratio, R	0.21
Terrain	Rolling		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	1316	0.90	5	0	2.5	2.0	0.930	1.00	1571
Vo2	0	0.90	0	0	2.5	2.0	1.000	1.00	0
Vw1	514	0.90	5	0	2.5	2.0	0.930	1.00	613
Vw2	132	0.90	8	0	2.5	2.0	0.893	1.00	164
Vw				777	Vnw				1571
V									2348

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.15	0.00		
b (Exhibit 24-6)	2.20	4.00		
c (Exhibit 24-6)	0.97	1.30		
d (Exhibit 24-6)	0.80	0.75		
Weaving intensity factor, Wi	0.88	0.38		
Weaving and non-weaving speeds, Si (mi/h)	38.99	47.51		

Number of lanes required for unconstrained operation, Nw 1.39
Maximum number of lanes, Nw (max) 1.40

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	44.30
Weaving segment density, D (pc/mi/ln)	13.25
Level of service, LOS	B
Capacity of base condition, c_b (pc/h)	5609
Capacity as a 15-minute flow rate, c (veh/h)	5218
Capacity as a full-hour volume, c_h (veh/h)	4696

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB on from US 601 NB
Junction:	314
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2B
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1632	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	40.0	mph
Volume on ramp	514	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	316	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1632	514	316	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	453	143	88	v
Trucks and buses	5	8	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1949	640	393	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1142 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2589	6750	No
v_{R12}	1782	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 17.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.320	
Space mean speed in ramp influence area,	S_R = 50.8	mph
Space mean speed in outer lanes,	S_O = 53.9	mph
Space mean speed for all vehicles,	S = 51.8	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB on from US 601 NB
Junction:	314
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2B
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2116	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	40.0	mph
Volume on ramp	478	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	421	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2116	478	421	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	588	133	117	v
Trucks and buses	5	8	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2527	595	524	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1481 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3122	6750	No
v_{R12}	2076	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 19.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.328

Space mean speed in ramp influence area, S_R = 50.7 mph

Space mean speed in outer lanes, S_O = 53.0 mph

Space mean speed for all vehicles, S = 51.5 mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB off to US 601
Junction:	315
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2B
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2594	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	421	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	183	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	400	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2594	421	183	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	721	117	51	v
Trucks and buses	5	5	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3098	503	228	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.659 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2214 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3098	6750	No
v_{12}	2214	4400	No
$v_{FO} = v_F - v_R$	2595	6750	No
v_R	503	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 20.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.408	
Space mean speed in ramp influence area,	S_R = 49.7	mph
Space mean speed in outer lanes,	S_O = 60.3	mph
Space mean speed for all vehicles,	S = 52.3	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB off to US 601
Junction:	315
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2B
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2146	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	316	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	132	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	400	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2146		316		132		vph
Peak-hour factor, PHF	0.90		0.90		0.90		
Peak 15-min volume, v15	596		88		37		v
Trucks and buses	5		5		8		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		

Heavy vehicle adjustment, fHV	0.930	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2563	377	164	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.679 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1860 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2563	6750	No
v_{12}	1860	4400	No
$v_{FO} = v_F - v_R$	2186	6750	No
v_R	377	2100	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 17.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.397

Space mean speed in ramp influence area, S_R = 49.8 mph

Space mean speed in outer lanes, S_0 = 60.3 mph

Space mean speed for all vehicles, S = 52.3 mph

E-7

Alternative 2C

E-7-1

Business US 74 Intersections

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*OSR*
Agency/Co.	*PBS&J*
Date Performed	*4/30/08*
Analysis Time Period	*AM Peak*

Site Information

Intersection	*US 74 and Bivens Road*
Jurisdiction	
Analysis Year	*2035 Build Toll Alternative 2C*

Project Description *Monroe Connector/Bypass*

East/West Street: *US 74* | North/South Street: *Bivens Road*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*120*	*1157*	*10*	*10*	*1426*	*135*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*133*	*1285*	*11*	*11*	*1584*	*150*
Proportion of heavy vehicles, P_{HV}	*5*	--	--	*5*	--	--
Median type	*Undivided*					
RT Channelized?			*0*			*1*
Lanes	*1*	*2*	*1*	*1*	*2*	*1*
Configuration	*L*	*T*	*R*	*L*	*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*10*	*10*	*10*	*101*	*10*	*111*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*11*	*11*	*11*	*112*	*11*	*123*
Proportion of heavy vehicles, P_{HV}	*2*	*2*	*2*	*2*	*2*	*2*
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
Volume, v (vph)	*133*	*11*		*33*			*246*	
Capacity, c_m (vph)	*397*	*515*		*0*			*0*	
v/c ratio	*0.34*	*0.02*						
Queue length (95%)	*1.45*	*0.07*						
Control Delay (s/veh)	*18.6*	*12.1*						
LOS	*C*	*B*		*F*			*F*	
Approach delay (s/veh)	--	--						
Approach LOS	--	--						

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*OSR*
Agency/Co.	*PBS&J*
Date Performed	*4/30/08*
Analysis Time Period	*PM Peak*

Site Information

Intersection	*US 74 and Bivens Road*
Jurisdiction	
Analysis Year	*2035 Build Toll Alternative 2C*

Project Description *Monroe Connector/Bypass*

East/West Street: *US 74* | North/South Street: *Bivens Road*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*111*	*1426*	*10*	*10*	*1157*	*101*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*123*	*1584*	*11*	*11*	*1285*	*112*
Proportion of heavy vehicles, P_{HV}	*5*	--	--	*5*	--	--
Median type	*Undivided*					
RT Channelized?			*0*			*1*
Lanes	*1*	*2*	*1*	*1*	*2*	*1*
Configuration	*L*	*T*	*R*	*L*	*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*10*	*10*	*10*	*135*	*10*	*121*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*11*	*11*	*11*	*150*	*11*	*134*
Proportion of heavy vehicles, P_{HV}	*2*	*2*	*2*	*2*	*2*	*2*
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
Volume, v (vph)	*123*	*11*		*33*			*295*	
Capacity, c_m (vph)	*520*	*393*		*0*			*0*	
v/c ratio	*0.24*	*0.03*						
Queue length (95%)	*0.91*	*0.09*						
Control Delay (s/veh)	*14.1*	*14.4*						
LOS	*B*	*B*		*F*			*F*	
Approach delay (s/veh)	--	--						
Approach LOS	--	--						

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*US 74 and Seacrest Shortcut*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Toll Alternative 2C*
Analysis Time Period	*AM Peak*		

Project Description *Monroe Connector/Bypass*

East/West Street: *US 74* | North/South Street: *Seacrest Shortcut RIRO*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*0*	*902*	*306*	*0*	*1400*	*0*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*0*	*1002*	*340*	*0*	*1555*	*0*
Proportion of heavy vehicles, P_{HV}		--	--		--	--
Median type	*Undivided*					
RT Channelized?			*0*			*1*
Lanes	*0*	*2*	*1*	*0*	*2*	*0*
Configuration		*T*	*R*		*T*	
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*428*	*0*	*0*	*0*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*0*	*0*	*475*	*0*	*0*	*0*
Proportion of heavy vehicles, P_{HV}			*4*			
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					*R*			
Volume, v (vph)					*475*			
Capacity, c_m (vph)					*510*			
v/c ratio					*0.93*			
Queue length (95%)					*11.34*			
Control Delay (s/veh)					*53.2*			
LOS					*F*			
Approach delay (s/veh)	--	--	*53.2*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*US 74 and Seacrest Shortcut*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Toll Alternative 2C*
Analysis Time Period	*PM Peak*		

Project Description *Monroe Connector/Bypass*

East/West Street: *US 74* | North/South Street: *Seacrest Shortcut RIRO*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*0*	*1156*	*430*	*0*	*1145*	*0*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*0*	*1284*	*477*	*0*	*1272*	*0*
Proportion of heavy vehicles, P_{HV}		--	--		--	--
Median type	*Undivided*					
RT Channelized?			*0*			*1*
Lanes	*0*	*2*	*1*	*0*	*2*	*0*
Configuration		*T*	*R*		*T*	
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*304*	*0*	*0*	*0*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*0*	*0*	*337*	*0*	*0*	*0*
Proportion of heavy vehicles, P_{HV}			*4*			
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					*R*			
Volume, v (vph)					*337*			
Capacity, c_m (vph)					*412*			
v/c ratio					*0.82*			
Queue length (95%)					*7.49*			
Control Delay (s/veh)					*42.7*			
LOS					*E*			
Approach delay (s/veh)	--	--	*42.7*					
Approach LOS	--	--	*E*					

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	449	149	43	43	239	90	60	2390	475	57	2980	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1719	3438	1538	1719	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	1719	3438	1538	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			45			55			55	
Link Distance (ft)		1096			1168			1536			3465	
Travel Time (s)		21.4			17.7			19.0			43.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	499	166	48	48	266	100	67	2656	528	63	3311	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	499	166	48	48	266	100	67	2656	528	63	3311	39
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	1	6	7	5	2	3
Permitted Phases			4			8			6			2
Detector Phase	7	4	5	3	8	1	1	6	7	5	2	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	14.0	7.0	7.0	14.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0	14.0	14.0	21.0	14.0	14.0	21.0	14.0
Total Split (s)	20.0	20.0	14.0	14.0	14.0	14.0	14.0	92.0	20.0	14.0	92.0	14.0
Total Split (%)	14.3%	14.3%	10.0%	10.0%	10.0%	10.0%	10.0%	65.7%	14.3%	10.0%	65.7%	10.0%
Maximum Green (s)	13.0	13.0	7.0	7.0	7.0	7.0	7.0	85.0	13.0	7.0	85.0	7.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	15.0	17.8	31.8	9.0	9.0	23.0	9.0	89.8	109.8	9.0	87.0	101.0
Actuated g/C Ratio	0.11	0.13	0.23	0.06	0.06	0.16	0.06	0.64	0.78	0.06	0.62	0.72
v/c Ratio	1.36	0.37	0.13	0.22	1.17	0.38	0.60	1.20	0.44	0.57	1.55	0.04
Control Delay	222.6	60.0	46.6	64.7	167.1	57.2	86.3	122.3	6.8	83.6	274.7	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	222.6	60.0	46.6	64.7	167.1	57.2	86.3	122.3	6.8	83.6	274.7	5.7
LOS	F	E	D	E	F	E	F	F	A	F	F	A
Approach Delay		172.9			128.7			102.8			268.1	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.55			
Intersection Signal Delay: 183.0		Intersection LOS: F	
Intersection Capacity Utilization 114.3%		ICU Level of Service H	
Analysis Period (min) 15			

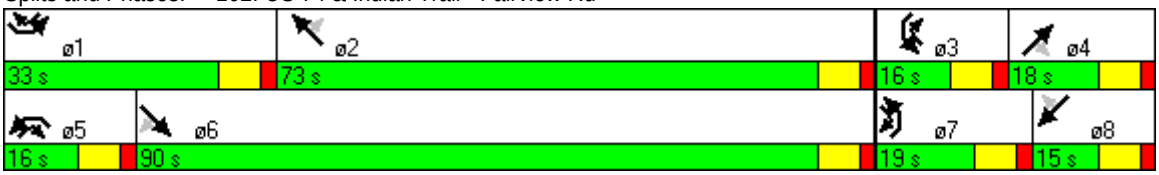
Splits and Phases: 101: Stallings Road & US 74

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	335	1688	434	112	2062	88	420	150	89	132	284	615
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3335	3438	1538	1719	3438	1538	3335	3438	1538	3335	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3438	1538	1719	3438	1538	3335	3438	1538	3335	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			35			35	
Link Distance (ft)		2103			2380			902			1112	
Travel Time (s)		26.1			29.5			17.6			21.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	372	1876	482	124	2291	98	467	167	99	147	316	683
Shared Lane Traffic (%)												
Lane Group Flow (vph)	372	1876	482	124	2291	98	467	167	99	147	316	683
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	7.0	14.0	7.0	7.0	14.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.5	21.0	14.0	14.0	21.0	14.0	14.0	14.0	14.0	14.0	14.0	14.5
Total Split (s)	33.0	90.0	19.0	16.0	73.0	16.0	19.0	18.0	16.0	16.0	15.0	33.0
Total Split (%)	23.6%	64.3%	13.6%	11.4%	52.1%	11.4%	13.6%	12.9%	11.4%	11.4%	10.7%	23.6%
Maximum Green (s)	26.0	83.0	12.0	9.0	66.0	9.0	12.0	11.0	9.0	9.0	8.0	26.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	28.0	85.0	104.0	11.0	68.0	83.8	14.0	13.2	29.2	10.8	10.0	43.0
Actuated g/C Ratio	0.20	0.61	0.74	0.08	0.49	0.60	0.10	0.09	0.21	0.08	0.07	0.31
v/c Ratio	0.56	0.90	0.42	0.92	1.37	0.11	1.40	0.52	0.31	0.57	1.28	1.45
Control Delay	54.1	31.0	8.1	121.4	202.2	12.4	240.9	66.6	50.2	71.4	204.8	248.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.1	31.0	8.1	121.4	202.2	12.4	240.9	66.6	50.2	71.4	204.8	248.8
LOS	D	C	A	F	F	B	F	E	D	E	F	F
Approach Delay		30.1			190.8			175.4			213.9	
Approach LOS		C			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 170			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.45			
Intersection Signal Delay: 131.4		Intersection LOS: F	
Intersection Capacity Utilization 119.6%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 102: US 74 & Indian Trail - Fairview Rd

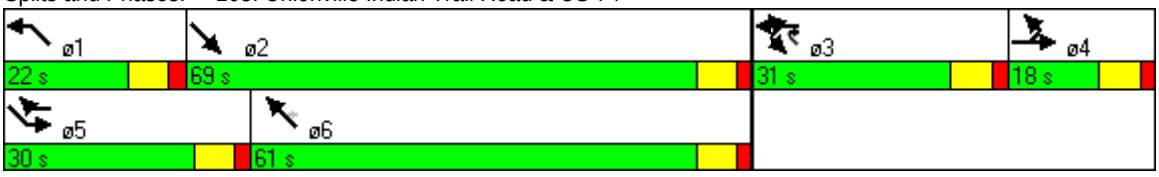


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	40	151	139	454	364	682	396	1361	56	238	1661	322
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.937				0.850		0.994				0.850
Flt Protected		0.994		0.950	0.994		0.950			0.950		
Satd. Flow (prot)	0	3264	0	1665	1742	1568	1719	3417	0	1719	3438	1538
Flt Permitted		0.994		0.950	0.994		0.950			0.950		
Satd. Flow (perm)	0	3264	0	1665	1742	1568	1719	3417	0	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			45			55			55	
Link Distance (ft)		795			1304			1032			1062	
Travel Time (s)		15.5			19.8			12.8			13.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	44	168	154	504	404	758	440	1512	62	264	1846	358
Shared Lane Traffic (%)				12%								
Lane Group Flow (vph)	0	366	0	444	464	758	440	1574	0	264	1846	358
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pt+ov	Prot			Prot		pm+ov
Protected Phases	4	4		3	3	3 5	5	2		1	6	3
Permitted Phases												6
Detector Phase	4	4		3	3	3 5	5	2		1	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	14.0		7.0	14.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	21.0		14.0	21.0	14.0
Total Split (s)	18.0	18.0	0.0	31.0	31.0	61.0	30.0	69.0	0.0	22.0	61.0	31.0
Total Split (%)	12.9%	12.9%	0.0%	22.1%	22.1%	43.6%	21.4%	49.3%	0.0%	15.7%	43.6%	22.1%
Maximum Green (s)	11.0	11.0		24.0	24.0		23.0	62.0		15.0	54.0	24.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	None
Act Effct Green (s)		13.0		26.0	26.0	51.0	25.0	64.0		17.0	56.0	87.0
Actuated g/C Ratio		0.09		0.19	0.19	0.36	0.18	0.46		0.12	0.40	0.62
v/c Ratio		1.21		1.44	1.43	1.33	1.43	1.01		1.26	1.34	0.37
Control Delay		172.2		254.5	251.8	188.9	253.4	62.4		199.1	193.8	14.5
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay		172.2		254.5	251.8	188.9	253.4	62.4		199.1	193.8	14.5
LOS		F		F	F	F	F	E		F	F	B
Approach Delay		172.2			223.9			104.1			168.4	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.44			
Intersection Signal Delay: 162.9		Intersection LOS: F	
Intersection Capacity Utilization 116.5%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 103: Unionville Indian Trail Road & US 74



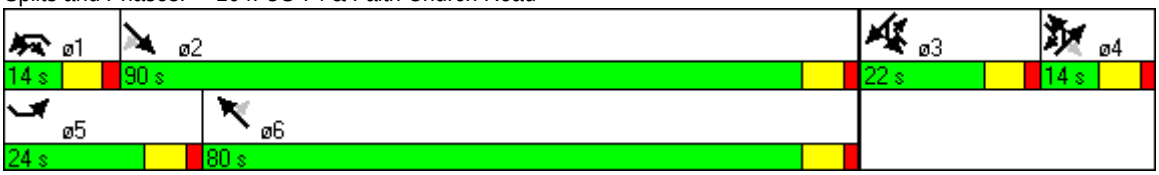
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	256	1634	24	39	2025	320	40	14	53	201	7	199
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.855	
Flt Protected	0.950			0.950				0.965		0.950		
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	0	1682	1482	1770	1593	0
Flt Permitted	0.950			0.950				0.965		0.950		
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	0	1682	1482	1770	1593	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			15			35	
Link Distance (ft)		1177			2588			625			368	
Travel Time (s)		14.6			32.1			28.4			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	9%	9%	9%	2%	2%	2%
Adj. Flow (vph)	284	1816	27	43	2250	356	44	16	59	223	8	221
Shared Lane Traffic (%)												
Lane Group Flow (vph)	284	1816	27	43	2250	356	0	60	59	223	229	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	5	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	5	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Split		pm+ov	Split		
Protected Phases	5	2	4	1	6	3	4	4	1	3	3	
Permitted Phases			2			6			4			
Detector Phase	5	2	4	1	6	3	4	4	1	3	3	
Switch Phase												
Minimum Initial (s)	7.0	14.0	7.0	7.0	14.0	7.0	7.0	7.0	7.0	7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	21.0	14.0	14.0	21.0	14.0	14.0	14.0	14.0	14.0	14.0	
Total Split (s)	24.0	90.0	14.0	14.0	80.0	22.0	14.0	14.0	14.0	22.0	22.0	0.0
Total Split (%)	17.1%	64.3%	10.0%	10.0%	57.1%	15.7%	10.0%	10.0%	10.0%	15.7%	15.7%	0.0%
Maximum Green (s)	17.0	83.0	7.0	7.0	73.0	15.0	7.0	7.0	7.0	15.0	15.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	
Act Effct Green (s)	21.8	90.6	97.8	9.0	75.0	97.0		9.0	20.2	17.0	17.0	
Actuated g/C Ratio	0.16	0.65	0.70	0.06	0.54	0.69		0.06	0.14	0.12	0.12	
v/c Ratio	1.06	0.82	0.03	0.39	1.22	0.33		0.56	0.28	1.04	1.19	
Control Delay	127.5	24.4	4.0	73.5	135.5	9.6		83.3	55.2	130.0	175.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	127.5	24.4	4.0	73.5	135.5	9.6		83.3	55.2	130.0	175.3	
LOS	F	C	A	E	F	A		F	E	F	F	
Approach Delay		37.9			117.6			69.4			152.9	
Approach LOS		D			F			E			F	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green
Natural Cycle: 180
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.22
Intersection Signal Delay: 87.8 Intersection LOS: F
Intersection Capacity Utilization 105.3% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 104: US 74 & Faith Church Road



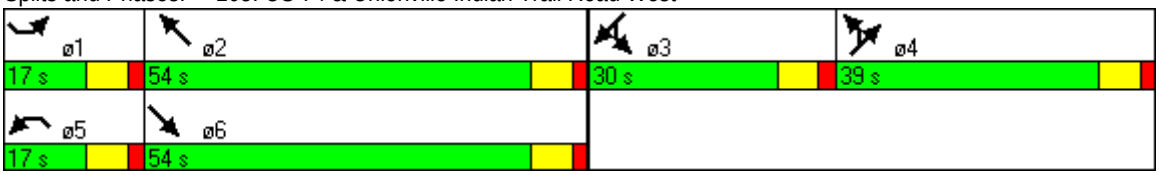
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	184	959	785	192	1295	255	727	98	131	321	180	312
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.933			0.975			0.914			0.905	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3208	0	1719	3352	0	1770	1703	0	1770	1686	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3208	0	1719	3352	0	1770	1703	0	1770	1686	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		606			973			698			813	
Travel Time (s)		7.5			12.1			10.6			12.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	204	1066	872	213	1439	283	808	109	146	357	200	347
Shared Lane Traffic (%)												
Lane Group Flow (vph)	204	1938	0	213	1722	0	808	255	0	357	547	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Split			Split		
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases												
Detector Phase	1	6		5	2		4	4		3	3	
Switch Phase												
Minimum Initial (s)	7.0	14.0		7.0	14.0		7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	21.0		14.0	21.0		14.0	14.0		14.0	14.0	
Total Split (s)	17.0	54.0	0.0	17.0	54.0	0.0	39.0	39.0	0.0	30.0	30.0	0.0
Total Split (%)	12.1%	38.6%	0.0%	12.1%	38.6%	0.0%	27.9%	27.9%	0.0%	21.4%	21.4%	0.0%
Maximum Green (s)	10.0	47.0		10.0	47.0		32.0	32.0		23.0	23.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	12.0	49.0		12.0	49.0		34.0	34.0		25.0	25.0	
Actuated g/C Ratio	0.09	0.35		0.09	0.35		0.24	0.24		0.18	0.18	
v/c Ratio	1.39	1.73		1.45	1.47		1.88	0.62		1.13	1.82	
Control Delay	255.8	360.2		279.0	249.4		434.3	54.7		141.2	412.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	255.8	360.2		279.0	249.4		434.3	54.7		141.2	412.9	
LOS	F	F		F	F		F	D		F	F	
Approach Delay		350.3			252.7			343.2			305.6	
Approach LOS		F			F			F			F	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 180
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.88
Intersection Signal Delay: 311.1 Intersection LOS: F
Intersection Capacity Utilization 147.9% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 105: US 74 & Unionville Indian Trail Road West



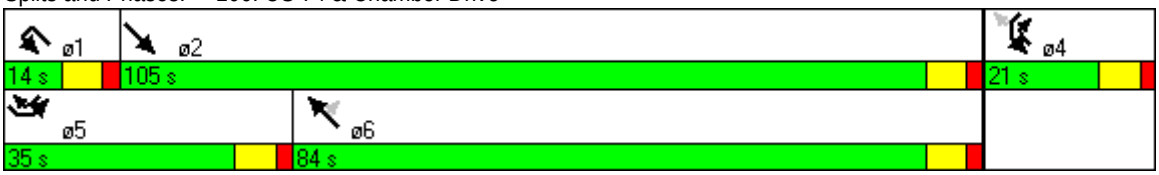
Lane Group	SEL	SET	NWU	NWT	NWR	SWL	SWR
Lane Configurations							
Volume (vph)	130	1225	10	1447	49	119	371
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Frt					0.850		0.850
Flt Protected	0.950		0.950			0.950	
Satd. Flow (prot)	1719	3438	1719	3438	1538	1770	1583
Flt Permitted	0.950		0.950			0.950	
Satd. Flow (perm)	1719	3438	1719	3438	1538	1770	1583
Right Turn on Red					No		No
Satd. Flow (RTOR)							
Link Speed (mph)		55		55		35	
Link Distance (ft)		2407		1378		1258	
Travel Time (s)		29.8		17.1		24.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	2%	2%
Adj. Flow (vph)	144	1361	11	1608	54	132	412
Shared Lane Traffic (%)							
Lane Group Flow (vph)	144	1361	11	1608	54	132	412
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Left	R NA	Left	Right	Left	Right
Median Width(ft)		12		12		12	
Link Offset(ft)		0		0		0	
Crosswalk Width(ft)		0		0		0	
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9		9	15	9
Number of Detectors	1	2	1	2	1	1	1
Detector Template	Left	Thru	Left	Thru	Right	Left	Right
Leading Detector (ft)	20	100	20	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94		94			
Detector 2 Size(ft)		6		6			
Detector 2 Type		Cl+Ex		Cl+Ex			
Detector 2 Channel							
Detector 2 Extend (s)		0.0		0.0			
Turn Type	Prot		Prot		pm+ov		pm+ov
Protected Phases	5	2	1	6	4	4	5
Permitted Phases					6		4
Detector Phase	5	2	1	6	4	4	5
Switch Phase							
Minimum Initial (s)	7.0	14.0	7.0	14.0	7.0	7.0	7.0

Lane Group	SEL	SET	NWU	NWT	NWR	SWL	SWR
Minimum Split (s)	14.0	21.0	14.0	21.0	14.0	14.0	14.0
Total Split (s)	35.0	105.0	14.0	84.0	21.0	21.0	35.0
Total Split (%)	25.0%	75.0%	10.0%	60.0%	15.0%	15.0%	25.0%
Maximum Green (s)	28.0	98.0	7.0	77.0	14.0	14.0	28.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag			Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	C-Max	None	None	None
Act Effct Green (s)	26.5	109.3	9.0	83.4	103.5	15.1	46.6
Actuated g/C Ratio	0.19	0.78	0.06	0.60	0.74	0.11	0.33
v/c Ratio	0.44	0.51	0.10	0.79	0.05	0.69	0.78
Control Delay	54.0	7.2	63.9	25.9	5.7	79.2	53.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.0	7.2	63.9	25.9	5.7	79.2	53.0
LOS	D	A	E	C	A	E	D
Approach Delay		11.7		25.5		59.3	
Approach LOS		B		C		E	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 24.9 Intersection LOS: C
Intersection Capacity Utilization 71.3% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 106: US 74 & Chamber Drive

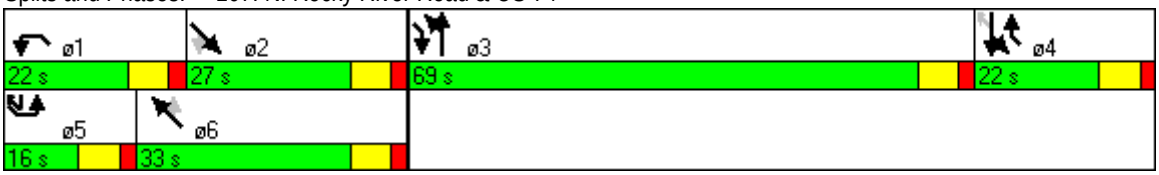


Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	760	125	386	209	110	263	172	560	438	282	710	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.959				0.850			0.850			0.850
Flt Protected		0.971			0.968		0.950			0.950		
Satd. Flow (prot)	0	1735	0	0	1803	1583	1719	3438	1538	1719	3438	1538
Flt Permitted		0.971			0.968		0.950			0.950		
Satd. Flow (perm)	0	1735	0	0	1803	1583	1719	3438	1538	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		1176			418			3021			3350	
Travel Time (s)		17.8			6.3			37.5			41.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	844	139	429	232	122	292	191	622	487	313	789	192
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1412	0	0	354	292	191	622	487	313	789	192
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	3	3		4	4	5	5	2	3	1	6	4
Permitted Phases						4			2			6
Detector Phase	3	3		4	4	5	5	2	3	1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	14.0	7.0	7.0	14.0	7.0

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0	14.0	14.0	21.0	14.0	14.0	21.0	14.0
Total Split (s)	69.0	69.0	0.0	22.0	22.0	16.0	16.0	27.0	69.0	22.0	33.0	22.0
Total Split (%)	49.3%	49.3%	0.0%	15.7%	15.7%	11.4%	11.4%	19.3%	49.3%	15.7%	23.6%	15.7%
Maximum Green (s)	62.0	62.0		15.0	15.0	9.0	9.0	20.0	62.0	15.0	26.0	15.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead		Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)		64.0			17.0	33.0	11.0	22.0	91.0	17.0	28.0	45.0
Actuated g/C Ratio		0.46			0.12	0.24	0.08	0.16	0.65	0.12	0.20	0.32
v/c Ratio		1.78			1.62	0.78	1.41	1.15	0.49	1.50	1.15	0.39
Control Delay		383.1			335.2	65.9	268.9	139.1	14.6	288.1	131.6	26.8
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		383.1			335.2	65.9	268.9	139.1	14.6	288.1	131.6	26.8
LOS		F			F	E	F	F	B	F	F	C
Approach Delay		383.1			213.5			111.5			153.9	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.78			
Intersection Signal Delay: 219.9		Intersection LOS: F	
Intersection Capacity Utilization 122.5%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 107: N. Rocky River Road & US 74



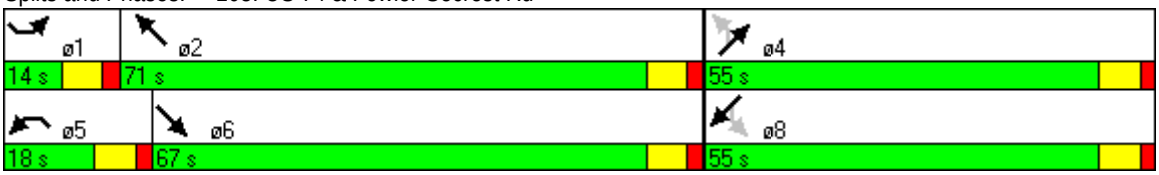
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	54	943	33	77	1179	138	29	70	54	173	125	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.984			0.952			0.970	
Flt Protected	0.950			0.950				0.991			0.978	
Satd. Flow (prot)	1719	3421	0	1719	3383	0	0	1757	0	0	1767	0
Flt Permitted	0.950			0.950				0.870			0.729	
Satd. Flow (perm)	1719	3421	0	1719	3383	0	0	1543	0	0	1317	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		2601			2354			277			1205	
Travel Time (s)		39.4			35.7			5.4			18.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	60	1048	37	86	1310	153	32	78	60	192	139	94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	60	1085	0	86	1463	0	0	170	0	0	425	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		
Detector Phase	1	6		5	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		21.0	21.0	
Total Split (s)	14.0	67.0	0.0	18.0	71.0	0.0	55.0	55.0	0.0	55.0	55.0	0.0
Total Split (%)	10.0%	47.9%	0.0%	12.9%	50.7%	0.0%	39.3%	39.3%	0.0%	39.3%	39.3%	0.0%
Maximum Green (s)	7.0	60.0		11.0	64.0		48.0	48.0		48.0	48.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	9.2	64.7		12.2	70.5			48.1			48.1	
Actuated g/C Ratio	0.07	0.46		0.09	0.50			0.34			0.34	
v/c Ratio	0.53	0.69		0.57	0.86			0.32			0.94	
Control Delay	80.7	33.1		76.7	38.1			35.3			74.1	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	80.7	33.1		76.7	38.1			35.3			74.1	
LOS	F	C		E	D			D			E	
Approach Delay		35.6			40.3			35.3			74.1	
Approach LOS		D			D			D			E	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 42.8 Intersection LOS: D
Intersection Capacity Utilization 89.4% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 108: US 74 & Fowler-Secrest Rd

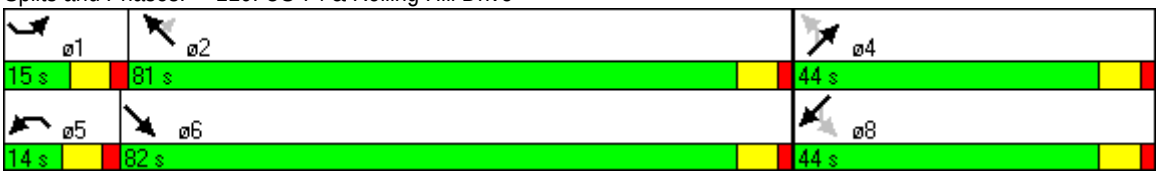


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	47	1028	124	16	1251	7	157	11	16	9	13	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.984				0.850		0.988			0.896	
Flt Protected	0.950			0.950				0.959			0.995	
Satd. Flow (prot)	1719	3383	0	1719	3438	1538	0	1765	0	0	1661	0
Flt Permitted	0.950			0.950				0.626			0.966	
Satd. Flow (perm)	1719	3383	0	1719	3438	1538	0	1152	0	0	1612	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		309			978			474			425	
Travel Time (s)		4.7			14.8			12.9			11.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	52	1142	138	18	1390	8	174	12	18	10	14	82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	52	1280	0	18	1390	8	0	204	0	0	106	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot		Perm	Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases						2	4			8		
Detector Phase	1	6		5	2	2	4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	12.0	7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0		14.0	19.0	19.0	14.0	14.0		14.0	14.0	
Total Split (s)	15.0	82.0	0.0	14.0	81.0	81.0	44.0	44.0	0.0	44.0	44.0	0.0
Total Split (%)	10.7%	58.6%	0.0%	10.0%	57.9%	57.9%	31.4%	31.4%	0.0%	31.4%	31.4%	0.0%
Maximum Green (s)	8.0	75.0		7.0	74.0	74.0	37.0	37.0		37.0	37.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		None	None	
Act Effct Green (s)	10.8	93.8		9.2	86.6	86.6		30.5			30.5	
Actuated g/C Ratio	0.08	0.67		0.07	0.62	0.62		0.22			0.22	
v/c Ratio	0.39	0.56		0.16	0.65	0.01		0.81			0.30	
Control Delay	70.4	15.8		65.2	21.2	14.3		75.5			46.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	
Total Delay	70.4	15.8		65.2	21.2	14.3		75.5			46.3	
LOS	E	B		E	C	B		E			D	
Approach Delay		18.0			21.7			75.5			46.3	
Approach LOS		B			C			E			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 24.5		Intersection LOS: C	
Intersection Capacity Utilization 64.3%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 110: US 74 & Rolling Hill Drive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	125	10	113	72	10	79	84	847	133	150	1056	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.862			0.934			0.980				0.850
Flt Protected	0.950				0.978		0.950			0.950		
Satd. Flow (prot)	1770	1606	0	0	1702	0	1719	3369	0	1719	3438	1538
Flt Permitted	0.588				0.729		0.950			0.950		
Satd. Flow (perm)	1095	1606	0	0	1268	0	1719	3369	0	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		510			371			748			991	
Travel Time (s)		13.9			10.1			11.3			15.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	139	11	126	80	11	88	93	941	148	167	1173	106
Shared Lane Traffic (%)												
Lane Group Flow (vph)	139	137	0	0	179	0	93	1089	0	167	1173	106
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm			Perm			Prot			Prot		Perm
Protected Phases		3			8		1	6		5	2	
Permitted Phases	3			8								2
Detector Phase	3	3		8	8		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	12.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0		14.0	19.0	19.0
Total Split (s)	40.0	40.0	0.0	40.0	40.0	0.0	21.0	71.0	0.0	29.0	79.0	79.0
Total Split (%)	28.6%	28.6%	0.0%	28.6%	28.6%	0.0%	15.0%	50.7%	0.0%	20.7%	56.4%	56.4%
Maximum Green (s)	33.0	33.0		33.0	33.0		14.0	64.0		22.0	72.0	72.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?								Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	Max		None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	35.0	35.0			35.0		13.9	69.9		20.1	76.1	76.1
Actuated g/C Ratio	0.25	0.25			0.25		0.10	0.50		0.14	0.54	0.54
v/c Ratio	0.51	0.34			0.56		0.55	0.65		0.68	0.63	0.13
Control Delay	52.7	46.0			53.9		71.8	28.8		70.4	24.4	16.7
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	52.7	46.0			53.9		71.8	28.8		70.4	24.4	16.7
LOS	D	D			D		E	C		E	C	B
Approach Delay		49.4			53.9			32.2			29.1	
Approach LOS		D			D			C			C	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 33.5 Intersection LOS: C
Intersection Capacity Utilization 69.5% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 111: Roland Drive & US 74

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	87	916	50	237	1108	100	33	22	129	128	52	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992				0.850		0.872				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3411	0	1719	3438	1538	1770	1624	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3411	0	1719	3438	1538	1770	1624	0	1770	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		822			734			281			279	
Travel Time (s)		12.5			11.1			5.5			7.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	97	1018	56	263	1231	111	37	24	143	142	58	150
Shared Lane Traffic (%)												
Lane Group Flow (vph)	97	1074	0	263	1231	111	37	167	0	142	58	150
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot		pm+ov	Split			Split		pm+ov
Protected Phases	1	6		5	2	8	4	4		8	8	1
Permitted Phases						2						8
Detector Phase	1	6		5	2	8	4	4		8	8	1
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	7.0	7.0	7.0		7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0		14.0	19.0	14.0	14.0	14.0		14.0	14.0	14.0
Total Split (s)	20.0	59.0	0.0	34.0	73.0	22.0	25.0	25.0	0.0	22.0	22.0	20.0
Total Split (%)	14.3%	42.1%	0.0%	24.3%	52.1%	15.7%	17.9%	17.9%	0.0%	15.7%	15.7%	14.3%
Maximum Green (s)	13.0	52.0		27.0	66.0	15.0	18.0	18.0		15.0	15.0	13.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	C-Max		None	C-Max	Max	None	None		Max	Max	Max
Act Effct Green (s)	15.0	56.5		26.5	68.0	86.2	18.8	18.8		18.2	18.2	38.2
Actuated g/C Ratio	0.11	0.40		0.19	0.49	0.62	0.13	0.13		0.13	0.13	0.27
v/c Ratio	0.53	0.78		0.81	0.74	0.12	0.16	0.77		0.62	0.24	0.35
Control Delay	70.3	41.7		73.4	32.2	6.1	54.6	80.8		70.7	58.5	44.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	70.3	41.7		73.4	32.2	6.1	54.6	80.8		70.7	58.5	44.2
LOS	E	D		E	C	A	D	F		E	E	D
Approach Delay		44.1			37.1			76.0			57.3	
Approach LOS		D			D			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 44.1		Intersection LOS: D	
Intersection Capacity Utilization 72.9%		ICU Level of Service C	
Analysis Period (min) 15			

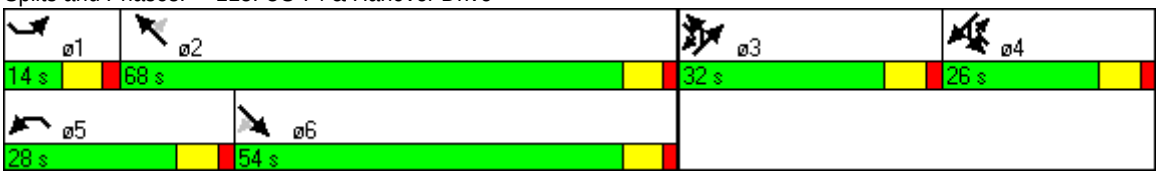
Splits and Phases: 112: US 74 & Williams Road

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	16	1064	110	257	1307	589	101	103	193	467	109	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850			0.850		0.902			0.982	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	1752	1664	0	3400	1811	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	1752	1664	0	3400	1811	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		338			529			376			313	
Travel Time (s)		5.1			8.0			7.3			8.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	18	1182	122	286	1452	654	112	114	214	519	121	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	18	1182	122	286	1452	654	112	328	0	519	138	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Split			Split		
Protected Phases	1	6	3	5	2	4	3	3		4	4	
Permitted Phases			6			2						
Detector Phase	1	6	3	5	2	4	3	3		4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0		14.0	14.0	
Total Split (s)	14.0	54.0	32.0	28.0	68.0	26.0	32.0	32.0	0.0	26.0	26.0	0.0
Total Split (%)	10.0%	38.6%	22.9%	20.0%	48.6%	18.6%	22.9%	22.9%	0.0%	18.6%	18.6%	0.0%
Maximum Green (s)	7.0	47.0	25.0	21.0	61.0	19.0	25.0	25.0		19.0	19.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Act Effct Green (s)	9.0	49.0	81.0	23.0	71.4	95.4	27.0	27.0		21.0	21.0	
Actuated g/C Ratio	0.06	0.35	0.58	0.16	0.51	0.68	0.19	0.19		0.15	0.15	
v/c Ratio	0.16	0.98	0.14	1.01	0.83	0.62	0.33	1.02		1.02	0.51	
Control Delay	65.6	67.0	14.0	114.3	35.2	15.0	52.0	110.8		102.3	62.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	65.6	67.0	14.0	114.3	35.2	15.0	52.0	110.8		102.3	62.0	
LOS	E	E	B	F	D	B	D	F		F	E	
Approach Delay		62.1			39.2			95.8			93.9	
Approach LOS		E			D			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.02			
Intersection Signal Delay: 58.1		Intersection LOS: E	
Intersection Capacity Utilization 90.9%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 113: US 74 & Hanover Drive

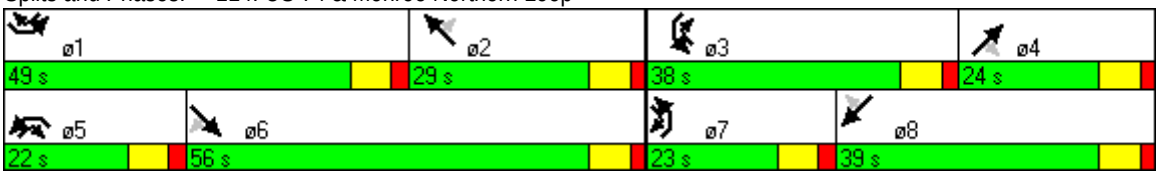


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	743	537	483	228	741	705	394	497	135	667	794	971
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3335	4940	1538	3335	4940	1538	3335	3438	1538	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	4940	1538	3335	4940	1538	3335	3438	1538	3433	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		858			915			405			209	
Travel Time (s)		13.0			13.9			7.9			3.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	2%	2%	2%
Adj. Flow (vph)	826	597	537	253	823	783	438	552	150	741	882	1079
Shared Lane Traffic (%)												
Lane Group Flow (vph)	826	597	537	253	823	783	438	552	150	741	882	1079
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	49.0	56.0	23.0	22.0	29.0	38.0	23.0	24.0	22.0	38.0	39.0	49.0
Total Split (%)	35.0%	40.0%	16.4%	15.7%	20.7%	27.1%	16.4%	17.1%	15.7%	27.1%	27.9%	35.0%
Maximum Green (s)	42.0	49.0	16.0	15.0	22.0	31.0	16.0	17.0	15.0	31.0	32.0	42.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	44.0	51.9	74.9	16.1	24.0	62.0	18.0	19.0	40.1	33.0	34.0	83.0
Actuated g/C Ratio	0.31	0.37	0.54	0.12	0.17	0.44	0.13	0.14	0.29	0.24	0.24	0.59
v/c Ratio	0.79	0.33	0.65	0.66	0.97	1.15	1.02	1.18	0.34	0.92	1.03	1.15
Control Delay	50.2	32.3	28.2	67.9	82.1	119.9	108.0	152.9	41.8	69.0	89.2	108.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.2	32.3	28.2	67.9	82.1	119.9	108.0	152.9	41.8	69.0	89.2	108.3
LOS	D	C	C	E	F	F	F	F	D	E	F	F
Approach Delay		38.8			96.1			121.1			91.3	
Approach LOS		D			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 140			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.18			
Intersection Signal Delay: 83.4		Intersection LOS: F	
Intersection Capacity Utilization 98.2%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 114: US 74 & Monroe Northern Loop

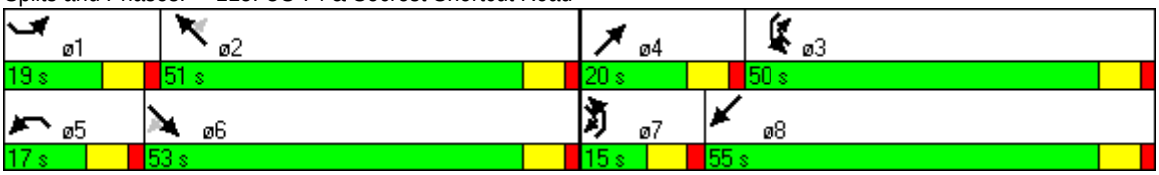


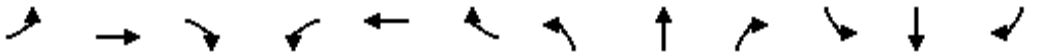
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	151	1119	57	152	1426	479	55	46	115	519	66	208
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.893			0.886	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	3335	4940	1538	1770	1663	0	1770	1650	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	3335	4940	1538	1770	1663	0	1770	1650	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		413			1354			238			233	
Travel Time (s)		6.3			20.5			6.5			4.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	168	1243	63	169	1584	532	61	51	128	577	73	231
Shared Lane Traffic (%)												
Lane Group Flow (vph)	168	1243	63	169	1584	532	61	179	0	577	304	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot			Prot		
Protected Phases	1	6	7	5	2	3	7	4		3	8	
Permitted Phases			6			2						
Detector Phase	1	6	7	5	2	3	7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0		14.0	14.0	
Total Split (s)	19.0	53.0	15.0	17.0	51.0	50.0	15.0	20.0	0.0	50.0	55.0	0.0
Total Split (%)	13.6%	37.9%	10.7%	12.1%	36.4%	35.7%	10.7%	14.3%	0.0%	35.7%	39.3%	0.0%
Maximum Green (s)	12.0	46.0	8.0	10.0	44.0	43.0	8.0	13.0		43.0	48.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Act Effct Green (s)	14.0	48.2	63.0	11.8	46.0	91.0	9.8	15.0		45.0	50.2	
Actuated g/C Ratio	0.10	0.34	0.45	0.08	0.33	0.65	0.07	0.11		0.32	0.36	
v/c Ratio	0.98	0.73	0.09	0.60	0.98	0.53	0.49	1.01		1.01	0.51	
Control Delay	124.8	43.3	22.6	71.3	63.6	8.8	76.7	130.1		88.0	39.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	124.8	43.3	22.6	71.3	63.6	8.8	76.7	130.1		88.0	39.2	
LOS	F	D	C	E	E	A	E	F		F	D	
Approach Delay		51.7			51.4			116.5			71.2	
Approach LOS		D			D			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.01			
Intersection Signal Delay: 58.3		Intersection LOS: E	
Intersection Capacity Utilization 90.8%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 115: US 74 & Secrest Shortcut Road



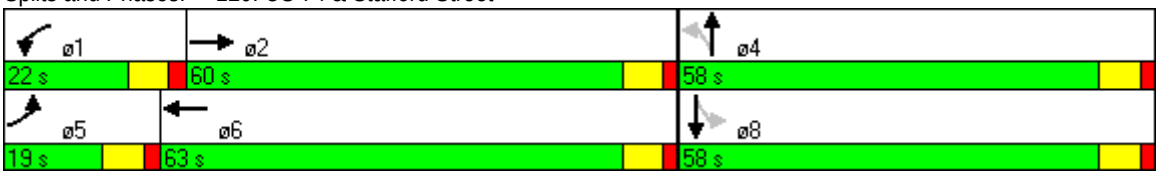


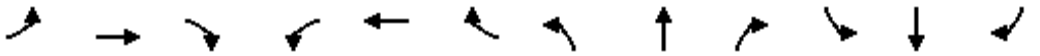
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	185	1672	151	225	2090	138	253	136	302	155	114	259
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.988			0.991			0.897			0.896	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4881	0	1719	4896	0	1770	1671	0	1770	1669	0
Flt Permitted	0.950			0.950			0.313			0.236		
Satd. Flow (perm)	1719	4881	0	1719	4896	0	583	1671	0	440	1669	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		443			590			549			636	
Travel Time (s)		6.7			8.9			15.0			12.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	206	1858	168	250	2322	153	281	151	336	172	127	288
Shared Lane Traffic (%)												
Lane Group Flow (vph)	206	2026	0	250	2475	0	281	487	0	172	415	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	19.0	60.0	0.0	22.0	63.0	0.0	58.0	58.0	0.0	58.0	58.0	0.0
Total Split (%)	13.6%	42.9%	0.0%	15.7%	45.0%	0.0%	41.4%	41.4%	0.0%	41.4%	41.4%	0.0%
Maximum Green (s)	12.0	53.0		15.0	56.0		51.0	51.0		51.0	51.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	14.0	55.0		17.0	58.0		53.0	53.0		53.0	53.0	
Actuated g/C Ratio	0.10	0.39		0.12	0.41		0.38	0.38		0.38	0.38	
v/c Ratio	1.20	1.06		1.20	1.22		1.27	0.77		1.03	0.66	
Control Delay	183.6	78.3		176.2	140.3		189.6	47.8		120.9	42.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	183.6	78.3		176.2	140.3		189.6	47.8		120.9	42.0	
LOS	F	E		F	F		F	D		F	D	
Approach Delay		88.0			143.6			99.7			65.1	
Approach LOS		F			F			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.27			
Intersection Signal Delay: 111.3		Intersection LOS: F	
Intersection Capacity Utilization 106.3%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 120: US 74 & Stafford Street





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	78	1819	159	195	2226	53	117	10	117	107	10	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.988			0.997			0.862			0.857	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4881	0	1719	4925	0	1770	1606	0	1770	1596	0
Flt Permitted	0.950			0.950			0.372			0.561		
Satd. Flow (perm)	1719	4881	0	1719	4925	0	693	1606	0	1045	1596	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			20	
Link Distance (ft)		493			536			238			211	
Travel Time (s)		7.5			8.1			6.5			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	87	2021	177	217	2473	59	130	11	130	119	11	217
Shared Lane Traffic (%)												
Lane Group Flow (vph)	87	2198	0	217	2532	0	130	141	0	119	228	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	15.0	76.0	0.0	27.0	88.0	0.0	37.0	37.0	0.0	37.0	37.0	0.0
Total Split (%)	10.7%	54.3%	0.0%	19.3%	62.9%	0.0%	26.4%	26.4%	0.0%	26.4%	26.4%	0.0%
Maximum Green (s)	8.0	69.0		20.0	81.0		30.0	30.0		30.0	30.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	10.6	75.4		21.3	86.1		28.3	28.3		28.3	28.3	
Actuated g/C Ratio	0.08	0.54		0.15	0.62		0.20	0.20		0.20	0.20	
v/c Ratio	0.67	0.84		0.83	0.84		0.93	0.43		0.56	0.71	
Control Delay	87.4	31.9		82.9	25.4		112.7	52.2		60.1	63.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	87.4	31.9		82.9	25.4		112.7	52.2		60.1	63.7	
LOS	F	C		F	C		F	D		E	E	
Approach Delay		34.0			29.9			81.2			62.5	
Approach LOS		C			C			F			E	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 36.0 Intersection LOS: D
Intersection Capacity Utilization 85.8% ICU Level of Service E
Analysis Period (min) 15

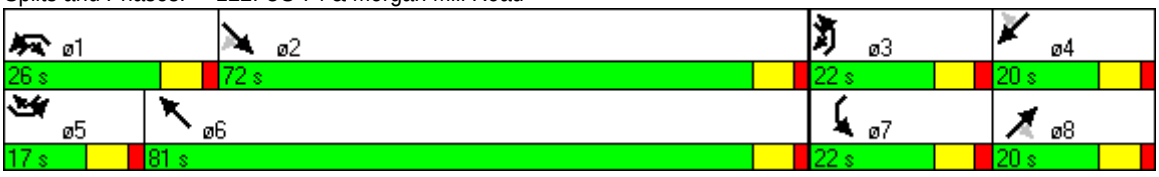
Splits and Phases: 121: US 74 & Boyte Street

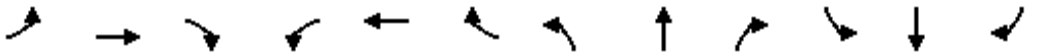
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	119	1741	161	138	2157	117	159	96	110	150	154	188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.992				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	1719	4900	0	1687	1776	1509	1687	1776	1509
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	1719	4900	0	1687	1776	1509	1687	1776	1509
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		515			499			502			475	
Travel Time (s)		7.8			7.6			9.8			9.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	7%	7%	7%	7%	7%	7%
Adj. Flow (vph)	132	1934	179	153	2397	130	177	107	122	167	171	209
Shared Lane Traffic (%)												
Lane Group Flow (vph)	132	1934	179	153	2527	0	177	107	122	167	171	209
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot			Prot		pm+ov	Prot		pm+ov
Protected Phases	5	2	3	1	6		3	8	1	7	4	5
Permitted Phases			2						8			4
Detector Phase	5	2	3	1	6		3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0		7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0		14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	17.0	72.0	22.0	26.0	81.0	0.0	22.0	20.0	26.0	22.0	20.0	17.0
Total Split (%)	12.1%	51.4%	15.7%	18.6%	57.9%	0.0%	15.7%	14.3%	18.6%	15.7%	14.3%	12.1%
Maximum Green (s)	10.0	65.0	15.0	19.0	74.0		15.0	13.0	19.0	15.0	13.0	10.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max		None	None	None	None	None	None
Act Effct Green (s)	12.0	69.6	91.5	18.4	76.0		16.9	15.3	38.7	16.7	15.1	32.1
Actuated g/C Ratio	0.09	0.50	0.65	0.13	0.54		0.12	0.11	0.28	0.12	0.11	0.23
v/c Ratio	0.90	0.79	0.18	0.68	0.95		0.87	0.55	0.29	0.83	0.90	0.60
Control Delay	113.8	32.5	10.4	72.9	39.6		96.4	70.8	41.5	91.4	103.7	56.8
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	113.8	32.5	10.4	72.9	39.6		96.4	70.8	41.5	91.4	103.7	56.8
LOS	F	C	B	E	D		F	E	D	F	F	E
Approach Delay		35.5			41.5			73.1			82.0	
Approach LOS		D			D			E			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.95			
Intersection Signal Delay: 45.2		Intersection LOS: D	
Intersection Capacity Utilization 84.5%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 122: US 74 & Morgan Mill Road



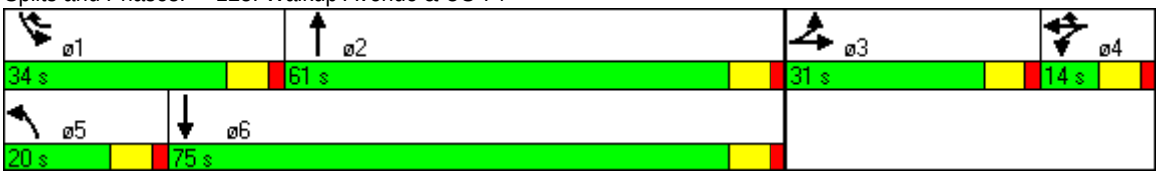


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	88	184	92	27	131	351	91	1962	38	387	1553	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.966				0.850		0.997			0.994	
Flt Protected		0.988		0.950			0.950			0.950		
Satd. Flow (prot)	0	1778	0	1770	1863	1583	1719	4925	0	1719	4910	0
Flt Permitted		0.988		0.950			0.950			0.950		
Satd. Flow (perm)	0	1778	0	1770	1863	1583	1719	4925	0	1719	4910	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		443			502			602			356	
Travel Time (s)		12.1			9.8			9.1			5.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	98	204	102	30	146	390	101	2180	42	430	1726	77
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	404	0	30	146	390	101	2222	0	430	1803	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pt+ov	Prot			Prot		
Protected Phases	3	3		4	4	4 1	5	2		1	6	
Permitted Phases												
Detector Phase	3	3		4	4	4 1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0		14.0	19.0	
Total Split (s)	31.0	31.0	0.0	14.0	14.0	48.0	20.0	61.0	0.0	34.0	75.0	0.0
Total Split (%)	22.1%	22.1%	0.0%	10.0%	10.0%	34.3%	14.3%	43.6%	0.0%	24.3%	53.6%	0.0%
Maximum Green (s)	24.0	24.0		7.0	7.0		13.0	54.0		27.0	68.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lead		Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)		26.0		9.0	9.0	43.0	13.7	56.0		29.0	71.3	
Actuated g/C Ratio		0.19		0.06	0.06	0.31	0.10	0.40		0.21	0.51	
v/c Ratio		1.22		0.26	1.22	0.80	0.60	1.13		1.21	0.72	
Control Delay		171.8		68.5	204.1	58.5	75.3	103.7		163.4	29.0	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		171.8		68.5	204.1	58.5	75.3	103.7		163.4	29.0	
LOS		F		E	F	E	E	F		F	C	
Approach Delay		171.8			96.6			102.5			54.9	
Approach LOS		F			F			F			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.22			
Intersection Signal Delay: 87.7		Intersection LOS: F	
Intersection Capacity Utilization 103.9%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 123: Walkup Avenue & US 74

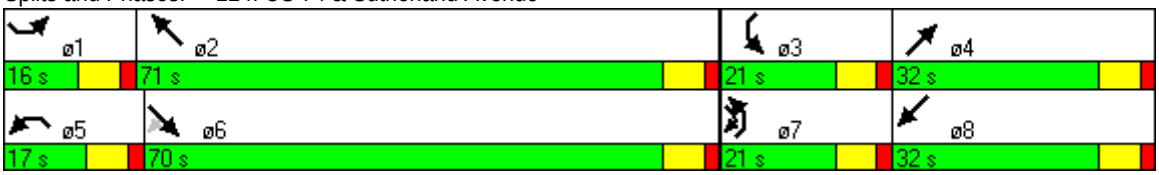


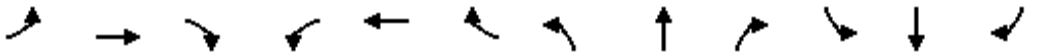
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	115	1404	210	66	1755	207	172	184	43	142	192	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.984			0.971			0.949	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	1719	4861	0	1752	1791	0	1752	1751	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	1719	4861	0	1752	1791	0	1752	1751	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		425			487			426			331	
Travel Time (s)		6.4			7.4			11.6			6.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	128	1560	233	73	1950	230	191	204	48	158	213	109
Shared Lane Traffic (%)												
Lane Group Flow (vph)	128	1560	233	73	2180	0	191	252	0	158	322	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot			Prot			Prot		
Protected Phases	1	6	7	5	2		7	4		3	8	
Permitted Phases			6									
Detector Phase	1	6	7	5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	16.0	70.0	21.0	17.0	71.0	0.0	21.0	32.0	0.0	21.0	32.0	0.0
Total Split (%)	11.4%	50.0%	15.0%	12.1%	50.7%	0.0%	15.0%	22.9%	0.0%	15.0%	22.9%	0.0%
Maximum Green (s)	9.0	63.0	14.0	10.0	64.0		14.0	25.0		14.0	25.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes			Yes			Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max		None	None		None	None	
Act Effct Green (s)	11.0	68.5	89.5	11.3	66.0		16.0	27.4		15.6	27.0	
Actuated g/C Ratio	0.08	0.49	0.64	0.08	0.47		0.11	0.20		0.11	0.19	
v/c Ratio	0.95	0.65	0.24	0.53	0.95		0.96	0.72		0.81	0.95	
Control Delay	127.9	29.0	12.3	75.7	46.0		113.9	65.7		89.7	93.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	127.9	29.0	12.3	75.7	46.0		113.9	65.7		89.7	93.9	
LOS	F	C	B	E	D		F	E		F	F	
Approach Delay		33.6			47.0			86.5			92.5	
Approach LOS		C			D			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay: 49.7		Intersection LOS: D	
Intersection Capacity Utilization 87.2%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 124: US 74 & Sutherland Avenue





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	2	34	27	23	48	115	61	1841	38	150	1494	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.934			0.894				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1740	0	1770	1665	0	1719	4940	1538	1719	4940	1538
Flt Permitted	0.402			0.713			0.950			0.950		
Satd. Flow (perm)	749	1740	0	1328	1665	0	1719	4940	1538	1719	4940	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		163			218			356			257	
Travel Time (s)		5.6			4.2			5.4			3.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	2	38	30	26	53	128	68	2046	42	167	1660	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	68	0	26	181	0	68	2046	42	167	1660	4
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm			Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	12.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	19.0
Total Split (s)	32.0	32.0	0.0	32.0	32.0	0.0	17.0	80.0	80.0	28.0	91.0	91.0
Total Split (%)	22.9%	22.9%	0.0%	22.9%	22.9%	0.0%	12.1%	57.1%	57.1%	20.0%	65.0%	65.0%
Maximum Green (s)	25.0	25.0		25.0	25.0		10.0	73.0	73.0	21.0	84.0	84.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	21.9	21.9		21.9	21.9		11.7	83.2	83.2	19.9	94.2	94.2
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.08	0.59	0.59	0.14	0.67	0.67
v/c Ratio	0.02	0.25		0.13	0.70		0.47	0.70	0.05	0.68	0.50	0.00
Control Delay	47.0	52.7		50.0	69.6		72.0	22.5	14.4	71.2	13.2	10.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.0	52.7		50.0	69.6		72.0	22.5	14.4	71.2	13.2	10.2
LOS	D	D		D	E		E	C	B	E	B	B
Approach Delay		52.5			67.2			23.9			18.5	
Approach LOS		D			E			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay: 24.1		Intersection LOS: C	
Intersection Capacity Utilization 66.0%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 125: Dove Street & US 74

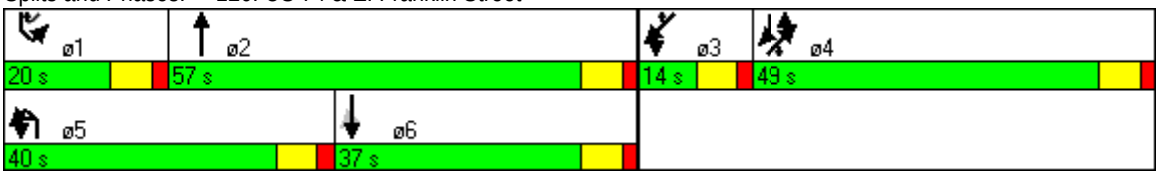
Lane Group	NBU	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT
Lane Configurations												
Volume (vph)	13	982	1477	126	127	1126	251	350	89	1044	129	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.86	0.97	0.86	0.86	1.00	0.91	1.00	1.00	1.00	0.88	1.00	1.00
Frt			0.988				0.850			0.850		
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	3335	6150	0	1719	4940	1538	1752	1845	2760	1752	1845
Flt Permitted		0.950			0.950			0.950			0.950	
Satd. Flow (perm)	0	3335	6150	0	1719	4940	1538	1752	1845	2760	1752	1845
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			45			35			20
Link Distance (ft)			341			436			391			335
Travel Time (s)			5.2			6.6			7.6			11.4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%
Adj. Flow (vph)	14	1091	1641	140	141	1251	279	389	99	1160	143	96
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1105	1781	0	141	1251	279	389	99	1160	143	96
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			24			24			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1	1	2		1	2	1	1	2	1	1	2
Detector Template	Left	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru
Leading Detector (ft)	20	20	100		20	100	20	20	100	20	20	100
Trailing Detector (ft)	0	0	0		0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0		0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	6		20	6	20	20	6	20	20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94			94			94			94
Detector 2 Size(ft)			6			6			6			6
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			0.0
Turn Type	Prot	Prot			Prot		pm+ov	Split		Prot	Split	
Protected Phases	5	5	2		1	6	4	4	4	4	3	3
Permitted Phases							6					
Detector Phase	5	5	2		1	6	4	4	4	4	3	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	12.0		7.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SWR
Lane Configurations	
Volume (vph)	171
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1568
Flt Permitted	
Satd. Flow (perm)	1568
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	3%
Adj. Flow (vph)	190
Shared Lane Traffic (%)	
Lane Group Flow (vph)	190
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	pt+ov
Protected Phases	3 1
Permitted Phases	
Detector Phase	3 1
Switch Phase	
Minimum Initial (s)	

Lane Group	NBU	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT
Minimum Split (s)	14.0	14.0	19.0		14.0	19.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	40.0	40.0	57.0	0.0	20.0	37.0	49.0	49.0	49.0	49.0	14.0	14.0
Total Split (%)	28.6%	28.6%	40.7%	0.0%	14.3%	26.4%	35.0%	35.0%	35.0%	35.0%	10.0%	10.0%
Maximum Green (s)	33.0	33.0	50.0		13.0	30.0	42.0	42.0	42.0	42.0	7.0	7.0
Yellow Time (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag		Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max		None	C-Max	None	None	None	None	None	None
Act Effct Green (s)		35.0	52.4		14.6	32.0	76.0	44.0	44.0	44.0	9.0	9.0
Actuated g/C Ratio		0.25	0.37		0.10	0.23	0.54	0.31	0.31	0.31	0.06	0.06
v/c Ratio		1.32	0.77		0.78	1.11	0.33	0.71	0.17	1.34	1.27	0.81
Control Delay		195.6	41.5		89.5	110.7	11.7	50.5	35.8	198.0	222.6	106.8
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		195.6	41.5		89.5	110.7	11.7	50.5	35.8	198.0	222.6	106.8
LOS		F	D		F	F	B	D	D	F	F	F
Approach Delay			100.5			92.3			153.5			118.9
Approach LOS			F			F			F			F

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 160			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.34			
Intersection Signal Delay: 112.8		Intersection LOS: F	
Intersection Capacity Utilization 110.5%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 126: US 74 & E. Franklin Street



Lane Group	SWR
Minimum Split (s)	
Total Split (s)	34.0
Total Split (%)	24.3%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Act Effct Green (s)	23.6
Actuated g/C Ratio	0.17
v/c Ratio	0.72
Control Delay	47.0
Queue Delay	0.0
Total Delay	47.0
LOS	D
Approach Delay	
Approach LOS	

Intersection Summary

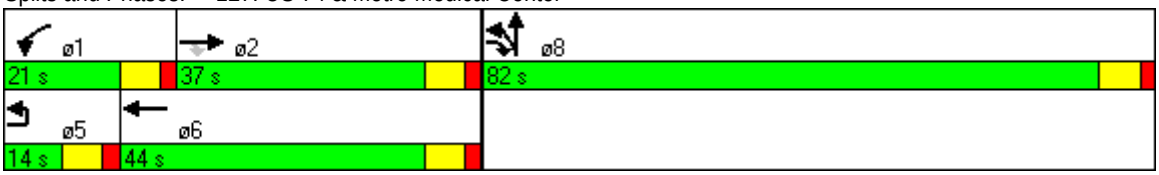
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	10	0	1152	925	222	1330	18	1541	0	319	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.91	0.91	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.998			0.947			
Flt Protected	0.950				0.950			0.950	0.969			
Satd. Flow (prot)	1719	0	4940	1538	1736	4978	0	1504	1453	0	0	0
Flt Permitted	0.950				0.950			0.950	0.969			
Satd. Flow (perm)	1719	0	4940	1538	1736	4978	0	1504	1453	0	0	0
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			55			45			25
Link Distance (ft)			239			375			459			142
Travel Time (s)			3.6			4.6			7.0			3.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	4%	4%	4%	14%	14%	14%	2%	2%
Adj. Flow (vph)	11	0	1280	1028	247	1478	20	1712	0	354	0	0
Shared Lane Traffic (%)								38%				
Lane Group Flow (vph)	11	0	1280	1028	247	1498	0	1061	1005	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			12			12			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1		2	1	1	2		1	2			
Detector Template	Left		Thru	Right	Left	Thru		Left	Thru			
Leading Detector (ft)	20		100	20	20	100		20	100			
Trailing Detector (ft)	0		0	0	0	0		0	0			
Detector 1 Position(ft)	0		0	0	0	0		0	0			
Detector 1 Size(ft)	20		6	20	20	6		20	6			
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 2 Position(ft)			94			94			94			
Detector 2 Size(ft)			6			6			6			
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			
Turn Type	Prot			pm+ov	Prot			Split				
Protected Phases	5		2	8	1	6		8	8			
Permitted Phases				2								
Detector Phase	5		2	8	1	6		8	8			
Switch Phase												
Minimum Initial (s)	7.0		12.0	12.0	7.0	14.0		12.0	12.0			

Lane Group	SBR
Lane Configurations	
Volume (vph)	29
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.865
Flt Protected	
Satd. Flow (prot)	1611
Flt Permitted	
Satd. Flow (perm)	1611
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	2%
Adj. Flow (vph)	32
Shared Lane Traffic (%)	
Lane Group Flow (vph)	32
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Detector Phase	
Switch Phase	
Minimum Initial (s)	

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Minimum Split (s)	14.0		19.0	19.0	14.0	21.0		19.0	19.0			
Total Split (s)	14.0	0.0	37.0	82.0	21.0	44.0	0.0	82.0	82.0	0.0	0.0	0.0
Total Split (%)	10.0%	0.0%	26.4%	58.6%	15.0%	31.4%	0.0%	58.6%	58.6%	0.0%	0.0%	0.0%
Maximum Green (s)	7.0		30.0	75.0	14.0	37.0		75.0	75.0			
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0		5.0	5.0			
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0		2.0	2.0			
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	2.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	2.0	2.0
Lead/Lag	Lead		Lag		Lead	Lag						
Lead-Lag Optimize?			Yes			Yes						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0		3.0	3.0			
Recall Mode	None		C-Max	None	None	C-Max		None	None			
Act Effct Green (s)	9.0		32.0	114.0	16.0	47.4		77.0	77.0			
Actuated g/C Ratio	0.06		0.23	0.81	0.11	0.34		0.55	0.55			
v/c Ratio	0.10		1.13	0.82	1.25	0.89		1.28	1.26			
Control Delay	63.9		119.7	14.4	195.4	51.5		166.0	155.8			
Queue Delay	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Total Delay	63.9		119.7	14.4	195.4	51.5		166.0	155.8			
LOS	E		F	B	F	D		F	F			
Approach Delay			72.7			71.8			161.0			
Approach LOS			E			E			F			

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.28			
Intersection Signal Delay: 101.7		Intersection LOS: F	
Intersection Capacity Utilization 99.5%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 127: US 74 & Metro Medical Center



Lane Group	SBR
Minimum Split (s)	
Total Split (s)	0.0
Total Split (%)	0.0%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	2.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Act Effct Green (s)	140.0
Actuated g/C Ratio	1.00
v/c Ratio	0.02
Control Delay	0.0
Queue Delay	0.0
Total Delay	0.0
LOS	A
Approach Delay	
Approach LOS	

Intersection Summary

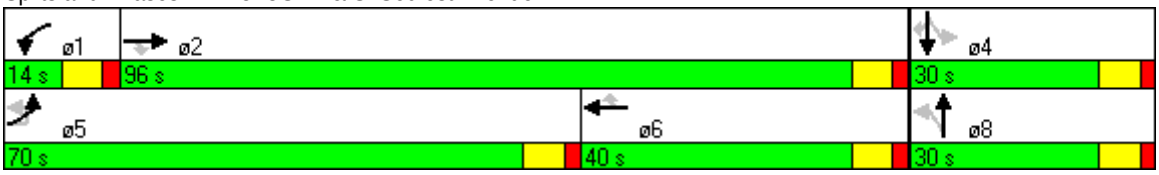
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	12	300	1094	36	9	1376	243	47	238	9	106	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850			0.850		0.996			
Flt Protected		0.950			0.950				0.992			0.975
Satd. Flow (prot)	0	1736	3471	1553	1736	3471	1553	0	1840	0	0	1816
Flt Permitted		0.062			0.950				0.517			0.338
Satd. Flow (perm)	0	113	3471	1553	1736	3471	1553	0	959	0	0	630
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			55			55			35			35
Link Distance (ft)			411			374			242			283
Travel Time (s)			5.1			4.6			4.7			5.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%
Adj. Flow (vph)	13	333	1216	40	10	1529	270	52	264	10	118	110
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	346	1216	40	10	1529	270	0	326	0	0	228
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			12			12			0			0
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1	1	2	1	1	2	1	1	2		1	2
Detector Template	Left	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru
Leading Detector (ft)	20	20	100	20	20	100	20	20	100		20	100
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0		0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0		0	0
Detector 1 Size(ft)	20	20	6	20	20	6	20	20	6		20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)			94			94			94			94
Detector 2 Size(ft)			6			6			6			6
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			0.0
Turn Type	custom	Prot		Perm	Prot		Perm	Perm			Perm	
Protected Phases		5	2		1	6			8			4
Permitted Phases	5			2			6	8			4	
Detector Phase	5	5	2	2	1	6	6	8	8		4	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	14.0	14.0	7.0	14.0	14.0	7.0	7.0		7.0	7.0

Lane Group	SBR
Lane Configurations	
Volume (vph)	164
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	2%
Adj. Flow (vph)	182
Shared Lane Traffic (%)	
Lane Group Flow (vph)	182
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Detector Phase	4
Switch Phase	
Minimum Initial (s)	7.0

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Minimum Split (s)	14.0	14.0	21.0	21.0	14.0	21.0	21.0	14.0	14.0		14.0	14.0
Total Split (s)	70.0	70.0	96.0	96.0	14.0	40.0	40.0	30.0	30.0	0.0	30.0	30.0
Total Split (%)	50.0%	50.0%	68.6%	68.6%	10.0%	28.6%	28.6%	21.4%	21.4%	0.0%	21.4%	21.4%
Maximum Green (s)	63.0	63.0	89.0	89.0	7.0	33.0	33.0	23.0	23.0		23.0	23.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Time Before Reduce (s)	0.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0	0.0		0.0	0.0
Time To Reduce (s)	0.0	0.0	50.0	50.0	0.0	50.0	50.0	0.0	0.0		0.0	0.0
Recall Mode	None	None	C-Min	C-Min	None	C-Min	C-Min	None	None		None	None
Act Effct Green (s)		65.0	102.2	102.2	9.0	35.0	35.0		25.0			25.0
Actuated g/C Ratio		0.46	0.73	0.73	0.06	0.25	0.25		0.18			0.18
v/c Ratio		6.65	0.48	0.04	0.09	1.76	0.70		1.91			2.02
Control Delay		2592.8	9.2	6.4	63.7	379.1	58.4		459.7			516.8
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0
Total Delay		2592.8	9.2	6.4	63.7	379.1	58.4		459.7			516.8
LOS		F	A	A	E	F	E		F			F
Approach Delay			567.1			329.5			459.7			316.2
Approach LOS			F			F			F			F

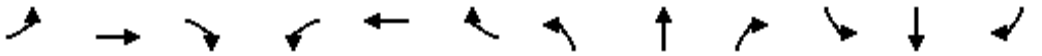
Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 6.65			
Intersection Signal Delay: 430.2		Intersection LOS: F	
Intersection Capacity Utilization 97.8%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 128: US 74 & S. Secrest Avenue



Lane Group	SBR
Minimum Split (s)	14.0
Total Split (s)	30.0
Total Split (%)	21.4%
Maximum Green (s)	23.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Minimum Gap (s)	3.0
Time Before Reduce (s)	0.0
Time To Reduce (s)	0.0
Recall Mode	None
Act Effct Green (s)	25.0
Actuated g/C Ratio	0.18
v/c Ratio	0.64
Control Delay	64.9
Queue Delay	0.0
Total Delay	64.9
LOS	E
Approach Delay	
Approach LOS	

Intersection Summary

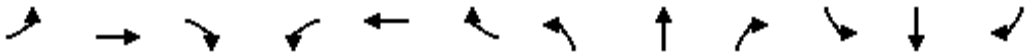


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	110	1148	32	6	1424	101	20	18	3	58	20	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.990			0.991				0.850
Flt Protected	0.950			0.950				0.976			0.964	
Satd. Flow (prot)	1736	3457	0	1736	3436	0	0	1802	0	0	1796	1583
Flt Permitted	0.950			0.950				0.762			0.792	
Satd. Flow (perm)	1736	3457	0	1736	3436	0	0	1407	0	0	1475	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			20			25	
Link Distance (ft)		245			259			179			276	
Travel Time (s)		4.8			5.0			6.1			7.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	122	1276	36	7	1582	112	22	20	3	64	22	88
Shared Lane Traffic (%)												
Lane Group Flow (vph)	122	1312	0	7	1694	0	0	45	0	0	86	88
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		pm+ov
Protected Phases	5	2		1	6			8			4	5
Permitted Phases							8			4		4
Detector Phase	5	2		1	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	17.0		14.0	17.0		14.0	14.0		14.0	14.0	14.0
Total Split (s)	24.0	107.0	0.0	14.0	97.0	0.0	19.0	19.0	0.0	19.0	19.0	24.0
Total Split (%)	17.1%	76.4%	0.0%	10.0%	69.3%	0.0%	13.6%	13.6%	0.0%	13.6%	13.6%	17.1%
Maximum Green (s)	17.0	100.0		7.0	90.0		12.0	12.0		12.0	12.0	17.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None
Act Effct Green (s)	16.3	113.2		9.0	94.6			14.0			14.0	35.4
Actuated g/C Ratio	0.12	0.81		0.06	0.68			0.10			0.10	0.25
v/c Ratio	0.60	0.47		0.06	0.73			0.32			0.58	0.22
Control Delay	70.9	5.4		63.0	17.6			64.2			76.0	41.5
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Delay	70.9	5.4		63.0	17.6			64.2			76.0	41.5
LOS	E	A		E	B			E			E	D
Approach Delay		11.0			17.8			64.2			58.6	
Approach LOS		B			B			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 17.6		Intersection LOS: B	
Intersection Capacity Utilization 70.1%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 129: US 74 & Bivens Street

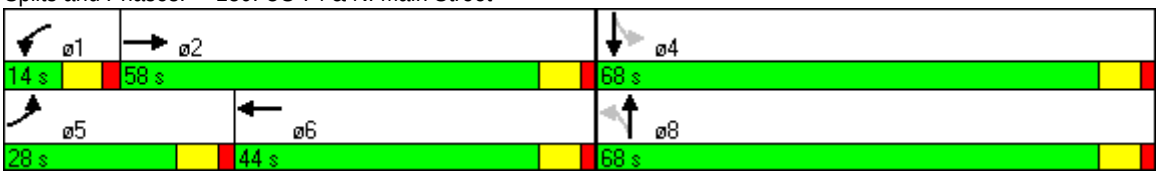


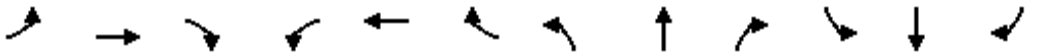
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	376	837	39	56	1069	102	50	363	55	77	275	361
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993			0.987			0.984			0.915	
Flt Protected	0.950			0.950				0.995		0.950		
Satd. Flow (prot)	1736	3447	0	1736	3426	0	0	1824	0	1770	1704	0
Flt Permitted	0.950			0.950				0.400		0.366		
Satd. Flow (perm)	1736	3447	0	1736	3426	0	0	733	0	682	1704	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		282			333			173			197	
Travel Time (s)		5.5			6.5			3.4			3.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	418	930	43	62	1188	113	56	403	61	86	306	401
Shared Lane Traffic (%)												
Lane Group Flow (vph)	418	973	0	62	1301	0	0	520	0	86	707	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	17.0		14.0	17.0		14.0	14.0		14.0	14.0	
Total Split (s)	28.0	58.0	0.0	14.0	44.0	0.0	68.0	68.0	0.0	68.0	68.0	0.0
Total Split (%)	20.0%	41.4%	0.0%	10.0%	31.4%	0.0%	48.6%	48.6%	0.0%	48.6%	48.6%	0.0%
Maximum Green (s)	21.0	51.0		7.0	37.0		61.0	61.0		61.0	61.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	None		None	None		None	None	
Act Effct Green (s)	23.0	55.8		9.0	39.0			63.0		63.0	63.0	
Actuated g/C Ratio	0.16	0.40		0.06	0.28			0.45		0.45	0.45	
v/c Ratio	1.47	0.71		0.55	1.36			1.58		0.28	0.92	
Control Delay	268.5	39.5		82.6	209.3			302.7		27.4	55.0	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	268.5	39.5		82.6	209.3			302.7		27.4	55.0	
LOS	F	D		F	F			F		C	E	
Approach Delay		108.3			203.6			302.7			52.0	
Approach LOS		F			F			F			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT, Start of Green			
Natural Cycle: 170			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.58			
Intersection Signal Delay: 154.1		Intersection LOS: F	
Intersection Capacity Utilization 131.1%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 130: US 74 & N. Main Street





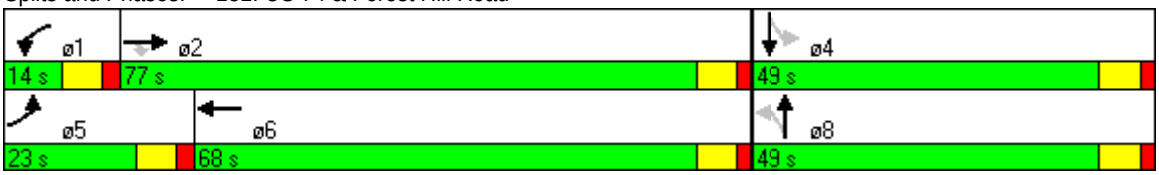
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	101	724	102	28	892	10	110	22	24	10	26	127
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.998			0.979			0.895	
Flt Protected	0.950			0.950				0.966			0.997	
Satd. Flow (prot)	1736	3471	1553	1736	3464	0	0	1679	0	0	1630	0
Flt Permitted	0.950			0.950				0.518			0.977	
Satd. Flow (perm)	1736	3471	1553	1736	3464	0	0	900	0	0	1597	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			35	
Link Distance (ft)		576			646			376			353	
Travel Time (s)		7.1			8.0			4.7			6.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	7%	7%	7%	4%	4%	4%
Adj. Flow (vph)	112	804	113	31	991	11	122	24	27	11	29	141
Shared Lane Traffic (%)												
Lane Group Flow (vph)	112	804	113	31	1002	0	0	173	0	0	181	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		Perm	Prot			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8			4		
Detector Phase	5	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	14.0	14.0	7.0	14.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	21.0	21.0	14.0	21.0		14.0	14.0		14.0	14.0	
Total Split (s)	23.0	77.0	77.0	14.0	68.0	0.0	49.0	49.0	0.0	49.0	49.0	0.0
Total Split (%)	16.4%	55.0%	55.0%	10.0%	48.6%	0.0%	35.0%	35.0%	0.0%	35.0%	35.0%	0.0%
Maximum Green (s)	16.0	70.0	70.0	7.0	61.0		42.0	42.0		42.0	42.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	
Act Effct Green (s)	16.3	89.6	89.6	10.3	78.0			30.7			30.7	
Actuated g/C Ratio	0.12	0.64	0.64	0.07	0.56			0.22			0.22	
v/c Ratio	0.55	0.36	0.11	0.24	0.52			0.88			0.52	
Control Delay	68.2	14.9	13.6	65.2	22.6			90.2			51.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Delay	68.2	14.9	13.6	65.2	22.6			90.2			51.9	
LOS	E	B	B	E	C			F			D	
Approach Delay		20.5			23.9			90.2			51.9	
Approach LOS		C			C			F			D	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 29.3 Intersection LOS: C
Intersection Capacity Utilization 65.9% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 131: US 74 & Forest Hill Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	476	239	56	35	149	60	91	2981	449	43	2389	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1719	3438	1538	1719	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	1719	3438	1538	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			45			55			55	
Link Distance (ft)		1096			1168			1536			3465	
Travel Time (s)		21.4			17.7			19.0			43.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	529	266	62	39	166	67	101	3312	499	48	2654	48
Shared Lane Traffic (%)												
Lane Group Flow (vph)	529	266	62	39	166	67	101	3312	499	48	2654	48
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	1	6	7	5	2	3
Permitted Phases			4			8			6			2
Detector Phase	7	4	5	3	8	1	1	6	7	5	2	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	14.0	7.0	7.0	14.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0	14.0	14.0	21.0	14.0	14.0	21.0	14.0
Total Split (s)	21.0	21.0	14.0	14.0	14.0	14.0	14.0	91.0	21.0	14.0	91.0	14.0
Total Split (%)	15.0%	15.0%	10.0%	10.0%	10.0%	10.0%	10.0%	65.0%	15.0%	10.0%	65.0%	10.0%
Maximum Green (s)	14.0	14.0	7.0	7.0	7.0	7.0	7.0	84.0	14.0	7.0	84.0	7.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	16.0	18.8	32.8	9.0	9.0	23.0	9.0	88.8	109.8	9.0	86.0	100.0
Actuated g/C Ratio	0.11	0.13	0.23	0.06	0.06	0.16	0.06	0.63	0.78	0.06	0.61	0.71
v/c Ratio	1.35	0.56	0.17	0.18	0.73	0.26	0.91	1.52	0.41	0.43	1.26	0.04
Control Delay	218.9	63.0	46.2	64.1	82.8	54.1	127.9	260.3	6.5	75.6	146.4	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	218.9	63.0	46.2	64.1	82.8	54.1	127.9	260.3	6.5	75.6	146.4	6.0
LOS	F	E	D	E	F	D	F	F	A	E	F	A
Approach Delay		158.0			73.0			224.5			142.7	
Approach LOS		F			E			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.52			
Intersection Signal Delay: 183.0		Intersection LOS: F	
Intersection Capacity Utilization 114.3%		ICU Level of Service H	
Analysis Period (min) 15			

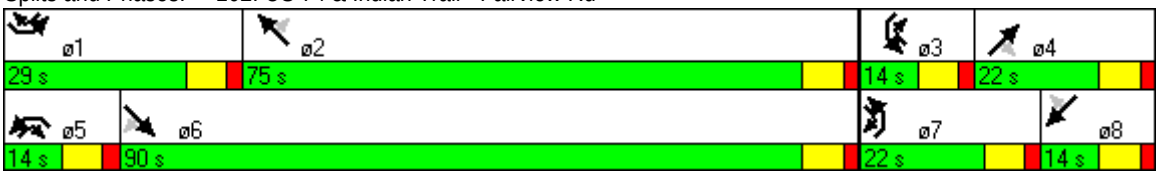
Splits and Phases: 101: Stallings Road & US 74

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	615	2062	420	89	1688	132	434	284	112	88	150	335
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3335	3438	1538	1719	3438	1538	3335	3438	1538	3335	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3438	1538	1719	3438	1538	3335	3438	1538	3335	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			35			35	
Link Distance (ft)		2103			2380			902			1112	
Travel Time (s)		26.1			29.5			17.6			21.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	683	2291	467	99	1876	147	482	316	124	98	167	372
Shared Lane Traffic (%)												
Lane Group Flow (vph)	683	2291	467	99	1876	147	482	316	124	98	167	372
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	7.0	14.0	7.0	7.0	14.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	21.0	14.0	14.0	21.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	29.0	90.0	22.0	14.0	75.0	14.0	22.0	22.0	14.0	14.0	14.0	29.0
Total Split (%)	20.7%	64.3%	15.7%	10.0%	53.6%	10.0%	15.7%	15.7%	10.0%	10.0%	10.0%	20.7%
Maximum Green (s)	22.0	83.0	15.0	7.0	68.0	7.0	15.0	15.0	7.0	7.0	7.0	22.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	24.0	85.0	107.0	9.0	70.0	84.0	17.0	17.0	31.0	9.0	9.0	38.0
Actuated g/C Ratio	0.17	0.61	0.76	0.06	0.50	0.60	0.12	0.12	0.22	0.06	0.06	0.27
v/c Ratio	1.19	1.10	0.40	0.89	1.09	0.16	1.19	0.76	0.36	0.46	0.76	0.89
Control Delay	152.4	79.8	6.7	124.2	85.1	12.9	158.9	71.9	49.8	70.4	85.5	73.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	152.4	79.8	6.7	124.2	85.1	12.9	158.9	71.9	49.8	70.4	85.5	73.3
LOS	F	E	A	F	F	B	F	E	D	E	F	E
Approach Delay		84.3			81.9			114.5			76.1	
Approach LOS		F			F			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.19			
Intersection Signal Delay: 86.7		Intersection LOS: F	
Intersection Capacity Utilization 99.1%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 102: US 74 & Indian Trail - Fairview Rd

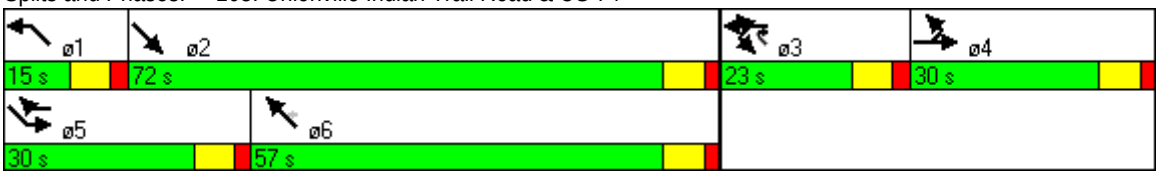


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	56	364	238	322	151	396	682	1661	40	139	1361	454
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Frt		0.946				0.850		0.997				0.850
Flt Protected		0.996		0.950	0.982		0.950			0.950		
Satd. Flow (prot)	0	3302	0	1665	1721	1568	3335	3428	0	1719	3438	1538
Flt Permitted		0.996		0.950	0.982		0.950			0.950		
Satd. Flow (perm)	0	3302	0	1665	1721	1568	3335	3428	0	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			45			55			55	
Link Distance (ft)		795			1304			1032			1062	
Travel Time (s)		15.5			19.8			12.8			13.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	62	404	264	358	168	440	758	1846	44	154	1512	504
Shared Lane Traffic (%)				28%								
Lane Group Flow (vph)	0	730	0	258	268	440	758	1890	0	154	1512	504
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pt+ov	Prot			Prot		pm+ov
Protected Phases	4	4		3	3	3 5	5	2		1	6	3
Permitted Phases												6
Detector Phase	4	4		3	3	3 5	5	2		1	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	14.0		7.0	14.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	21.0		14.0	21.0	14.0
Total Split (s)	30.0	30.0	0.0	23.0	23.0	53.0	30.0	72.0	0.0	15.0	57.0	23.0
Total Split (%)	21.4%	21.4%	0.0%	16.4%	16.4%	37.9%	21.4%	51.4%	0.0%	10.7%	40.7%	16.4%
Maximum Green (s)	23.0	23.0		16.0	16.0		23.0	65.0		8.0	50.0	16.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	None
Act Effct Green (s)		25.0		18.0	18.0	43.0	25.0	67.0		10.0	52.0	75.0
Actuated g/C Ratio		0.18		0.13	0.13	0.31	0.18	0.48		0.07	0.37	0.54
v/c Ratio		1.24		1.21	1.21	0.91	1.27	1.15		1.25	1.18	0.61
Control Delay		167.6		178.3	179.8	55.8	180.7	110.1		214.4	130.3	26.5
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay		167.6		178.3	179.8	55.8	180.7	110.1		214.4	130.3	26.5
LOS		F		F	F	E	F	F		F	F	C
Approach Delay		167.6			122.9			130.3			112.2	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 170			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.27			
Intersection Signal Delay: 127.4		Intersection LOS: F	
Intersection Capacity Utilization 105.9%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 103: Unionville Indian Trail Road & US 74

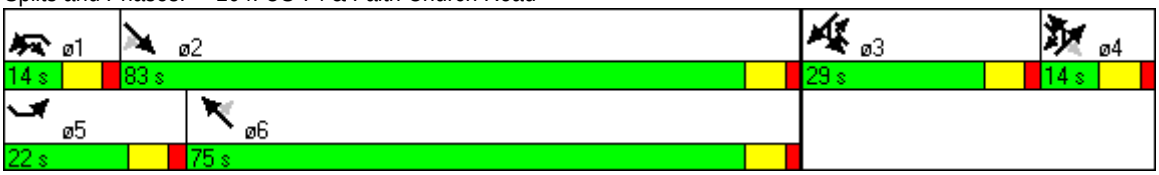


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	199	2025	40	53	1634	201	24	7	39	320	14	256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.858	
Flt Protected	0.950			0.950				0.963		0.950		
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	0	1679	1482	1770	1598	0
Flt Permitted	0.950			0.950				0.963		0.950		
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	0	1679	1482	1770	1598	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			15			35	
Link Distance (ft)		1177			2588			625			368	
Travel Time (s)		14.6			32.1			28.4			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	9%	9%	9%	2%	2%	2%
Adj. Flow (vph)	221	2250	44	59	1816	223	27	8	43	356	16	284
Shared Lane Traffic (%)												
Lane Group Flow (vph)	221	2250	44	59	1816	223	0	35	43	356	300	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	5	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	5	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Split		pm+ov	Split		
Protected Phases	5	2	4	1	6	3	4	4	1	3	3	
Permitted Phases			2			6			4			
Detector Phase	5	2	4	1	6	3	4	4	1	3	3	
Switch Phase												
Minimum Initial (s)	7.0	14.0	7.0	7.0	14.0	7.0	7.0	7.0	7.0	7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	21.0	14.0	14.0	21.0	14.0	14.0	14.0	14.0	14.0	14.0	
Total Split (s)	22.0	83.0	14.0	14.0	75.0	29.0	14.0	14.0	14.0	29.0	29.0	0.0
Total Split (%)	15.7%	59.3%	10.0%	10.0%	53.6%	20.7%	10.0%	10.0%	10.0%	20.7%	20.7%	0.0%
Maximum Green (s)	15.0	76.0	7.0	7.0	68.0	22.0	7.0	7.0	7.0	22.0	22.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	
Act Effct Green (s)	19.4	83.6	90.8	9.0	70.4	99.4		9.0	20.2	24.0	24.0	
Actuated g/C Ratio	0.14	0.60	0.65	0.06	0.50	0.71		0.06	0.14	0.17	0.17	
v/c Ratio	0.92	1.10	0.04	0.53	1.05	0.20		0.32	0.20	1.17	1.09	
Control Delay	101.4	80.4	5.7	81.2	70.6	7.5		71.1	53.2	157.2	134.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	101.4	80.4	5.7	81.2	70.6	7.5		71.1	53.2	157.2	134.8	
LOS	F	F	A	F	E	A		E	D	F	F	
Approach Delay		80.9			64.2			61.2			147.0	
Approach LOS		F			E			E			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.17			
Intersection Signal Delay: 82.2		Intersection LOS: F	
Intersection Capacity Utilization 98.7%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 104: US 74 & Faith Church Road



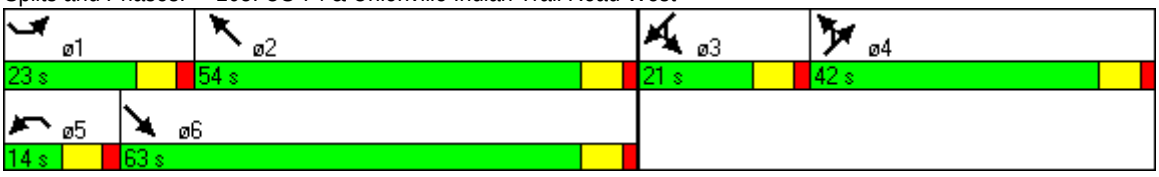
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	312	1295	727	131	959	321	785	180	192	255	98	184
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.946			0.962			0.923			0.902	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3252	0	1719	3307	0	1770	1719	0	1770	1680	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3252	0	1719	3307	0	1770	1719	0	1770	1680	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		606			973			698			813	
Travel Time (s)		7.5			12.1			10.6			12.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	347	1439	808	146	1066	357	872	200	213	283	109	204
Shared Lane Traffic (%)												
Lane Group Flow (vph)	347	2247	0	146	1423	0	872	413	0	283	313	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	5	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	5	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Split			Split		
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases												
Detector Phase	1	6		5	2		4	4		3	3	
Switch Phase												
Minimum Initial (s)	7.0	14.0		7.0	14.0		7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	21.0		14.0	21.0		14.0	14.0		14.0	14.0	
Total Split (s)	23.0	63.0	0.0	14.0	54.0	0.0	42.0	42.0	0.0	21.0	21.0	0.0
Total Split (%)	16.4%	45.0%	0.0%	10.0%	38.6%	0.0%	30.0%	30.0%	0.0%	15.0%	15.0%	0.0%
Maximum Green (s)	16.0	56.0		7.0	47.0		35.0	35.0		14.0	14.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	18.0	58.0		9.0	49.0		37.0	37.0		16.0	16.0	
Actuated g/C Ratio	0.13	0.41		0.06	0.35		0.26	0.26		0.11	0.11	
v/c Ratio	1.57	1.67		1.32	1.23		1.86	0.91		1.40	1.63	
Control Delay	315.9	333.1		240.3	150.4		426.3	74.9		251.2	343.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	315.9	333.1		240.3	150.4		426.3	74.9		251.2	343.6	
LOS	F	F		F	F		F	E		F	F	
Approach Delay		330.8			158.7			313.4			299.7	
Approach LOS		F			F			F			F	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 180
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.86
Intersection Signal Delay: 279.4 Intersection LOS: F
Intersection Capacity Utilization 142.9% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 105: US 74 & Unionville Indian Trail Road West



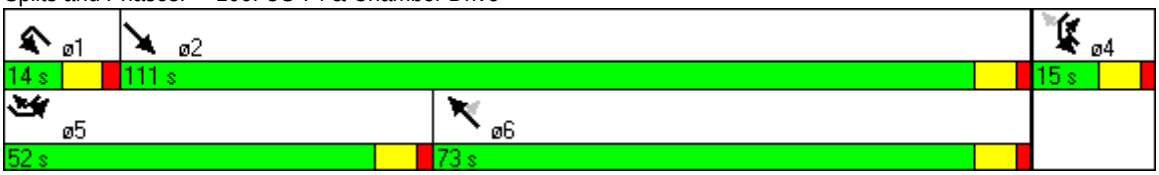
Lane Group	SEL	SET	NWU	NWT	NWR	SWL	SWR
Lane Configurations							
Volume (vph)	371	1447	10	1225	119	49	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Frt					0.850		0.850
Flt Protected	0.950		0.950			0.950	
Satd. Flow (prot)	1719	3438	1719	3438	1538	1770	1583
Flt Permitted	0.950		0.950			0.950	
Satd. Flow (perm)	1719	3438	1719	3438	1538	1770	1583
Right Turn on Red					No		No
Satd. Flow (RTOR)							
Link Speed (mph)		55		55		35	
Link Distance (ft)		2407		1378		1258	
Travel Time (s)		29.8		17.1		24.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	2%	2%
Adj. Flow (vph)	412	1608	11	1361	132	54	144
Shared Lane Traffic (%)							
Lane Group Flow (vph)	412	1608	11	1361	132	54	144
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Left	R NA	Left	Right	Left	Right
Median Width(ft)		12		12		12	
Link Offset(ft)		0		0		0	
Crosswalk Width(ft)		0		0		0	
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9		9	15	9
Number of Detectors	1	2	1	2	1	1	1
Detector Template	Left	Thru	Left	Thru	Right	Left	Right
Leading Detector (ft)	20	100	20	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94		94			
Detector 2 Size(ft)		6		6			
Detector 2 Type		Cl+Ex		Cl+Ex			
Detector 2 Channel							
Detector 2 Extend (s)		0.0		0.0			
Turn Type	Prot		Prot		pm+ov		pm+ov
Protected Phases	5	2	1	6	4	4	5
Permitted Phases					6		4
Detector Phase	5	2	1	6	4	4	5
Switch Phase							
Minimum Initial (s)	7.0	14.0	7.0	14.0	7.0	7.0	7.0

Lane Group	SEL	SET	NWU	NWT	NWR	SWL	SWR
Minimum Split (s)	14.0	21.0	14.0	21.0	14.0	14.0	14.0
Total Split (s)	52.0	111.0	14.0	73.0	15.0	15.0	52.0
Total Split (%)	37.1%	79.3%	10.0%	52.1%	10.7%	10.7%	37.1%
Maximum Green (s)	45.0	104.0	7.0	66.0	8.0	8.0	45.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag			Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	C-Max	None	None	None
Act Effct Green (s)	40.0	114.6	9.0	75.2	90.0	9.8	54.8
Actuated g/C Ratio	0.29	0.82	0.06	0.54	0.64	0.07	0.39
v/c Ratio	0.84	0.57	0.10	0.74	0.13	0.44	0.23
Control Delay	62.1	6.1	63.9	29.1	11.3	73.8	28.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.1	6.1	63.9	29.1	11.3	73.8	28.3
LOS	E	A	E	C	B	E	C
Approach Delay		17.5		27.7		40.7	
Approach LOS		B		C		D	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 22.9 Intersection LOS: C
Intersection Capacity Utilization 72.7% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 106: US 74 & Chamber Drive

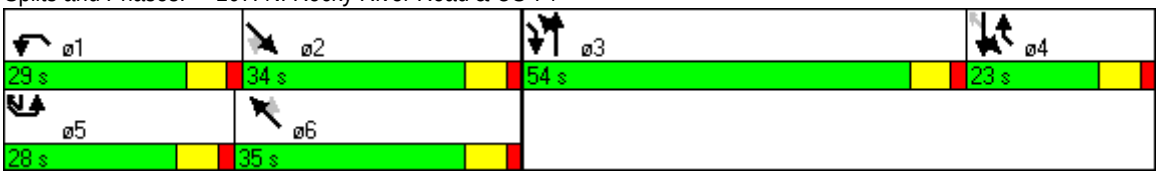


Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	438	110	282	173	125	172	263	710	760	386	560	209
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.954				0.850			0.850			0.850
Flt Protected		0.974			0.972		0.950			0.950		
Satd. Flow (prot)	0	1731	0	0	1811	1583	1719	3438	1538	1719	3438	1538
Flt Permitted		0.974			0.972		0.950			0.950		
Satd. Flow (perm)	0	1731	0	0	1811	1583	1719	3438	1538	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		1176			418			3021			3350	
Travel Time (s)		17.8			6.3			37.5			41.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	487	122	313	192	139	191	292	789	844	429	622	232
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	922	0	0	331	191	292	789	844	429	622	232
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	3	3		4	4	5	5	2	3	1	6	4
Permitted Phases						4			2			6
Detector Phase	3	3		4	4	5	5	2	3	1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	14.0	7.0	7.0	14.0	7.0

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0	14.0	14.0	21.0	14.0	14.0	21.0	14.0
Total Split (s)	54.0	54.0	0.0	23.0	23.0	28.0	28.0	34.0	54.0	29.0	35.0	23.0
Total Split (%)	38.6%	38.6%	0.0%	16.4%	16.4%	20.0%	20.0%	24.3%	38.6%	20.7%	25.0%	16.4%
Maximum Green (s)	47.0	47.0		16.0	16.0	21.0	21.0	27.0	47.0	22.0	28.0	16.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead		Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)		49.0			18.0	46.0	23.0	29.0	83.0	24.0	30.0	48.0
Actuated g/C Ratio		0.35			0.13	0.33	0.16	0.21	0.59	0.17	0.21	0.34
v/c Ratio		1.52			1.42	0.37	1.04	1.11	0.93	1.45	0.84	0.44
Control Delay		276.2			255.2	38.4	119.1	117.6	43.1	262.7	64.4	22.2
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		276.2			255.2	38.4	119.1	117.6	43.1	262.7	64.4	22.2
LOS		F			F	D	F	F	D	F	E	C
Approach Delay		276.2			175.9			85.2			123.1	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 160			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.52			
Intersection Signal Delay: 143.7		Intersection LOS: F	
Intersection Capacity Utilization 121.1%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 107: N. Rocky River Road & US 74

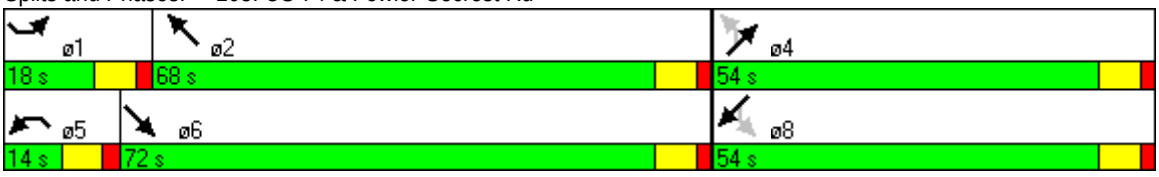


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	85	1179	29	54	943	173	33	125	77	138	70	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.977			0.956			0.972	
Flt Protected	0.950			0.950				0.993			0.974	
Satd. Flow (prot)	1719	3424	0	1719	3359	0	0	1768	0	0	1764	0
Flt Permitted	0.950			0.950				0.915			0.576	
Satd. Flow (perm)	1719	3424	0	1719	3359	0	0	1629	0	0	1043	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		2601			2354			277			1205	
Travel Time (s)		39.4			35.7			5.4			18.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	94	1310	32	60	1048	192	37	139	86	153	78	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	94	1342	0	60	1240	0	0	262	0	0	291	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		
Detector Phase	1	6		5	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	18.0	72.0	0.0	14.0	68.0	0.0	54.0	54.0	0.0	54.0	54.0	0.0
Total Split (%)	12.9%	51.4%	0.0%	10.0%	48.6%	0.0%	38.6%	38.6%	0.0%	38.6%	38.6%	0.0%
Maximum Green (s)	11.0	65.0		7.0	61.0		47.0	47.0		47.0	47.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	12.7	75.1		10.0	69.5			42.8			42.8	
Actuated g/C Ratio	0.09	0.54		0.07	0.50			0.31			0.31	
v/c Ratio	0.60	0.73		0.49	0.74			0.53			0.92	
Control Delay	77.4	30.0		76.8	33.1			43.3			78.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	77.4	30.0		76.8	33.1			43.3			78.8	
LOS	E	C		E	C			D			E	
Approach Delay		33.1			35.1			43.3			78.8	
Approach LOS		C			D			D			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 38.7		Intersection LOS: D	
Intersection Capacity Utilization 83.7%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 108: US 74 & Fowler-Secrest Rd



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	74	1251	157	16	1028	9	124	13	15	7	10	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00											
Frt		0.983				0.850		0.986			0.901	
Flt Protected	0.950			0.950				0.961			0.994	
Satd. Flow (prot)	1719	3380	0	1719	3266	1538	0	1765	0	0	1668	0
Flt Permitted	0.950			0.950				0.701			0.965	
Satd. Flow (perm)	1717	3380	0	1719	3266	1538	0	1288	0	0	1620	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		309			978			474			425	
Travel Time (s)		4.7			14.8			12.9			11.6	
Confl. Peds. (#/hr)	1											
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Parking (#/hr)					0							
Adj. Flow (vph)	82	1390	174	18	1142	10	138	14	17	8	11	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	82	1564	0	18	1142	10	0	169	0	0	71	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.07	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot		Perm	Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases						2	4			8		

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector Phase	1	6		5	2	2	4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	12.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	19.0		14.0	19.0	19.0	14.0	14.0		14.0	14.0	
Total Split (s)	18.0	90.0	0.0	14.0	86.0	86.0	36.0	36.0	0.0	36.0	36.0	0.0
Total Split (%)	12.9%	64.3%	0.0%	10.0%	61.4%	61.4%	25.7%	25.7%	0.0%	25.7%	25.7%	0.0%
Maximum Green (s)	11.0	83.0		7.0	79.0	79.0	29.0	29.0		29.0	29.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		None	None	
Act Effct Green (s)	12.7	99.6		9.2	87.7	87.7		24.6			24.6	
Actuated g/C Ratio	0.09	0.71		0.07	0.63	0.63		0.18			0.18	
v/c Ratio	0.53	0.65		0.16	0.56	0.01		0.75			0.25	
Control Delay	72.8	14.7		65.2	17.4	12.2		74.0			50.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	
Total Delay	72.8	14.7		65.2	17.4	12.2		74.0			50.1	
LOS	E	B		E	B	B		E			D	
Approach Delay		17.6			18.0			74.0			50.1	
Approach LOS		B			B			E			D	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 21.6 Intersection LOS: C
Intersection Capacity Utilization 73.0% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 110: US 74 & Rolling Hill Drive

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	133	10	150	95	10	84	79	1056	125	113	847	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.859			0.940			0.984				0.850
Flt Protected	0.950				0.975		0.950			0.950		
Satd. Flow (prot)	1770	1600	0	0	1707	0	1719	3383	0	1719	3438	1538
Flt Permitted	0.592				0.638		0.950			0.950		
Satd. Flow (perm)	1103	1600	0	0	1117	0	1719	3383	0	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		510			371			748			991	
Travel Time (s)		13.9			10.1			11.3			15.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	148	11	167	106	11	93	88	1173	139	126	941	80
Shared Lane Traffic (%)												
Lane Group Flow (vph)	148	178	0	0	210	0	88	1312	0	126	941	80
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm			Perm			Prot			Prot		Perm
Protected Phases		3			8		1	6		5	2	
Permitted Phases	3			8								2
Detector Phase	3	3		8	8		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	12.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0		14.0	19.0	19.0
Total Split (s)	45.0	45.0	0.0	45.0	45.0	0.0	19.0	72.0	0.0	23.0	76.0	76.0
Total Split (%)	32.1%	32.1%	0.0%	32.1%	32.1%	0.0%	13.6%	51.4%	0.0%	16.4%	54.3%	54.3%
Maximum Green (s)	38.0	38.0		38.0	38.0		12.0	65.0		16.0	69.0	69.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?								Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	Max		None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	40.0	40.0			40.0		12.8	68.9		16.1	72.2	72.2
Actuated g/C Ratio	0.29	0.29			0.29		0.09	0.49		0.12	0.52	0.52
v/c Ratio	0.47	0.39			0.66		0.56	0.79		0.64	0.53	0.10
Control Delay	47.2	43.3			55.3		74.5	34.1		73.9	24.2	18.2
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	47.2	43.3			55.3		74.5	34.1		73.9	24.2	18.2
LOS	D	D			E		E	C		E	C	B
Approach Delay		45.1			55.3			36.7			29.2	
Approach LOS		D			E			D			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 36.1		Intersection LOS: D	
Intersection Capacity Utilization 76.8%		ICU Level of Service D	
Analysis Period (min) 15			

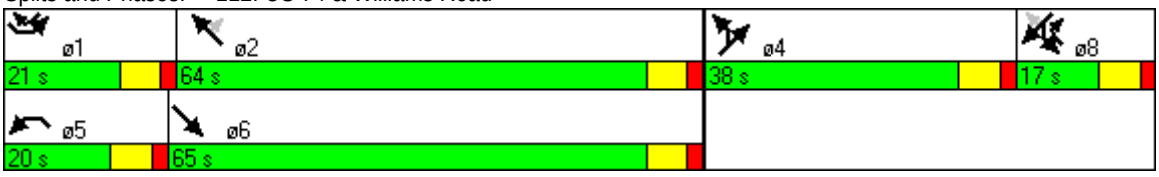
Splits and Phases: 111: Roland Drive & US 74

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	135	1108	33	129	916	128	50	52	237	100	22	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996				0.850		0.877				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3424	0	1719	3438	1538	1770	1634	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3424	0	1719	3438	1538	1770	1634	0	1770	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		822			734			281			279	
Travel Time (s)		12.5			11.1			5.5			7.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	150	1231	37	143	1018	142	56	58	263	111	24	97
Shared Lane Traffic (%)												
Lane Group Flow (vph)	150	1268	0	143	1018	142	56	321	0	111	24	97
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot		pm+ov	Split			Split		pm+ov
Protected Phases	1	6		5	2	8	4	4		8	8	1
Permitted Phases						2						8
Detector Phase	1	6		5	2	8	4	4		8	8	1
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	7.0	7.0	7.0		7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0		14.0	19.0	14.0	14.0	14.0		14.0	14.0	14.0
Total Split (s)	21.0	65.0	0.0	20.0	64.0	17.0	38.0	38.0	0.0	17.0	17.0	21.0
Total Split (%)	15.0%	46.4%	0.0%	14.3%	45.7%	12.1%	27.1%	27.1%	0.0%	12.1%	12.1%	15.0%
Maximum Green (s)	14.0	58.0		13.0	57.0	10.0	31.0	31.0		10.0	10.0	14.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	C-Max		None	C-Max	Max	None	None		Max	Max	Max
Act Effct Green (s)	16.0	60.3		14.7	59.0	72.7	31.3	31.3		13.7	13.7	34.7
Actuated g/C Ratio	0.11	0.43		0.10	0.42	0.52	0.22	0.22		0.10	0.10	0.25
v/c Ratio	0.77	0.86		0.79	0.70	0.18	0.14	0.88		0.64	0.13	0.25
Control Delay	84.8	43.3		90.4	36.5	10.3	43.8	77.2		78.6	61.1	45.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	84.8	43.3		90.4	36.5	10.3	43.8	77.2		78.6	61.1	45.1
LOS	F	D		F	D	B	D	E		E	E	D
Approach Delay		47.7			39.6			72.2			62.8	
Approach LOS		D			D			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 48.3		Intersection LOS: D	
Intersection Capacity Utilization 78.7%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 112: US 74 & Williams Road



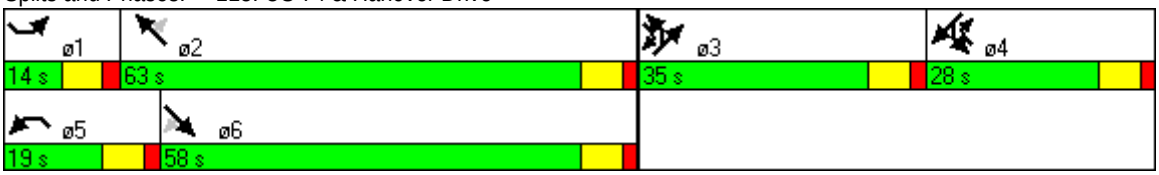
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	15	1307	101	193	1064	467	110	109	257	589	103	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850			0.850		0.895			0.980	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	1752	1651	0	3400	1808	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	1752	1651	0	3400	1808	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		338			529			376			313	
Travel Time (s)		5.1			8.0			7.3			8.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	17	1452	112	214	1182	519	122	121	286	654	114	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	1452	112	214	1182	519	122	407	0	654	132	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Split			Split		
Protected Phases	1	6	3	5	2	4	3	3		4	4	
Permitted Phases			6			2						
Detector Phase	1	6	3	5	2	4	3	3		4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0		14.0	14.0	
Total Split (s)	14.0	58.0	35.0	19.0	63.0	28.0	35.0	35.0	0.0	28.0	28.0	0.0
Total Split (%)	10.0%	41.4%	25.0%	13.6%	45.0%	20.0%	25.0%	25.0%	0.0%	20.0%	20.0%	0.0%
Maximum Green (s)	7.0	51.0	28.0	12.0	56.0	21.0	28.0	28.0		21.0	21.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Act Effct Green (s)	9.0	53.0	88.0	14.0	66.4	92.4	30.0	30.0		23.0	23.0	
Actuated g/C Ratio	0.06	0.38	0.63	0.10	0.47	0.66	0.21	0.21		0.16	0.16	
v/c Ratio	0.15	1.12	0.12	1.24	0.73	0.51	0.33	1.15		1.17	0.44	
Control Delay	65.3	103.3	10.8	199.0	33.9	12.5	49.3	143.3		144.5	58.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	65.3	103.3	10.8	199.0	33.9	12.5	49.3	143.3		144.5	58.2	
LOS	E	F	B	F	C	B	D	F		F	E	
Approach Delay		96.4			46.6			121.6			130.0	
Approach LOS		F			D			F			F	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 160
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.24
Intersection Signal Delay: 84.8 Intersection LOS: F
Intersection Capacity Utilization 101.8% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 113: US 74 & Hanover Drive

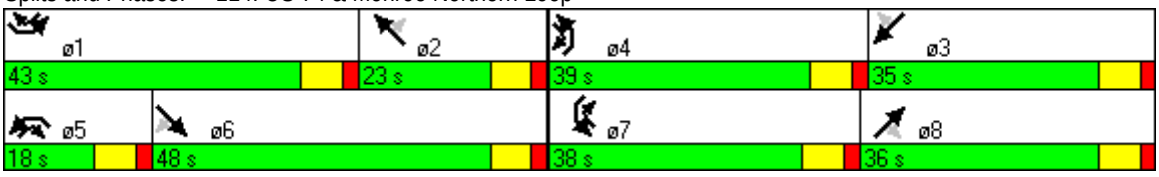


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	971	741	394	135	537	667	483	794	228	705	497	743
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3335	4940	1538	3335	4940	1538	3335	3438	1538	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	4940	1538	3335	4940	1538	3335	3438	1538	3433	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		858			915			405			209	
Travel Time (s)		13.0			13.9			7.9			3.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	2%	2%	2%
Adj. Flow (vph)	1079	823	438	150	597	741	537	882	253	783	552	826
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1079	823	438	150	597	741	537	882	253	783	552	826
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	1	6	4	5	2	7	4	8	5	7	3	1
Permitted Phases			6			2			8			3
Detector Phase	1	6	4	5	2	7	4	8	5	7	3	1
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	43.0	48.0	39.0	18.0	23.0	38.0	39.0	36.0	18.0	38.0	35.0	43.0
Total Split (%)	30.7%	34.3%	27.9%	12.9%	16.4%	27.1%	27.9%	25.7%	12.9%	27.1%	25.0%	30.7%
Maximum Green (s)	36.0	41.0	32.0	11.0	16.0	31.0	32.0	29.0	11.0	31.0	28.0	36.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	38.0	43.7	78.6	12.3	18.0	56.0	29.9	31.0	48.3	33.0	34.1	77.1
Actuated g/C Ratio	0.27	0.31	0.56	0.09	0.13	0.40	0.21	0.22	0.34	0.24	0.24	0.55
v/c Ratio	1.19	0.53	0.51	0.51	0.94	1.20	0.75	1.16	0.48	0.97	0.64	0.95
Control Delay	141.4	41.4	20.9	67.3	83.9	144.3	58.5	133.4	39.4	77.5	52.3	51.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	141.4	41.4	20.9	67.3	83.9	144.3	58.5	133.4	39.4	77.5	52.3	51.0
LOS	F	D	C	E	F	F	E	F	D	E	D	D
Approach Delay		83.7			112.3			95.1			60.9	
Approach LOS		F			F			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.20			
Intersection Signal Delay: 85.3		Intersection LOS: F	
Intersection Capacity Utilization 103.4%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 114: US 74 & Monroe Northern Loop

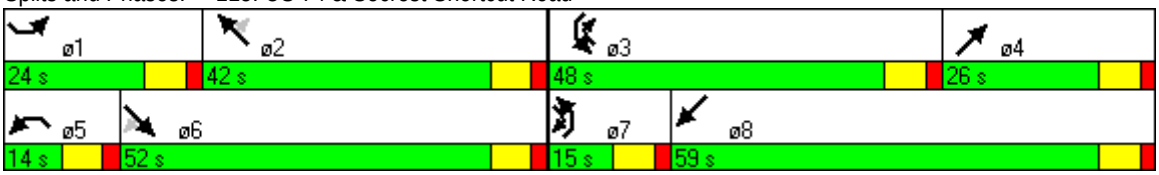


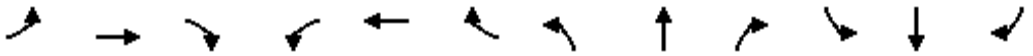
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	208	1426	55	115	1119	519	57	66	152	479	46	151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.895			0.885	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	3335	4940	1538	1770	1667	0	1770	1649	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	3335	4940	1538	1770	1667	0	1770	1649	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		413			1354			238			233	
Travel Time (s)		6.3			20.5			6.5			4.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	231	1584	61	128	1243	577	63	73	169	532	51	168
Shared Lane Traffic (%)												
Lane Group Flow (vph)	231	1584	61	128	1243	577	63	242	0	532	219	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot			Prot		
Protected Phases	1	6	7	5	2	3	7	4		3	8	
Permitted Phases			6			2						
Detector Phase	1	6	7	5	2	3	7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0		14.0	14.0	
Total Split (s)	24.0	52.0	15.0	14.0	42.0	48.0	15.0	26.0	0.0	48.0	59.0	0.0
Total Split (%)	17.1%	37.1%	10.7%	10.0%	30.0%	34.3%	10.7%	18.6%	0.0%	34.3%	42.1%	0.0%
Maximum Green (s)	17.0	45.0	8.0	7.0	35.0	41.0	8.0	19.0		41.0	52.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Act Effct Green (s)	19.0	47.0	61.8	9.0	37.0	85.0	9.8	21.0		43.0	54.2	
Actuated g/C Ratio	0.14	0.34	0.44	0.06	0.26	0.61	0.07	0.15		0.31	0.39	
v/c Ratio	0.99	0.96	0.09	0.60	0.95	0.62	0.51	0.97		0.98	0.34	
Control Delay	116.5	59.3	23.2	75.9	66.3	20.9	77.6	107.9		81.4	32.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	116.5	59.3	23.2	75.9	66.3	20.9	77.6	107.9		81.4	32.3	
LOS	F	E	C	E	E	C	E	F		F	C	
Approach Delay		65.1			53.5			101.6			67.1	
Approach LOS		E			D			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 120			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.99			
Intersection Signal Delay: 63.1		Intersection LOS: E	
Intersection Capacity Utilization 89.4%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 115: US 74 & Secrest Shortcut Road



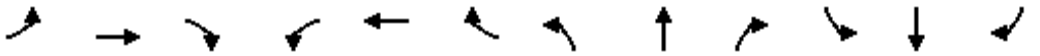


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	259	2090	253	302	1672	155	151	114	225	138	136	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00											
Frt		0.984			0.987			0.901			0.913	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4861	0	1719	4876	0	1770	1678	0	1770	1701	0
Flt Permitted	0.950			0.950			0.267			0.238		
Satd. Flow (perm)	1719	4861	0	1719	4876	0	497	1678	0	443	1701	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		443			590			549			636	
Travel Time (s)		6.7			8.9			15.0			12.4	
Confl. Peds. (#/hr)	1											
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	288	2322	281	336	1858	172	168	127	250	153	151	206
Shared Lane Traffic (%)												
Lane Group Flow (vph)	288	2603	0	336	2030	0	168	377	0	153	357	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Detector Phase	5	2		1	6		4	4		8	8	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	29.0	69.0	0.0	27.0	67.0	0.0	44.0	44.0	0.0	44.0	44.0	0.0
Total Split (%)	20.7%	49.3%	0.0%	19.3%	47.9%	0.0%	31.4%	31.4%	0.0%	31.4%	31.4%	0.0%
Maximum Green (s)	22.0	62.0		20.0	60.0		37.0	37.0		37.0	37.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	24.0	64.0		22.0	62.0		39.0	39.0		39.0	39.0	
Actuated g/C Ratio	0.17	0.46		0.16	0.44		0.28	0.28		0.28	0.28	
v/c Ratio	0.98	1.17		1.24	0.94		1.22	0.81		1.24	0.75	
Control Delay	104.0	117.5		184.6	47.1		189.3	61.6		202.7	57.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	104.0	117.5		184.6	47.1		189.3	61.6		202.7	57.5	
LOS	F	F		F	D		F	E		F	E	
Approach Delay		116.2			66.6			101.0			101.1	
Approach LOS		F			E			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 140			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.24			
Intersection Signal Delay: 95.1		Intersection LOS: F	
Intersection Capacity Utilization 106.9%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 120: US 74 & Stafford Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	195	2226	117	117	1819	107	159	10	195	53	10	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993			0.992			0.857			0.867	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4905	0	1719	4900	0	1770	1596	0	1770	1615	0
Flt Permitted	0.950			0.950			0.648			0.327		
Satd. Flow (perm)	1719	4905	0	1719	4900	0	1207	1596	0	609	1615	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			20	
Link Distance (ft)		493			536			238			211	
Travel Time (s)		7.5			8.1			6.5			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	217	2473	130	130	2021	119	177	11	217	59	11	87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	217	2603	0	130	2140	0	177	228	0	59	98	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	29.0	88.0	0.0	20.0	79.0	0.0	32.0	32.0	0.0	32.0	32.0	0.0
Total Split (%)	20.7%	62.9%	0.0%	14.3%	56.4%	0.0%	22.9%	22.9%	0.0%	22.9%	22.9%	0.0%
Maximum Green (s)	22.0	81.0		13.0	72.0		25.0	25.0		25.0	25.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	22.3	85.5		14.6	77.8		24.9	24.9		24.9	24.9	
Actuated g/C Ratio	0.16	0.61		0.10	0.56		0.18	0.18		0.18	0.18	
v/c Ratio	0.79	0.87		0.73	0.79		0.82	0.80		0.55	0.34	
Control Delay	77.1	27.3		83.3	28.0		84.1	76.1		71.4	53.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	77.1	27.3		83.3	28.0		84.1	76.1		71.4	53.2	
LOS	E	C		F	C		F	E		E	D	
Approach Delay		31.2			31.1			79.6			60.1	
Approach LOS		C			C			E			E	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 35.4 Intersection LOS: D
Intersection Capacity Utilization 87.2% ICU Level of Service E
Analysis Period (min) 15

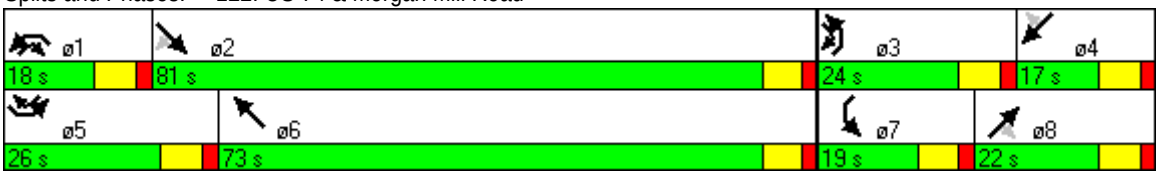
Splits and Phases: 121: US 74 & Boyte Street

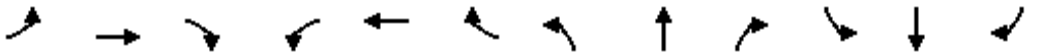
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	188	2157	159	110	1741	150	161	154	138	117	96	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.988				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	1719	4881	0	1687	1776	1509	1687	1776	1509
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	1719	4881	0	1687	1776	1509	1687	1776	1509
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		515			499			502			475	
Travel Time (s)		7.8			7.6			9.8			9.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	7%	7%	7%	7%	7%	7%
Adj. Flow (vph)	209	2397	177	122	1934	167	179	171	153	130	107	132
Shared Lane Traffic (%)												
Lane Group Flow (vph)	209	2397	177	122	2101	0	179	171	153	130	107	132
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot			Prot		pm+ov	Prot		pm+ov
Protected Phases	5	2	3	1	6		3	8	1	7	4	5
Permitted Phases			2						8			4
Detector Phase	5	2	3	1	6		3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0		7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0		14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	26.0	81.0	24.0	18.0	73.0	0.0	24.0	22.0	18.0	19.0	17.0	26.0
Total Split (%)	18.6%	57.9%	17.1%	12.9%	52.1%	0.0%	17.1%	15.7%	12.9%	13.6%	12.1%	18.6%
Maximum Green (s)	19.0	74.0	17.0	11.0	66.0		17.0	15.0	11.0	12.0	10.0	19.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max		None	None	None	None	None	None
Act Effct Green (s)	20.3	76.9	100.2	12.8	69.4		18.3	16.6	34.4	13.7	12.0	37.3
Actuated g/C Ratio	0.14	0.55	0.72	0.09	0.50		0.13	0.12	0.25	0.10	0.09	0.27
v/c Ratio	0.84	0.88	0.16	0.77	0.87		0.81	0.81	0.41	0.78	0.70	0.33
Control Delay	85.3	32.9	6.8	92.3	36.5		85.7	88.0	48.1	91.8	86.6	43.8
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	85.3	32.9	6.8	92.3	36.5		85.7	88.0	48.1	91.8	86.6	43.8
LOS	F	C	A	F	D		F	F	D	F	F	D
Approach Delay		35.2			39.6			75.0			73.1	
Approach LOS		D			D			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 42.6		Intersection LOS: D	
Intersection Capacity Utilization 79.2%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 122: US 74 & Morgan Mill Road



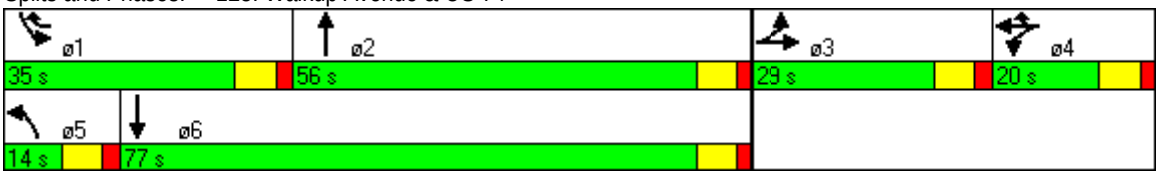


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	69	131	91	38	184	387	92	1553	27	351	1962	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.958				0.850		0.997			0.993	
Flt Protected		0.988		0.950			0.950			0.950		
Satd. Flow (prot)	0	1763	0	1770	1863	1583	1719	4925	0	1719	4905	0
Flt Permitted		0.988		0.950			0.950			0.950		
Satd. Flow (perm)	0	1763	0	1770	1863	1583	1719	4925	0	1719	4905	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		443			502			602			356	
Travel Time (s)		12.1			9.8			9.1			5.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	77	146	101	42	204	430	102	1726	30	390	2180	99
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	324	0	42	204	430	102	1756	0	390	2279	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pt+ov	Prot			Prot		
Protected Phases	3	3		4	4	4 1	5	2		1	6	
Permitted Phases												
Detector Phase	3	3		4	4	4 1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0		14.0	19.0	
Total Split (s)	29.0	29.0	0.0	20.0	20.0	55.0	14.0	56.0	0.0	35.0	77.0	0.0
Total Split (%)	20.7%	20.7%	0.0%	14.3%	14.3%	39.3%	10.0%	40.0%	0.0%	25.0%	55.0%	0.0%
Maximum Green (s)	22.0	22.0		13.0	13.0		7.0	49.0		28.0	70.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lead		Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)		24.0		15.0	15.0	50.0	9.0	51.0		30.0	72.0	
Actuated g/C Ratio		0.17		0.11	0.11	0.36	0.06	0.36		0.21	0.51	
v/c Ratio		1.07		0.22	1.02	0.76	0.92	0.98		1.06	0.90	
Control Delay		126.2		60.5	129.3	50.0	129.9	60.6		115.3	37.1	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		126.2		60.5	129.3	50.0	129.9	60.6		115.3	37.1	
LOS		F		E	F	D	F	E		F	D	
Approach Delay		126.2			74.6			64.4			48.5	
Approach LOS		F			E			E			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 120			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.07			
Intersection Signal Delay: 61.6		Intersection LOS: E	
Intersection Capacity Utilization 92.7%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 123: Walkup Avenue & US 74



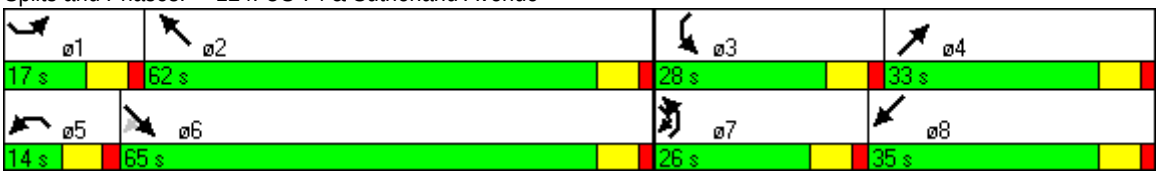
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	98	1755	172	43	1404	142	210	192	66	207	184	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.986			0.962			0.942	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	1719	4871	0	1752	1775	0	1752	1738	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	1719	4871	0	1752	1775	0	1752	1738	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		425			487			426			331	
Travel Time (s)		6.4			7.4			11.6			6.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	109	1950	191	48	1560	158	233	213	73	230	204	128
Shared Lane Traffic (%)												
Lane Group Flow (vph)	109	1950	191	48	1718	0	233	286	0	230	332	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot			Prot			Prot		
Protected Phases	1	6	7	5	2		7	4		3	8	
Permitted Phases			6									
Detector Phase	1	6	7	5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0		7.0	7.0		7.0	7.0	

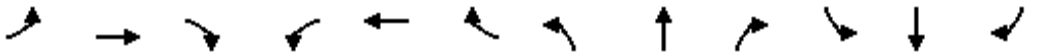
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	17.0	65.0	26.0	14.0	62.0	0.0	26.0	33.0	0.0	28.0	35.0	0.0
Total Split (%)	12.1%	46.4%	18.6%	10.0%	44.3%	0.0%	18.6%	23.6%	0.0%	20.0%	25.0%	0.0%
Maximum Green (s)	10.0	58.0	19.0	7.0	55.0		19.0	26.0		21.0	28.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes			Yes			Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max		None	None		None	None	
Act Effct Green (s)	11.9	63.6	89.5	9.0	58.0		20.8	28.1		22.1	29.3	
Actuated g/C Ratio	0.08	0.45	0.64	0.06	0.41		0.15	0.20		0.16	0.21	
v/c Ratio	0.75	0.87	0.19	0.43	0.85		0.89	0.80		0.83	0.91	
Control Delay	92.1	40.5	11.9	75.6	42.5		92.3	71.2		81.4	83.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	92.1	40.5	11.9	75.6	42.5		92.3	71.2		81.4	83.5	
LOS	F	D	B	E	D		F	E		F	F	
Approach Delay		40.6			43.4			80.7			82.6	
Approach LOS		D			D			F			F	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 50.3 Intersection LOS: D
Intersection Capacity Utilization 84.7% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 124: US 74 & Sutherland Avenue





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	48	61	36	34	151	26	1493	23	116	1843	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.916			0.878				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1706	0	1770	1635	0	1719	4940	1538	1719	4940	1538
Flt Permitted	0.377			0.588			0.950			0.950		
Satd. Flow (perm)	702	1706	0	1095	1635	0	1719	4940	1538	1719	4940	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		163			218			356			257	
Travel Time (s)		5.6			4.2			5.4			3.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	4	53	68	40	38	168	29	1659	26	129	2048	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	121	0	40	206	0	29	1659	26	129	2048	2
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm			Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	12.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	19.0
Total Split (s)	37.0	37.0	0.0	37.0	37.0	0.0	14.0	76.0	76.0	27.0	89.0	89.0
Total Split (%)	26.4%	26.4%	0.0%	26.4%	26.4%	0.0%	10.0%	54.3%	54.3%	19.3%	63.6%	63.6%
Maximum Green (s)	30.0	30.0		30.0	30.0		7.0	69.0	69.0	20.0	82.0	82.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	24.7	24.7		24.7	24.7		9.5	82.9	82.9	17.4	96.3	96.3
Actuated g/C Ratio	0.18	0.18		0.18	0.18		0.07	0.59	0.59	0.12	0.69	0.69
v/c Ratio	0.03	0.40		0.21	0.71		0.25	0.57	0.03	0.60	0.60	0.00
Control Delay	44.5	53.8		49.5	67.5		67.3	19.8	15.1	69.4	14.4	10.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.5	53.8		49.5	67.5		67.3	19.8	15.1	69.4	14.4	10.5
LOS	D	D		D	E		E	B	B	E	B	B
Approach Delay		53.5			64.6			20.5			17.6	
Approach LOS		D			E			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 22.6		Intersection LOS: C	
Intersection Capacity Utilization 65.0%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 125: Dove Street & US 74

Lane Group	NBU	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT
Lane Configurations												
Volume (vph)	9	1044	1126	129	171	1477	350	251	86	982	126	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.86	0.97	0.86	0.86	1.00	0.91	1.00	1.00	1.00	0.88	1.00	1.00
Frt			0.985				0.850			0.850		
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	3335	6131	0	1719	4940	1538	1752	1845	2760	1752	1845
Flt Permitted		0.950			0.950			0.950			0.950	
Satd. Flow (perm)	0	3335	6131	0	1719	4940	1538	1752	1845	2760	1752	1845
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			45			35			20
Link Distance (ft)			341			436			391			335
Travel Time (s)			5.2			6.6			7.6			11.4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%
Adj. Flow (vph)	10	1160	1251	143	190	1641	389	279	96	1091	140	99
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1170	1394	0	190	1641	389	279	96	1091	140	99
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			24			24			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1	1	2		1	2	1	1	2	1	1	2
Detector Template	Left	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru
Leading Detector (ft)	20	20	100		20	100	20	20	100	20	20	100
Trailing Detector (ft)	0	0	0		0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0		0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	6		20	6	20	20	6	20	20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94			94			94			94
Detector 2 Size(ft)			6			6			6			6
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			0.0
Turn Type	Prot	Prot			Prot		pm+ov	Split		Prot	Split	
Protected Phases	5	5	2		1	6	4	4	4	4	3	3
Permitted Phases							6					
Detector Phase	5	5	2		1	6	4	4	4	4	3	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	12.0		7.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SWR
Lane Configurations	
Volume (vph)	127
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1568
Flt Permitted	
Satd. Flow (perm)	1568
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	3%
Adj. Flow (vph)	141
Shared Lane Traffic (%)	
Lane Group Flow (vph)	141
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	pt+ov
Protected Phases	3 1
Permitted Phases	
Detector Phase	3 1
Switch Phase	
Minimum Initial (s)	

Lane Group	NBU	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT
Minimum Split (s)	14.0	14.0	19.0		14.0	19.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	40.0	40.0	53.0	0.0	30.0	43.0	43.0	43.0	43.0	43.0	14.0	14.0
Total Split (%)	28.6%	28.6%	37.9%	0.0%	21.4%	30.7%	30.7%	30.7%	30.7%	30.7%	10.0%	10.0%
Maximum Green (s)	33.0	33.0	46.0		23.0	36.0	36.0	36.0	36.0	36.0	7.0	7.0
Yellow Time (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag		Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max		None	C-Max	None	None	None	None	None	None
Act Effct Green (s)		35.0	51.4		21.6	38.0	76.0	38.0	38.0	38.0	9.0	9.0
Actuated g/C Ratio		0.25	0.37		0.15	0.27	0.54	0.27	0.27	0.27	0.06	0.06
v/c Ratio		1.40	0.62		0.72	1.22	0.47	0.59	0.19	1.46	1.24	0.83
Control Delay		227.5	38.2		71.4	150.6	13.5	50.1	40.5	249.8	213.8	110.7
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		227.5	38.2		71.4	150.6	13.5	50.1	40.5	249.8	213.8	110.7
LOS		F	D		E	F	B	D	D	F	F	F
Approach Delay			124.6			119.8			198.1			117.8
Approach LOS			F			F			F			F

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 170			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.46			
Intersection Signal Delay: 138.8		Intersection LOS: F	
Intersection Capacity Utilization 116.6%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 126: US 74 & E. Franklin Street

Lane Group	SWR
Minimum Split (s)	
Total Split (s)	44.0
Total Split (%)	31.4%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Act Effct Green (s)	30.6
Actuated g/C Ratio	0.22
v/c Ratio	0.41
Control Delay	27.5
Queue Delay	0.0
Total Delay	27.5
LOS	C
Approach Delay	
Approach LOS	

Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	10	0	1352	1544	316	1134	29	921	0	226	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.91	0.91	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.996			0.939			
Flt Protected	0.950				0.950			0.950	0.971			
Satd. Flow (prot)	1719	0	4940	1538	1736	4968	0	1504	1444	0	0	0
Flt Permitted	0.950				0.950			0.950	0.971			
Satd. Flow (perm)	1719	0	4940	1538	1736	4968	0	1504	1444	0	0	0
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			55			45			25
Link Distance (ft)			239			375			459			145
Travel Time (s)			3.6			4.6			7.0			4.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	4%	4%	4%	14%	14%	14%	2%	2%
Adj. Flow (vph)	11	0	1502	1716	351	1260	32	1023	0	251	0	0
Shared Lane Traffic (%)								36%				
Lane Group Flow (vph)	11	0	1502	1716	351	1292	0	655	619	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			12			12			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1		2	1	1	2		1	2			
Detector Template	Left		Thru	Right	Left	Thru		Left	Thru			
Leading Detector (ft)	20		100	20	20	100		20	100			
Trailing Detector (ft)	0		0	0	0	0		0	0			
Detector 1 Position(ft)	0		0	0	0	0		0	0			
Detector 1 Size(ft)	20		6	20	20	6		20	6			
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 2 Position(ft)			94			94			94			
Detector 2 Size(ft)			6			6			6			
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			
Turn Type	Prot			pm+ov	Prot			Split				
Protected Phases	5		2	8	1	6		8	8			
Permitted Phases				2								
Detector Phase	5		2	8	1	6		8	8			
Switch Phase												
Minimum Initial (s)	7.0		12.0	12.0	7.0	14.0		12.0	12.0			

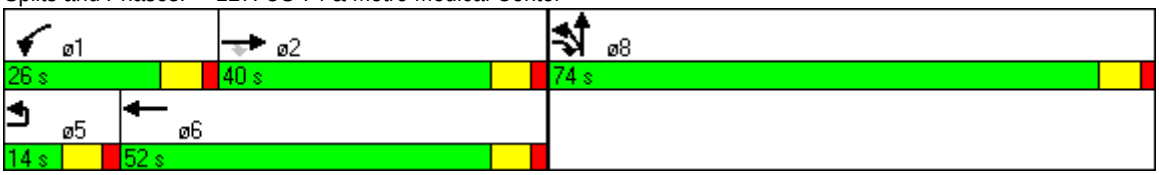
Lane Group	SBR
Lane Configurations	
Volume (vph)	18
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.865
Flt Protected	
Satd. Flow (prot)	1611
Flt Permitted	
Satd. Flow (perm)	1611
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	2%
Adj. Flow (vph)	20
Shared Lane Traffic (%)	
Lane Group Flow (vph)	20
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Detector Phase	
Switch Phase	
Minimum Initial (s)	

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Minimum Split (s)	14.0		19.0	19.0	14.0	21.0		19.0	19.0			
Total Split (s)	14.0	0.0	40.0	74.0	26.0	52.0	0.0	74.0	74.0	0.0	0.0	0.0
Total Split (%)	10.0%	0.0%	28.6%	52.9%	18.6%	37.1%	0.0%	52.9%	52.9%	0.0%	0.0%	0.0%
Maximum Green (s)	7.0		33.0	67.0	19.0	45.0		67.0	67.0			
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0		5.0	5.0			
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0		2.0	2.0			
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	2.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	2.0	2.0
Lead/Lag	Lead		Lag		Lead	Lag						
Lead-Lag Optimize?			Yes			Yes						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0		3.0	3.0			
Recall Mode	None		C-Max	None	None	C-Max		None	None			
Act Effct Green (s)	9.0		35.0	109.0	21.0	55.4		69.0	69.0			
Actuated g/C Ratio	0.06		0.25	0.78	0.15	0.40		0.49	0.49			
v/c Ratio	0.10		1.22	1.43	1.35	0.66		0.88	0.87			
Control Delay	63.9		149.2	220.2	224.8	37.6		47.3	46.1			
Queue Delay	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Total Delay	63.9		149.2	220.2	224.8	37.6		47.3	46.1			
LOS	E		F	F	F	D		D	D			
Approach Delay			186.6			77.6			46.7			
Approach LOS			F			E			D			

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.43
Intersection Signal Delay: 128.0 Intersection LOS: F
Intersection Capacity Utilization 121.4% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 127: US 74 & Metro Medical Center



Lane Group	SBR
Minimum Split (s)	
Total Split (s)	0.0
Total Split (%)	0.0%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	2.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Act Effct Green (s)	140.0
Actuated g/C Ratio	1.00
v/c Ratio	0.01
Control Delay	0.0
Queue Delay	0.0
Total Delay	0.0
LOS	A
Approach Delay	
Approach LOS	

Intersection Summary

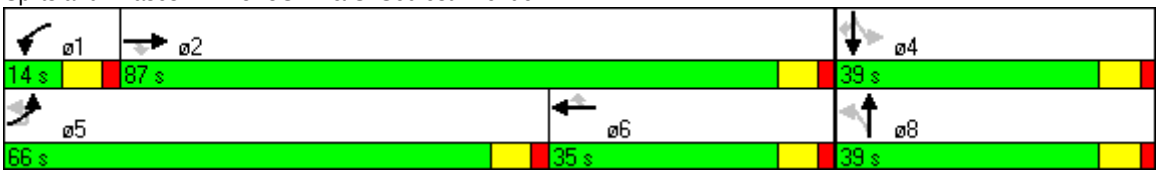
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	20	164	1376	47	9	1094	109	36	99	9	243	238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850			0.850		0.992			
Flt Protected		0.950			0.950				0.988			0.975
Satd. Flow (prot)	0	1719	3438	1538	1719	3438	1538	0	1826	0	0	1816
Flt Permitted		0.066			0.950				0.155			0.682
Satd. Flow (perm)	0	119	3438	1538	1719	3438	1538	0	286	0	0	1270
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			55			55			35			35
Link Distance (ft)			411			374			242			283
Travel Time (s)			5.1			4.6			4.7			5.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%
Adj. Flow (vph)	22	182	1529	52	10	1216	121	40	110	10	270	264
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	204	1529	52	10	1216	121	0	160	0	0	534
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			12			12			0			0
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1	1	2	1	1	2	1	1	2		1	2
Detector Template	Left	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru
Leading Detector (ft)	20	20	100	20	20	100	20	20	100		20	100
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0		0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0		0	0
Detector 1 Size(ft)	20	20	6	20	20	6	20	20	6		20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)			94			94			94			94
Detector 2 Size(ft)			6			6			6			6
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			0.0
Turn Type	custom	Prot		Perm	Prot		Perm	Perm			Perm	
Protected Phases		5	2		1	6			8			4
Permitted Phases	5			2			6	8			4	
Detector Phase	5	5	2	2	1	6	6	8	8		4	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	14.0	14.0	7.0	14.0	14.0	7.0	7.0		7.0	7.0

Lane Group	SBR
Lane Configurations	
Volume (vph)	300
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	2%
Adj. Flow (vph)	333
Shared Lane Traffic (%)	
Lane Group Flow (vph)	333
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Detector Phase	4
Switch Phase	
Minimum Initial (s)	7.0

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Minimum Split (s)	14.0	14.0	21.0	21.0	14.0	21.0	21.0	14.0	14.0		14.0	14.0
Total Split (s)	66.0	66.0	87.0	87.0	14.0	35.0	35.0	39.0	39.0	0.0	39.0	39.0
Total Split (%)	47.1%	47.1%	62.1%	62.1%	10.0%	25.0%	25.0%	27.9%	27.9%	0.0%	27.9%	27.9%
Maximum Green (s)	59.0	59.0	80.0	80.0	7.0	28.0	28.0	32.0	32.0		32.0	32.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Time Before Reduce (s)	0.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0	0.0		0.0	0.0
Time To Reduce (s)	0.0	0.0	50.0	50.0	0.0	50.0	50.0	0.0	0.0		0.0	0.0
Recall Mode	None	None	C-Min	C-Min	None	C-Min	C-Min	None	None		None	None
Act Effct Green (s)		61.0	93.2	93.2	9.0	30.0	30.0		34.0			34.0
Actuated g/C Ratio		0.44	0.67	0.67	0.06	0.21	0.21		0.24			0.24
v/c Ratio		3.92	0.67	0.05	0.09	1.65	0.37		2.32			1.73
Control Delay		1374.3	16.7	9.4	63.7	333.1	50.7		660.8			375.7
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0
Total Delay		1374.3	16.7	9.4	63.7	333.1	50.7		660.8			375.7
LOS		F	B	A	E	F	D		F			F
Approach Delay			171.7			305.7			660.8			259.7
Approach LOS			F			F			F			F

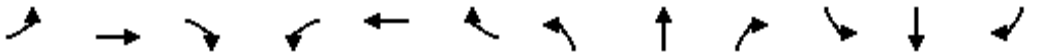
Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 3.92			
Intersection Signal Delay: 252.2		Intersection LOS: F	
Intersection Capacity Utilization 93.8%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 128: US 74 & S. Secrest Avenue



Lane Group	SBR
Minimum Split (s)	14.0
Total Split (s)	39.0
Total Split (%)	27.9%
Maximum Green (s)	32.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Minimum Gap (s)	3.0
Time Before Reduce (s)	0.0
Time To Reduce (s)	0.0
Recall Mode	None
Act Effct Green (s)	34.0
Actuated g/C Ratio	0.24
v/c Ratio	0.87
Control Delay	73.6
Queue Delay	0.0
Total Delay	73.6
LOS	E
Approach Delay	
Approach LOS	

Intersection Summary

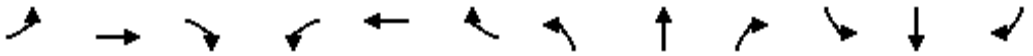


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	79	1424	20	3	1148	58	32	20	6	101	18	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.993			0.985				0.850
Flt Protected	0.950			0.950				0.973			0.959	
Satd. Flow (prot)	1736	3464	0	1736	3447	0	0	1785	0	0	1786	1583
Flt Permitted	0.950			0.950				0.652			0.722	
Satd. Flow (perm)	1736	3464	0	1736	3447	0	0	1196	0	0	1345	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			20			25	
Link Distance (ft)		242			246			170			270	
Travel Time (s)		4.7			4.8			5.8			7.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	88	1582	22	3	1276	64	36	22	7	112	20	122
Shared Lane Traffic (%)												
Lane Group Flow (vph)	88	1604	0	3	1340	0	0	65	0	0	132	122
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		pm+ov
Protected Phases	5	2		1	6			8			4	5
Permitted Phases							8			4		4
Detector Phase	5	2		1	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	17.0		14.0	17.0		14.0	14.0		14.0	14.0	14.0
Total Split (s)	20.0	96.0	0.0	14.0	90.0	0.0	30.0	30.0	0.0	30.0	30.0	20.0
Total Split (%)	14.3%	68.6%	0.0%	10.0%	64.3%	0.0%	21.4%	21.4%	0.0%	21.4%	21.4%	14.3%
Maximum Green (s)	13.0	89.0		7.0	83.0		23.0	23.0		23.0	23.0	13.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None
Act Effct Green (s)	13.5	107.0		9.0	91.3			20.2			20.2	38.7
Actuated g/C Ratio	0.10	0.76		0.06	0.65			0.14			0.14	0.28
v/c Ratio	0.52	0.61		0.03	0.60			0.38			0.68	0.28
Control Delay	71.2	9.8		62.0	16.2			59.2			73.8	39.8
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Delay	71.2	9.8		62.0	16.2			59.2			73.8	39.8
LOS	E	A		E	B			E			E	D
Approach Delay		13.0			16.3			59.2			57.5	
Approach LOS		B			B			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay: 18.6		Intersection LOS: B	
Intersection Capacity Utilization 68.2%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 129: US 74 & Bivens Street

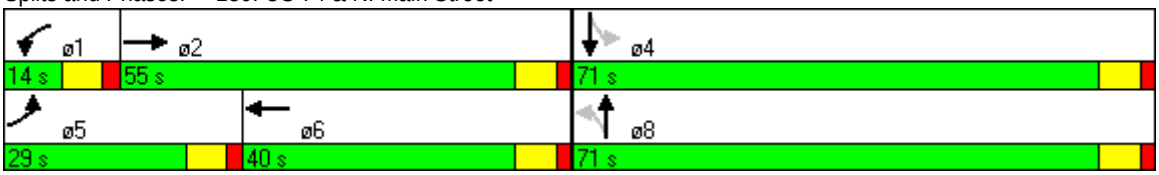


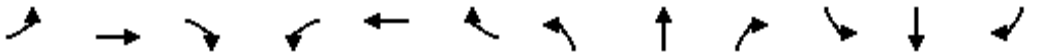
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	361	1069	50	55	837	77	39	275	56	102	363	376
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993			0.987			0.980			0.924	
Flt Protected	0.950			0.950				0.995		0.950		
Satd. Flow (prot)	1736	3447	0	1736	3426	0	0	1816	0	1770	1721	0
Flt Permitted	0.950			0.950				0.330		0.440		
Satd. Flow (perm)	1736	3447	0	1736	3426	0	0	602	0	820	1721	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		282			333			173			197	
Travel Time (s)		5.5			6.5			3.4			3.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	401	1188	56	61	930	86	43	306	62	113	403	418
Shared Lane Traffic (%)												
Lane Group Flow (vph)	401	1244	0	61	1016	0	0	411	0	113	821	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	17.0		14.0	17.0		14.0	14.0		14.0	14.0	
Total Split (s)	29.0	55.0	0.0	14.0	40.0	0.0	71.0	71.0	0.0	71.0	71.0	0.0
Total Split (%)	20.7%	39.3%	0.0%	10.0%	28.6%	0.0%	50.7%	50.7%	0.0%	50.7%	50.7%	0.0%
Maximum Green (s)	22.0	48.0		7.0	33.0		64.0	64.0		64.0	64.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	None		None	None		None	None	
Act Effct Green (s)	24.0	52.8		9.0	35.0			66.0		66.0	66.0	
Actuated g/C Ratio	0.17	0.38		0.06	0.25			0.47		0.47	0.47	
v/c Ratio	1.35	0.96		0.54	1.19			1.45		0.29	1.01	
Control Delay	219.7	59.6		82.0	140.5			250.5		25.3	71.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	219.7	59.6		82.0	140.5			250.5		25.3	71.5	
LOS	F	E		F	F			F		C	E	
Approach Delay		98.6			137.1			250.5			65.9	
Approach LOS		F			F			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT, Start of Green			
Natural Cycle: 160			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.45			
Intersection Signal Delay: 116.6		Intersection LOS: F	
Intersection Capacity Utilization 109.3%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 130: US 74 & N. Main Street





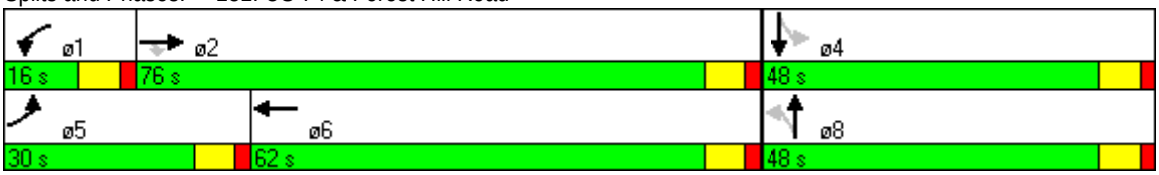
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	127	892	110	24	724	10	102	26	28	10	22	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.998			0.976			0.897	
Flt Protected	0.950			0.950				0.968			0.996	
Satd. Flow (prot)	1736	3471	1553	1736	3464	0	0	1678	0	0	1632	0
Flt Permitted	0.950			0.950				0.584			0.973	
Satd. Flow (perm)	1736	3471	1553	1736	3464	0	0	1012	0	0	1595	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			35	
Link Distance (ft)		576			646			376			353	
Travel Time (s)		7.1			8.0			4.7			6.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	7%	7%	7%	4%	4%	4%
Adj. Flow (vph)	141	991	122	27	804	11	113	29	31	11	24	112
Shared Lane Traffic (%)												
Lane Group Flow (vph)	141	991	122	27	815	0	0	173	0	0	147	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		Perm	Prot			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8			4		
Detector Phase	5	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	14.0	14.0	7.0	14.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	21.0	21.0	14.0	21.0		14.0	14.0		14.0	14.0	
Total Split (s)	30.0	76.0	76.0	16.0	62.0	0.0	48.0	48.0	0.0	48.0	48.0	0.0
Total Split (%)	21.4%	54.3%	54.3%	11.4%	44.3%	0.0%	34.3%	34.3%	0.0%	34.3%	34.3%	0.0%
Maximum Green (s)	23.0	69.0	69.0	9.0	55.0		41.0	41.0		41.0	41.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	
Act Effct Green (s)	18.6	91.8	91.8	10.1	77.7			28.6			28.6	
Actuated g/C Ratio	0.13	0.66	0.66	0.07	0.56			0.20			0.20	
v/c Ratio	0.61	0.44	0.12	0.21	0.42			0.84			0.45	
Control Delay	67.9	14.7	12.4	64.8	20.9			83.5			51.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Delay	67.9	14.7	12.4	64.8	20.9			83.5			51.6	
LOS	E	B	B	E	C			F			D	
Approach Delay		20.5			22.3			83.5			51.6	
Approach LOS		C			C			F			D	

Intersection Summary

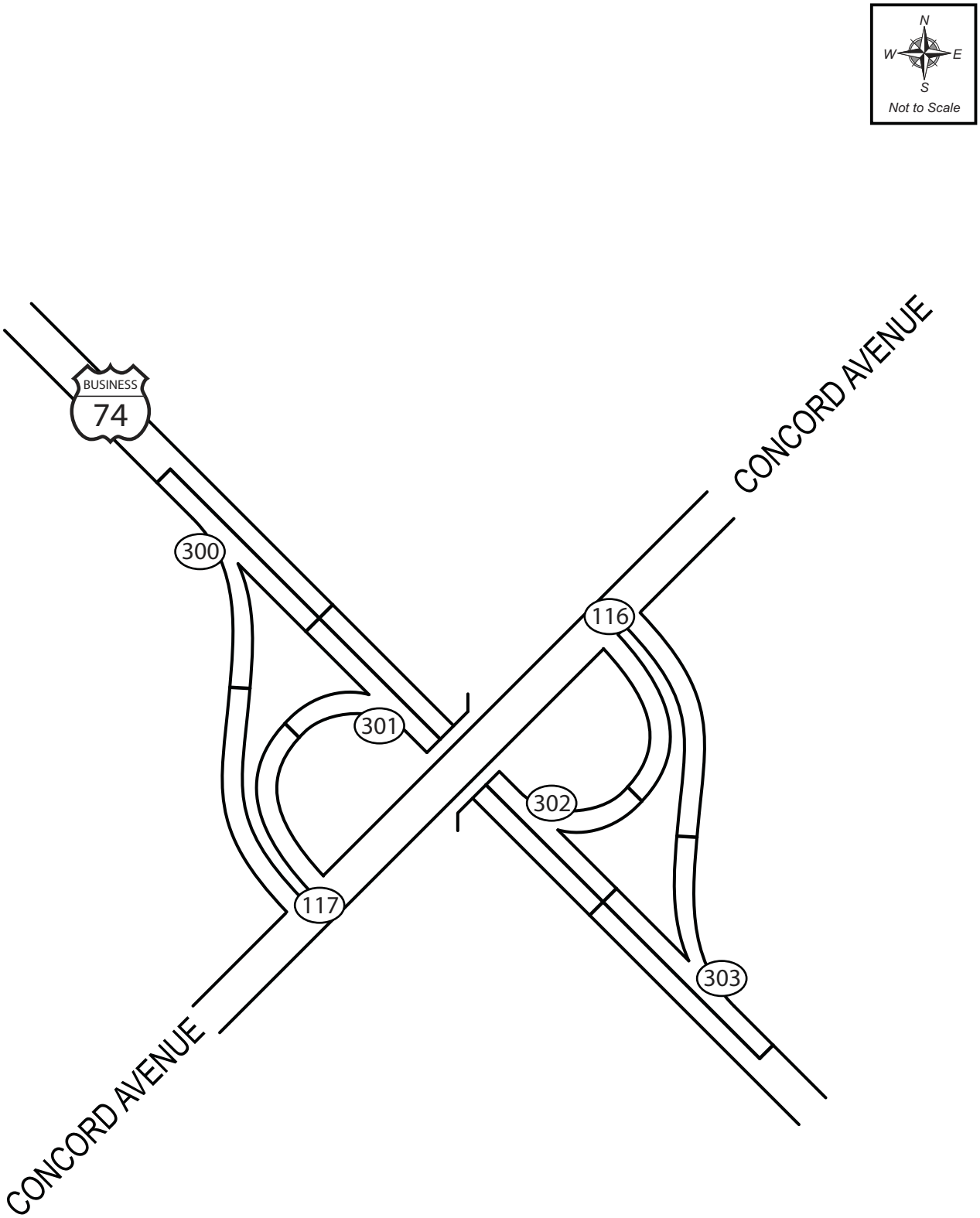
Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 27.5 Intersection LOS: C
Intersection Capacity Utilization 63.8% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 131: US 74 & Forest Hill Road



E-7-2

Business US 74 / Concord Ave I/C



NORTH CAROLINA Turnpike Authority

MONROE CONNECTOR / BYPASS

TIP Project Numbers R-3329 & R-2559

Mecklenburg and Union Counties

Business US 74 Corridor
Concord Avenue
Key Sheet

Appendix E

KeySheetUS74CorridorConcordAve.ai

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*WB US 74 Ramp at Concord Ave*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 2C*
Analysis Time Period	*AM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *WB US 74 Ramp*	North/South Street: *Concord Ave.*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*372*	*114*	*106*	*427*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*413*	*126*	*117*	*474*	*0*
Percent Heavy Vehicles		--	--	*4*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*183*	*0*	*63*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*203*	*0*	*70*	*0*	*0*	*0*
Percent Heavy Vehicles	*5*		*5*			
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (vph)		*117*		*273*				
C (m) (vph)		*1019*		*221*				
v/c		*0.11*		*1.24*				
95% queue length		*0.39*		*13.88*				
Control Delay		*9.0*		*183.1*				
LOS		*A*		*F*				
Approach Delay	--	--	*183.1*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*WB US 74 Ramp at Concord Ave*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 2C*
Analysis Time Period	*PM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *WB US 74 Ramp*	North/South Street: *Concord Ave.*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*469*	*117*	*86*	*349*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*521*	*130*	*95*	*387*	*0*
Percent Heavy Vehicles		--	--	*4*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*145*	*0*	*64*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*161*	*0*	*71*	*0*	*0*	*0*
Percent Heavy Vehicles	*5*		*5*			
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (vph)		*95*		*232*				
C (m) (vph)		*926*		*235*				
v/c		*0.10*		*0.99*				
95% queue length		*0.34*		*9.14*				
Control Delay		*9.3*		*100.0*				
LOS		*A*		*F*				
Approach Delay	--	--	*100.0*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*EB US 74 Ramp at Concord Ave*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 2C*
Analysis Time Period	*AM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *EB US 74 Ramp*	North/South Street: *Concord Ave.*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*145*	*400*			*546*	*64*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*161*	*444*	*0*	*0*	*606*	*71*
Percent Heavy Vehicles	*4*	--	--		--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume		*0*		*86*	*0*	*117*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*95*	*0*	*130*
Percent Heavy Vehicles				*5*		*5*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*161*						*225*	
C (m) (vph)	*905*						*216*	
v/c	*0.18*						*1.04*	
95% queue length	*0.64*						*9.77*	
Control Delay	*9.8*						*119.9*	
LOS	*A*						*F*	
Approach Delay	--	--				*119.9*		
Approach LOS	--	--				*F*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*EB US 74 Ramp at Concord Ave*
Agency/Co.	*PBS&J*	Jurisdiction	*117*
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 1A*
Analysis Time Period	*PM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *EB US 74 Ramp*	North/South Street: *Concord Ave.*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*183*	*479*			*430*	*67*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*203*	*532*	*0*	*0*	*477*	*74*
Percent Heavy Vehicles	*4*	--	--		--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume		*0*		*107*	*0*	*114*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*118*	*0*	*126*
Percent Heavy Vehicles				*5*		*5*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*203*						*244*	
C (m) (vph)	*1009*						*192*	
v/c	*0.20*						*1.27*	
95% queue length	*0.75*						*13.35*	
Control Delay	*9.5*						*204.8*	
LOS	*A*						*F*	
Approach Delay	--	--				*204.8*		
Approach LOS	--	--				*F*		

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Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB off to Concord Ave.
Junction:	300
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1722	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	203	vph
Length of first accel/decel lane	680	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	209	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	1722		203		209		vph
Peak-hour factor, PHF	0.90		0.90		0.90		
Peak 15-min volume, v15	478		56		58		v
Trucks and buses	5		5		4		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		

Heavy vehicle adjustment, fHV	0.930	0.930	0.943	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2057	242	246	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.697 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1508 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2057	6750	No
v_{12}	1508	4400	No
$v_{FO} = v_F - v_R$	1815	6750	No
v_R	242	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 11.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.385	
Space mean speed in ramp influence area,	S_R = 50.0	mph
Space mean speed in outer lanes,	S_0 = 60.3	mph
Space mean speed for all vehicles,	S = 52.4	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB off to Concord Ave.
Junction:	300
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2094	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	220	vph
Length of first accel/decel lane	680	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	246	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2094		220		246		vph
Peak-hour factor, PHF	0.90		0.90		0.90		
Peak 15-min volume, v15	582		61		68		v
Trucks and buses	5		5		4		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		

Heavy vehicle adjustment, fHV	0.930	0.930	0.943	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2501	263	290	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.685 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1797 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2501	6750	No
v_{12}	1797	4400	No
$v_{FO} = v_F - v_R$	2238	6750	No
v_R	263	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 13.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.387	
Space mean speed in ramp influence area,	S_R = 50.0	mph
Space mean speed in outer lanes,	S_0 = 60.3	mph
Space mean speed for all vehicles,	S = 52.5	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB on from Concord Ave.
Junction:	301
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1519	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	209	vph
Length of first accel/decel lane	100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	203	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1519	209	203	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	422	58	56	v
Trucks and buses	5	4	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1814	246	242	pcph

Estimation of V12 Merge Areas

L_{EQ} = -609.76 (Equation 25-2 or 25-3)

P_{FM} = 0.580 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1053 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2060	6750	No
v_{R12}	1299	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 14.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.330	
Space mean speed in ramp influence area,	S_R = 50.7	mph
Space mean speed in outer lanes,	S_O = 54.1	mph
Space mean speed for all vehicles,	S = 51.9	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB on from Concord Ave.
Junction:	301
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1874	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	246	vph
Length of first accel/decel lane	100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	220	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1874	246	220	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	521	68	61	v
Trucks and buses	5	4	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2238	290	263	pcph

Estimation of V12 Merge Areas

L_{EQ} = -509.61 (Equation 25-2 or 25-3)

P_{FM} = 0.580 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1299 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2528	6750	No
v_{R12}	1589	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 17.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.335	
Space mean speed in ramp influence area,	S_R = 50.6	mph
Space mean speed in outer lanes,	S_O = 53.4	mph
Space mean speed for all vehicles,	S = 51.6	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB on from Concord Ave.
Junction:	302
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1874	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	220	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	246	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1874	220	246	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	521	61	68	v
Trucks and buses	5	4	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2238	259	294	pcph

Estimation of V12 Merge Areas

L_{EQ} = -427.44 (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1311 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2497	6750	No
v_{R12}	1570	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 15.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.325	
Space mean speed in ramp influence area,	S_R = 50.8	mph
Space mean speed in outer lanes,	S_O = 53.5	mph
Space mean speed for all vehicles,	S = 51.7	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB on from Concord Ave.
Junction:	302
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1519	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	203	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	209	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1519	203	209	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	422	56	58	v
Trucks and buses	5	4	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1814	239	250	pcph

Estimation of V12 Merge Areas

L_{EQ} = -522.46 (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1063 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2053	6750	No
v_{R12}	1302	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 13.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.320

Space mean speed in ramp influence area, S_R = 50.8 mph

Space mean speed in outer lanes, S_O = 54.1 mph

Space mean speed for all vehicles, S = 52.0 mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB off to Concord Ave.
Junction:	303
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2120	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	246	vph
Length of first accel/decel lane	680	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	220	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2120		246		220		vph
Peak-hour factor, PHF	0.90		0.90		0.90		
Peak 15-min volume, v15	589		68		61		v
Trucks and buses	5		5		4		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		

Heavy vehicle adjustment, fHV	0.930	0.930	0.943	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2532	294	259	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.683 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1823 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2532	6750	No
v_{12}	1823	4400	No
$v_{FO} = v_F - v_R$	2238	6750	No
v_R	294	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 13.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.389	
Space mean speed in ramp influence area,	S_R = 49.9	mph
Space mean speed in outer lanes,	S_0 = 60.3	mph
Space mean speed for all vehicles,	S = 52.5	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB off to Concord Ave.
Junction:	303
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1728	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	209	vph
Length of first accel/decel lane	680	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	203	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	1728		209		203		vph
Peak-hour factor, PHF	0.90		0.90		0.90		
Peak 15-min volume, v15	480		58		56		v
Trucks and buses	5		5		4		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		

Heavy vehicle adjustment, fHV	0.930	0.930	0.943	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2064	250	239	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.697 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1514 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2064	6750	No
v_{12}	1514	4400	No
$v_{FO} = v_F - v_R$	1814	6750	No
v_R	250	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 11.2 pc/mi/ln

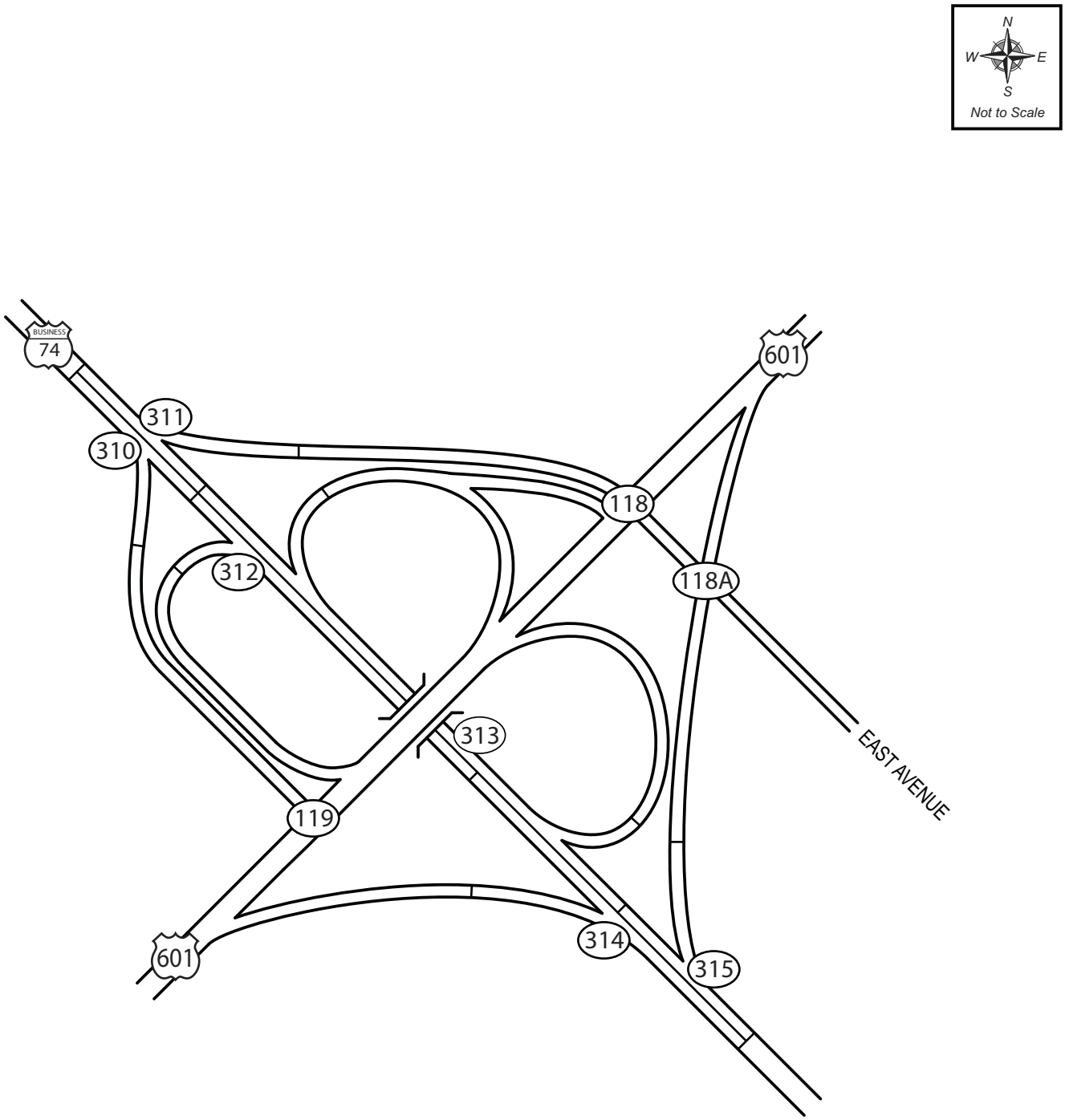
Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.386	
Space mean speed in ramp influence area,	S_R = 50.0	mph
Space mean speed in outer lanes,	S_0 = 60.3	mph
Space mean speed for all vehicles,	S = 52.4	mph

E-7-3

Business US 74 / US 601I/C



NORTH CAROLINA Turnpike Authority

MONROE CONNECTOR / BYPASS

TIP Project Numbers R-3329 & R-2559

Mecklenburg and Union Counties

Business US 74 Corridor
US 601
Key Sheet

Appendix E

KeySheetUS74CorridorUS601.ai

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*East Ave. at US 74 Off Ramp*
Agency/Co.	*PBS&J*	Jurisdiction	*118A*
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 2C*
Analysis Time Period	*AM Peak Hour*		
Project Description	*Monroe Connector/Bypass*		
East/West Street:	*East Ave.*	North/South Street:	*US 74 Off Ramp*
Intersection Orientation:	*North-South*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*10*	*490*	*10*			
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*11*	*544*	*11*	*0*	*0*	*0*
Percent Heavy Vehicles	*5*	--	--		--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration	*LTR*					
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume		*120*	*150*	*10*	*270*	
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*133*	*166*	*11*	*300*	*0*
Percent Heavy Vehicles		*5*	*5*	*8*	*8*	
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*				*TR*	*LT*		
v (vph)	*11*				*299*	*311*		
C (m) (vph)	*1604*				*475*	*395*		
v/c	*0.01*				*0.63*	*0.79*		
95% queue length	*0.02*				*4.27*	*6.76*		
Control Delay	*7.3*				*24.6*	*40.6*		
LOS	*A*				*C*	*E*		
Approach Delay	--	--	*24.6*			*40.6*		
Approach LOS	--	--	*C*			*E*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*East Ave. at US 74 Off Ramp*
Agency/Co.	*PBS&J*	Jurisdiction	*118A*
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 2C*
Analysis Time Period	*PM Peak Hour*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *East Ave.*	North/South Street: *US 74 Off Ramp*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*10*	*375*	*10*			
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*11*	*416*	*11*	*0*	*0*	*0*
Percent Heavy Vehicles	*5*	--	--		--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration	*LTR*					
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume		*150*	*150*	*10*	*290*	
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*166*	*166*	*11*	*322*	*0*
Percent Heavy Vehicles		*5*	*5*	*8*	*8*	
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*				*TR*	*LT*		
v (vph)	*11*				*332*	*333*		
C (m) (vph)	*1604*				*555*	*471*		
v/c	*0.01*				*0.60*	*0.71*		
95% queue length	*0.02*				*3.92*	*5.49*		
Control Delay	*7.3*				*20.7*	*29.0*		
LOS	*A*				*C*	*D*		
Approach Delay	--	--	*20.7*			*29.0*		
Approach LOS	--	--	*C*			*D*		

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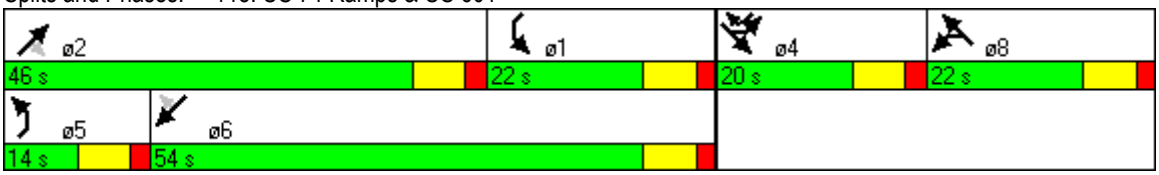
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	10	10	10	120	10	0	10	684	150	120	631	323
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.955							0.850			0.850
Flt Protected		0.984		0.950			0.950			0.950		
Satd. Flow (prot)	0	1700	0	1719	1810	0	1671	3343	1495	1671	3343	1495
Flt Permitted		0.984		0.950			0.950			0.950		
Satd. Flow (perm)	0	1700	0	1719	1810	0	1671	3343	1495	1671	3343	1495
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		412			451			446			441	
Travel Time (s)		8.0			8.8			6.8			6.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	8%	8%	8%	8%	8%	8%
Adj. Flow (vph)	11	11	11	133	11	0	11	760	167	133	701	359
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	33	0	133	11	0	11	760	167	133	701	359
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split			Prot		Perm	Prot		pm+ov
Protected Phases	4	4		8	8		5	2		1	6	4
Permitted Phases									2			6
Detector Phase	4	4		8	8		5	2	2	1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	14.0
Total Split (s)	20.0	20.0	0.0	22.0	22.0	0.0	14.0	46.0	46.0	22.0	54.0	20.0
Total Split (%)	18.2%	18.2%	0.0%	20.0%	20.0%	0.0%	12.7%	41.8%	41.8%	20.0%	49.1%	18.2%
Maximum Green (s)	13.0	13.0		15.0	15.0		7.0	39.0	39.0	15.0	47.0	13.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	None	None
Act Effct Green (s)		10.2		15.3	15.3		9.0	49.6	49.6	14.8	66.7	81.9
Actuated g/C Ratio		0.09		0.14	0.14		0.08	0.45	0.45	0.13	0.61	0.74
v/c Ratio		0.21		0.56	0.04		0.08	0.50	0.25	0.59	0.35	0.32
Control Delay		48.7		52.7	39.3		48.2	24.3	21.9	55.4	13.0	7.0
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		48.7		52.7	39.3		48.2	24.3	21.9	55.4	13.0	7.0
LOS		D		D	D		D	C	C	E	B	A
Approach Delay		48.7			51.6			24.1			15.9	
Approach LOS		D			D			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 2:NET, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 22.0		Intersection LOS: C	
Intersection Capacity Utilization 51.4%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 118: US 74 Ramps & US 601



Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (vph)	329	150	0	709	684	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	3335	1538	0	3343	3343	0
Flt Permitted	0.950					
Satd. Flow (perm)	3335	1538	0	3343	3343	0
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	35			45	45	
Link Distance (ft)	529			486	575	
Travel Time (s)	10.3			7.4	8.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	8%	8%	8%	8%
Adj. Flow (vph)	366	167	0	788	760	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	366	167	0	788	760	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (ft)	20	20		100	100	
Trailing Detector (ft)	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	
Detector 1 Size(ft)	20	20		6	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type		Perm				
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						
Minimum Initial (s)	7.0	7.0		12.0	12.0	

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Minimum Split (s)	14.0	14.0		19.0	19.0	
Total Split (s)	42.0	42.0	0.0	68.0	68.0	0.0
Total Split (%)	38.2%	38.2%	0.0%	61.8%	61.8%	0.0%
Maximum Green (s)	35.0	35.0		61.0	61.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		C-Max	C-Max	
Act Effct Green (s)	37.0	37.0		63.0	63.0	
Actuated g/C Ratio	0.34	0.34		0.57	0.57	
v/c Ratio	0.33	0.32		0.41	0.40	
Control Delay	28.2	29.4		13.9	13.8	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	28.2	29.4		13.9	13.8	
LOS	C	C		B	B	
Approach Delay	28.6			13.9	13.8	
Approach LOS	C			B	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 2:NET and 6:SWT, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.41			
Intersection Signal Delay: 17.6		Intersection LOS: B	
Intersection Capacity Utilization 37.3%		ICU Level of Service A	
Analysis Period (min) 15			

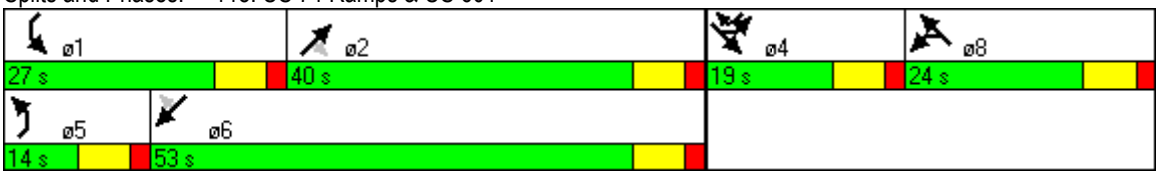
Splits and Phases: 119: EB US 74 Off Ramp & US 601

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	10	10	10	150	10	0	10	579	120	170	845	329
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.955							0.850			0.850
Flt Protected		0.984		0.950			0.950			0.950		
Satd. Flow (prot)	0	1700	0	1719	1810	0	1671	3343	1495	1671	3343	1495
Flt Permitted		0.984		0.950			0.950			0.950		
Satd. Flow (perm)	0	1700	0	1719	1810	0	1671	3343	1495	1671	3343	1495
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		412			451			446			441	
Travel Time (s)		8.0			8.8			6.8			6.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	8%	8%	8%	8%	8%	8%
Adj. Flow (vph)	11	11	11	167	11	0	11	643	133	189	939	366
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	33	0	167	11	0	11	643	133	189	939	366
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split			Prot		Perm	Prot		pm+ov
Protected Phases	4	4		8	8		5	2		1	6	4
Permitted Phases									2			6
Detector Phase	4	4		8	8		5	2	2	1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	14.0
Total Split (s)	19.0	19.0	0.0	24.0	24.0	0.0	14.0	40.0	40.0	27.0	53.0	19.0
Total Split (%)	17.3%	17.3%	0.0%	21.8%	21.8%	0.0%	12.7%	36.4%	36.4%	24.5%	48.2%	17.3%
Maximum Green (s)	12.0	12.0		17.0	17.0		7.0	33.0	33.0	20.0	46.0	12.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		Max	Max		None	C-Max	C-Max	None	None	None
Act Effct Green (s)		10.2		22.8	22.8		9.0	38.3	38.3	18.7	59.2	74.4
Actuated g/C Ratio		0.09		0.21	0.21		0.08	0.35	0.35	0.17	0.54	0.68
v/c Ratio		0.21		0.47	0.03		0.08	0.55	0.26	0.66	0.52	0.36
Control Delay		48.7		44.0	36.4		48.2	31.9	28.5	53.9	18.5	9.4
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		48.7		44.0	36.4		48.2	31.9	28.5	53.9	18.5	9.4
LOS		D		D	D		D	C	C	D	B	A
Approach Delay		48.7			43.5			31.5			20.8	
Approach LOS		D			D			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 2:NET, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 26.2		Intersection LOS: C	
Intersection Capacity Utilization 56.7%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 118: US 74 Ramps & US 601



Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (vph)	323	204	0	526	808	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	3335	1538	0	3343	3343	0
Flt Permitted	0.950					
Satd. Flow (perm)	3335	1538	0	3343	3343	0
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	35			45	45	
Link Distance (ft)	529			486	575	
Travel Time (s)	10.3			7.4	8.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	8%	8%	8%	8%
Adj. Flow (vph)	359	227	0	584	898	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	359	227	0	584	898	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (ft)	20	20		100	100	
Trailing Detector (ft)	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	
Detector 1 Size(ft)	20	20		6	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type		Perm				
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						
Minimum Initial (s)	7.0	7.0		12.0	12.0	

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Minimum Split (s)	14.0	14.0		19.0	19.0	
Total Split (s)	46.0	46.0	0.0	64.0	64.0	0.0
Total Split (%)	41.8%	41.8%	0.0%	58.2%	58.2%	0.0%
Maximum Green (s)	39.0	39.0		57.0	57.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		None	None	
Act Effct Green (s)	41.2	41.2		30.3	30.3	
Actuated g/C Ratio	0.51	0.51		0.37	0.37	
v/c Ratio	0.21	0.29		0.47	0.72	
Control Delay	12.6	14.3		20.6	25.6	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	12.6	14.3		20.6	25.6	
LOS	B	B		C	C	
Approach Delay	13.2			20.6	25.6	
Approach LOS	B			C	C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 81.5			
Natural Cycle: 40			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 20.7		Intersection LOS: C	
Intersection Capacity Utilization 43.3%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 119: EB US 74 Off Ramp & US 601

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB off to US 601
Junction:	310
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1725	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	479	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	375	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	700	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1725	479	375	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	479	133	104	v
Trucks and buses	5	5	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2060	572	467	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.682 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1587 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2060	6750	No
v_{12}	1587	4400	No
$v_{FO} = v_F - v_R$	1488	6750	No
v_R	572	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 16.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.414	
Space mean speed in ramp influence area,	S_R = 49.6	mph
Space mean speed in outer lanes,	S_0 = 60.3	mph
Space mean speed for all vehicles,	S = 51.7	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB off to US 601
Junction:	310
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2125	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	527	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	490	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	700	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2125	527	490	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	590	146	136	v
Trucks and buses	5	5	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2538	629	610	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.668 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1903 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2538	6750	No
v_{12}	1903	4400	No
$v_{FO} = v_F - v_R$	1909	6750	No
v_R	629	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 18.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.420	
Space mean speed in ramp influence area,	S_R = 49.5	mph
Space mean speed in outer lanes,	S_0 = 60.3	mph
Space mean speed for all vehicles,	S = 51.9	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB on from US 601
Junction:	311
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1802	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	40.0	mph
Volume on ramp	333	vph
Length of first accel/decel lane	250	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	428	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1802	333	428	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	501	93	119	v
Trucks and buses	5	8	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2152	414	511	pcph

Estimation of V12 Merge Areas

L_{EQ} = 349.92 (Equation 25-2 or 25-3)

P_{FM} = 0.585 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1258 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2566	6750	No
v_{R12}	1672	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 16.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.322

Space mean speed in ramp influence area, S_R = 50.8 mph

Space mean speed in outer lanes, S_O = 53.6 mph

Space mean speed for all vehicles, S = 51.7 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB on from US 601
Junction:	311
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1396	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	40.0	mph
Volume on ramp	339	vph
Length of first accel/decel lane	250	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	453	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1396	339	453	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	388	94	126	v
Trucks and buses	5	8	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1667	422	541	pcph

Estimation of V12 Merge Areas

L_{EQ} = 247.85 (Equation 25-2 or 25-3)

P_{FM} = 0.585 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 974 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2089	6750	No
v_{R12}	1396	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 14.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.317

Space mean speed in ramp influence area, S_R = 50.9 mph

Space mean speed in outer lanes, S_O = 54.3 mph

Space mean speed for all vehicles, S = 52.0 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB on from US 601 SB
Junction:	312
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1246	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	375	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	479	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	700	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1246	375	479	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	346	104	133	v
Trucks and buses	5	8	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1488	467	572	pcph

Estimation of V12 Merge Areas

L_{EQ} = -543.43 (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 872 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	1955	6750	No
v_{R12}	1339	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 13.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.321

Space mean speed in ramp influence area, S_R = 50.8 mph

Space mean speed in outer lanes, S_O = 54.6 mph

Space mean speed for all vehicles, S = 52.0 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB on from US 601 SB
Junction:	312
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1598	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	490	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	527	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	700	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1598	490	527	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	444	136	146	v
Trucks and buses	5	8	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1909	610	629	pcph

Estimation of V12 Merge Areas

L_{EQ} = -422.73 (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1118 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2519	6750	No
v_{R12}	1728	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 16.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.328

Space mean speed in ramp influence area, S_R = 50.7 mph

Space mean speed in outer lanes, S_O = 54.0 mph

Space mean speed for all vehicles, S = 51.7 mph

FREEWAY WEAVING WORKSHEET

General Information

Analyst	OSR
Agency/Company	PBSJ
Date Performed	4/30/08
Analysis Time Period	AM Peak

Site Information

Freeway/Dir of Travel	US 74 WB
Weaving Seg Location	313
Jurisdiction	
Analysis Year	2035 Build Alternative 2C

Inputs

Freeway free-flow speed, S_{FF} (mi/h)	55	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.29
Weaving seg length, L (ft)	550	Weaving ratio, R	0.33
Terrain	Rolling		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	1598	0.90	5	0	2.5	2.0	0.930	1.00	1908
Vo2	0	0.90	0	0	2.5	2.0	1.000	1.00	0
Vw1	428	0.90	5	0	2.5	2.0	0.930	1.00	511
Vw2	204	0.90	8	0	2.5	2.0	0.893	1.00	253
Vw				764	Vnw				1908
V									2672

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.15	0.00		
b (Exhibit 24-6)	2.20	4.00		
c (Exhibit 24-6)	0.97	1.30		
d (Exhibit 24-6)	0.80	0.75		
Weaving intensity factor, Wi	0.92	0.40		
Weaving and non-weaving speeds, Si (mi/h)	38.43	47.23		

Number of lanes required for unconstrained operation, Nw 1.28
Maximum number of lanes, Nw (max) 1.40

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	44.33
Weaving segment density, D (pc/mi/ln)	15.07
Level of service, LOS	B
Capacity of base condition, c_b (pc/h)	5848
Capacity as a 15-minute flow rate, c (veh/h)	5440
Capacity as a full-hour volume, c_h (veh/h)	4896

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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FREEWAY WEAVING WORKSHEET

General Information

Analyst	OSR
Agency/Company	PBSJ
Date Performed	4/30/08
Analysis Time Period	PM Peak

Site Information

Freeway/Dir of Travel	US 74 WB
Weaving Seg Location	313
Jurisdiction	
Analysis Year	2035 Build Alternative 2C

Inputs

Freeway free-flow speed, SFF (mi/h)	55	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.33
Weaving seg length, L (ft)	550	Weaving ratio, R	0.26
Terrain	Rolling		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	1246	0.90	5	0	2.5	2.0	0.930	1.00	1488
Vo2	0	0.90	0	0	2.5	2.0	1.000	1.00	0
Vw1	453	0.90	5	0	2.5	2.0	0.930	1.00	541
Vw2	150	0.90	8	0	2.5	2.0	0.893	1.00	186
Vw				727	Vnw				1488
V									2215

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.15	0.00		
b (Exhibit 24-6)	2.20	4.00		
c (Exhibit 24-6)	0.97	1.30		
d (Exhibit 24-6)	0.80	0.75		
Weaving intensity factor, Wi	0.82	0.35		
Weaving and non-weaving speeds, Si (mi/h)	39.67	48.25		

Number of lanes required for unconstrained operation, Nw 1.37
Maximum number of lanes, Nw (max) 1.40

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	45.05
Weaving segment density, D (pc/mi/ln)	12.29
Level of service, LOS	B
Capacity of base condition, c_b (pc/h)	5624
Capacity as a 15-minute flow rate, c (veh/h)	5232
Capacity as a full-hour volume, c_h (veh/h)	4709

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB on from US 601 NB
Junction:	314
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1621	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	40.0	mph
Volume on ramp	453	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	375	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1621	453	375	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	450	126	104	v
Trucks and buses	5	8	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1936	564	467	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1134 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2500	6750	No
v_{R12}	1698	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 16.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.318

Space mean speed in ramp influence area, S_R = 50.9 mph

Space mean speed in outer lanes, S_O = 53.9 mph

Space mean speed for all vehicles, S = 51.8 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB on from US 601 NB
Junction:	314
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2088	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	40.0	mph
Volume on ramp	428	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	490	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2088	428	490	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	580	119	136	v
Trucks and buses	5	8	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2494	533	610	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1461 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3027	6750	No
v_{R12}	1994	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 18.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.326	
Space mean speed in ramp influence area,	S_R = 50.8	mph
Space mean speed in outer lanes,	S_O = 53.1	mph
Space mean speed for all vehicles,	S = 51.5	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB off to US 601
Junction:	315
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2516	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	490	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	204	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	400	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2516	490	204	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	699	136	57	v
Trucks and buses	5	5	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3005	585	254	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.658 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2177 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3005	6750	No
v_{12}	2177	4400	No
$v_{FO} = v_F - v_R$	2420	6750	No
v_R	585	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 20.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.416	
Space mean speed in ramp influence area,	S_R = 49.6	mph
Space mean speed in outer lanes,	S_O = 60.3	mph
Space mean speed for all vehicles,	S = 52.2	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB off to US 601
Junction:	315
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2C
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2074	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	375	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	150	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	400	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2074		375		150		vph
Peak-hour factor, PHF	0.90		0.90		0.90		
Peak 15-min volume, v15	576		104		42		v
Trucks and buses	5		5		8		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		

Heavy vehicle adjustment, fHV	0.930	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2477	448	187	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.677 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1823 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2477	6750	No
v_{12}	1823	4400	No
$v_{FO} = v_F - v_R$	2029	6750	No
v_R	448	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 17.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.403	
Space mean speed in ramp influence area,	S_R = 49.8	mph
Space mean speed in outer lanes,	S_0 = 60.3	mph
Space mean speed for all vehicles,	S = 52.2	mph

E-8

Alternative 2D

E-8-1

Business US 74 Intersections

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*US 74 and Bivens Road*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Toll Alternative 2D*
Analysis Time Period	*AM Peak*		

Project Description *Monroe Connector/Bypass*

East/West Street: *US 74* | North/South Street: *Bivens Road*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*120*	*1110*	*10*	*10*	*1369*	*135*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*133*	*1233*	*11*	*11*	*1521*	*150*
Proportion of heavy vehicles, P_{HV}	*4*	--	--	*4*	--	--
Median type	*Undivided*					
RT Channelized?			*0*			*1*
Lanes	*1*	*2*	*1*	*1*	*2*	*1*
Configuration	*L*	*T*	*R*	*L*	*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*10*	*10*	*10*	*101*	*10*	*111*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*11*	*11*	*11*	*112*	*11*	*123*
Proportion of heavy vehicles, P_{HV}	*2*	*2*	*2*	*2*	*2*	*2*
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
Volume, v (vph)	*133*	*11*		*33*			*246*	
Capacity, c_m (vph)	*425*	*545*		*0*			*0*	
v/c ratio	*0.31*	*0.02*						
Queue length (95%)	*1.32*	*0.06*						
Control Delay (s/veh)	*17.3*	*11.7*						
LOS	*C*	*B*		*F*			*F*	
Approach delay (s/veh)	--	--						
Approach LOS	--	--						

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*US 74 and Bivens Road*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Toll Alternative 2D*
Analysis Time Period	*PM Peak*		

Project Description *Monroe Connector/Bypass*

East/West Street: *US 74* | North/South Street: *Bivens Road*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*111*	*1369*	*10*	*10*	*1110*	*101*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*123*	*1521*	*11*	*11*	*1233*	*112*
Proportion of heavy vehicles, P_{HV}	*4*	--	--	*4*	--	--
Median type	*Undivided*					
RT Channelized?			*0*			*1*
Lanes	*1*	*2*	*1*	*1*	*2*	*1*
Configuration	*L*	*T*	*R*	*L*	*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*10*	*10*	*10*	*135*	*10*	*120*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*11*	*11*	*11*	*150*	*11*	*133*
Proportion of heavy vehicles, P_{HV}	*2*	*2*	*2*	*2*	*2*	*2*
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
Volume, v (vph)	*123*	*11*		*33*			*294*	
Capacity, c_m (vph)	*550*	*421*		*0*			*0*	
v/c ratio	*0.22*	*0.03*						
Queue length (95%)	*0.85*	*0.08*						
Control Delay (s/veh)	*13.4*	*13.8*						
LOS	*B*	*B*		*F*			*F*	
Approach delay (s/veh)	--	--						
Approach LOS	--	--						

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*OSR*
Agency/Co.	*PBS&J*
Date Performed	*4/30/08*
Analysis Time Period	*AM Peak*

Site Information

Intersection	*US 74 and Seacrest Shortcut*
Jurisdiction	
Analysis Year	*2035 Build Toll Alternative 2D*

Project Description *Monroe Connector/Bypass*

East/West Street: *US 74* | North/South Street: *Seacrest Shortcut RIRO*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*0*	*871*	*306*	*0*	*1362*	*0*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*0*	*967*	*340*	*0*	*1513*	*0*
Proportion of heavy vehicles, P_{HV}		--	--		--	--
Median type	*Undivided*					
RT Channelized?			*0*			*1*
Lanes	*0*	*2*	*1*	*0*	*2*	*0*
Configuration		*T*	*R*		*T*	
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*427*	*0*	*0*	*0*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*0*	*0*	*474*	*0*	*0*	*0*
Proportion of heavy vehicles, P_{HV}			*4*			
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					*R*			
Volume, v (vph)					*474*			
Capacity, c_m (vph)					*523*			
v/c ratio					*0.91*			
Queue length (95%)					*10.62*			
Control Delay (s/veh)					*47.8*			
LOS					*E*			
Approach delay (s/veh)	--	--	*47.8*					
Approach LOS	--	--	*E*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*US 74 and Seacrest Shortcut*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Toll Alternative 2D*
Analysis Time Period	*PM Peak*		

Project Description *Monroe Connector/Bypass*

East/West Street: *US 74* | North/South Street: *Seacrest Shortcut RIRO*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*0*	*1118*	*430*	*0*	*1114*	*0*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*0*	*1242*	*477*	*0*	*1237*	*0*
Proportion of heavy vehicles, P_{HV}		--	--		--	--
Median type	*Undivided*					
RT Channelized?			*0*			*1*
Lanes	*0*	*2*	*1*	*0*	*2*	*0*
Configuration		*T*	*R*		*T*	
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*305*	*0*	*0*	*0*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*0*	*0*	*338*	*0*	*0*	*0*
Proportion of heavy vehicles, P_{HV}			*4*			
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					*R*			
Volume, v (vph)					*338*			
Capacity, c_m (vph)					*425*			
v/c ratio					*0.80*			
Queue length (95%)					*7.07*			
Control Delay (s/veh)					*39.2*			
LOS					*E*			
Approach delay (s/veh)	--	--	*39.2*					
Approach LOS	--	--	*E*					

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	463	125	45	44	203	105	70	2428	498	60	3031	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1719	3438	1538	1719	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	1719	3438	1538	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			45			55			55	
Link Distance (ft)		1096			1168			1536			3465	
Travel Time (s)		21.4			17.7			19.0			43.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	514	139	50	49	226	117	78	2698	553	67	3368	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	514	139	50	49	226	117	78	2698	553	67	3368	40
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	1	6	7	5	2	3
Permitted Phases			4			8			6			2
Detector Phase	7	4	5	3	8	1	1	6	7	5	2	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	14.0	7.0	7.0	14.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0	14.0	14.0	21.0	14.0	14.0	21.0	14.0
Total Split (s)	21.0	21.0	14.0	14.0	14.0	14.0	14.0	91.0	21.0	14.0	91.0	14.0
Total Split (%)	15.0%	15.0%	10.0%	10.0%	10.0%	10.0%	10.0%	65.0%	15.0%	10.0%	65.0%	10.0%
Maximum Green (s)	14.0	14.0	7.0	7.0	7.0	7.0	7.0	84.0	14.0	7.0	84.0	7.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	16.0	18.8	32.8	9.0	9.0	23.0	9.0	86.0	107.0	9.0	86.0	100.0
Actuated g/C Ratio	0.11	0.13	0.23	0.06	0.06	0.16	0.06	0.61	0.76	0.06	0.61	0.71
v/c Ratio	1.31	0.29	0.13	0.22	0.99	0.45	0.70	1.28	0.47	0.60	1.59	0.04
Control Delay	204.1	58.0	45.8	64.8	121.9	59.1	95.4	155.4	7.6	86.3	294.5	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	204.1	58.0	45.8	64.8	121.9	59.1	95.4	155.4	7.6	86.3	294.5	6.0
LOS	F	E	D	E	F	E	F	F	A	F	F	A
Approach Delay		164.0			96.0			129.5			287.2	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.59			
Intersection Signal Delay: 200.3		Intersection LOS: F	
Intersection Capacity Utilization 116.0%		ICU Level of Service H	
Analysis Period (min) 15			

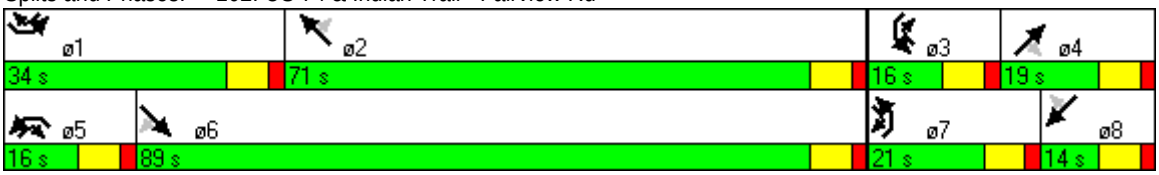
Splits and Phases: 101: Stallings Road & US 74

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	349	1674	480	120	2049	88	455	128	92	132	248	642
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3335	3438	1538	1719	3438	1538	3335	3438	1538	3335	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3438	1538	1719	3438	1538	3335	3438	1538	3335	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			35			35	
Link Distance (ft)		2103			2380			902			1112	
Travel Time (s)		26.1			29.5			17.6			21.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	388	1860	533	133	2277	98	506	142	102	147	276	713
Shared Lane Traffic (%)												
Lane Group Flow (vph)	388	1860	533	133	2277	98	506	142	102	147	276	713
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	1	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	5	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	5	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94				
Detector 2 Size(ft)		6			6			6				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	7.0	14.0	7.0	7.0	14.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.5	21.0	14.0	14.0	21.0	14.0	14.0	14.0	14.0	14.0	14.0	14.5
Total Split (s)	34.0	89.0	21.0	16.0	71.0	16.0	21.0	19.0	16.0	16.0	14.0	34.0
Total Split (%)	24.3%	63.6%	15.0%	11.4%	50.7%	11.4%	15.0%	13.6%	11.4%	11.4%	10.0%	24.3%
Maximum Green (s)	27.0	82.0	14.0	9.0	64.0	9.0	14.0	12.0	9.0	9.0	7.0	27.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	29.0	84.0	105.0	11.0	66.0	81.8	16.0	14.2	30.2	10.8	9.0	43.0
Actuated g/C Ratio	0.21	0.60	0.75	0.08	0.47	0.58	0.11	0.10	0.22	0.08	0.06	0.31
v/c Ratio	0.56	0.90	0.46	0.99	1.40	0.11	1.33	0.41	0.31	0.57	1.25	1.51
Control Delay	53.4	31.9	8.2	136.9	216.9	13.3	211.0	62.9	49.3	71.4	195.1	275.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.4	31.9	8.2	136.9	216.9	13.3	211.0	62.9	49.3	71.4	195.1	275.2
LOS	D	C	A	F	F	B	F	E	D	E	F	F
Approach Delay		30.4			204.7			161.0			229.4	
Approach LOS		C			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.51			
Intersection Signal Delay: 136.5		Intersection LOS: F	
Intersection Capacity Utilization 121.9%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 102: US 74 & Indian Trail - Fairview Rd

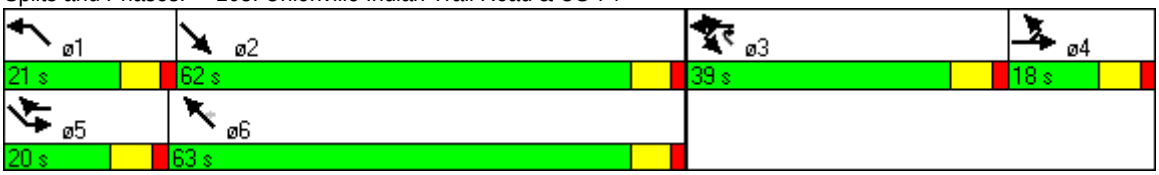


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	40	151	139	454	364	682	396	1354	56	238	1652	322
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Frt		0.937				0.850		0.994				0.850
Flt Protected		0.994		0.950	0.994		0.950			0.950		
Satd. Flow (prot)	0	3264	0	1665	1742	1568	3335	3417	0	1719	3438	1538
Flt Permitted		0.994		0.950	0.994		0.950			0.950		
Satd. Flow (perm)	0	3264	0	1665	1742	1568	3335	3417	0	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			45			55			55	
Link Distance (ft)		795			1304			1032			1062	
Travel Time (s)		15.5			19.8			12.8			13.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	44	168	154	504	404	758	440	1504	62	264	1836	358
Shared Lane Traffic (%)				12%								
Lane Group Flow (vph)	0	366	0	444	464	758	440	1566	0	264	1836	358
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pt+ov	Prot			Prot		pm+ov
Protected Phases	4	4		3	3	3 5	5	2		1	6	3
Permitted Phases												6
Detector Phase	4	4		3	3	3 5	5	2		1	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	14.0		7.0	14.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	21.0		14.0	21.0	14.0
Total Split (s)	18.0	18.0	0.0	39.0	39.0	59.0	20.0	62.0	0.0	21.0	63.0	39.0
Total Split (%)	12.9%	12.9%	0.0%	27.9%	27.9%	42.1%	14.3%	44.3%	0.0%	15.0%	45.0%	27.9%
Maximum Green (s)	11.0	11.0		32.0	32.0		13.0	55.0		14.0	56.0	32.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	None
Act Effct Green (s)		13.0		34.0	34.0	49.0	15.0	57.0		16.0	58.0	97.0
Actuated g/C Ratio		0.09		0.24	0.24	0.35	0.11	0.41		0.11	0.41	0.69
v/c Ratio		1.21		1.10	1.10	1.38	1.23	1.13		1.35	1.29	0.34
Control Delay		172.2		122.8	121.2	210.0	176.8	105.1		231.5	170.7	9.6
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay		172.2		122.8	121.2	210.0	176.8	105.1		231.5	170.7	9.6
LOS		F		F	F	F	F	F		F	F	A
Approach Delay		172.2			162.0			120.8			153.8	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.38			
Intersection Signal Delay: 146.7		Intersection LOS: F	
Intersection Capacity Utilization 110.2%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 103: Unionville Indian Trail Road & US 74



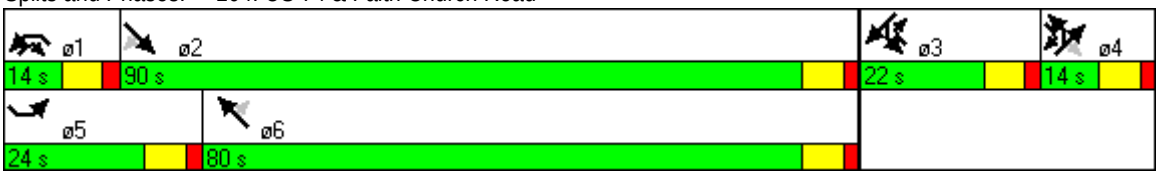
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	256	1627	24	39	2016	320	40	14	53	201	7	199
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.855	
Flt Protected	0.950			0.950				0.965		0.950		
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	0	1682	1482	1770	1593	0
Flt Permitted	0.950			0.950				0.965		0.950		
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	0	1682	1482	1770	1593	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			15			35	
Link Distance (ft)		1177			2588			625			368	
Travel Time (s)		14.6			32.1			28.4			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	9%	9%	9%	2%	2%	2%
Adj. Flow (vph)	284	1808	27	43	2240	356	44	16	59	223	8	221
Shared Lane Traffic (%)												
Lane Group Flow (vph)	284	1808	27	43	2240	356	0	60	59	223	229	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	1	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	5	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	5	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94				
Detector 2 Size(ft)		6			6			6				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type	Prot		pm+ov	Prot		pm+ov	Split		pm+ov	Split		
Protected Phases	5	2	4	1	6	3	4	4	1	3	3	
Permitted Phases			2			6			4			
Detector Phase	5	2	4	1	6	3	4	4	1	3	3	
Switch Phase												
Minimum Initial (s)	7.0	14.0	7.0	7.0	14.0	7.0	7.0	7.0	7.0	7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	21.0	14.0	14.0	21.0	14.0	14.0	14.0	14.0	14.0	14.0	
Total Split (s)	24.0	90.0	14.0	14.0	80.0	22.0	14.0	14.0	14.0	22.0	22.0	0.0
Total Split (%)	17.1%	64.3%	10.0%	10.0%	57.1%	15.7%	10.0%	10.0%	10.0%	15.7%	15.7%	0.0%
Maximum Green (s)	17.0	83.0	7.0	7.0	73.0	15.0	7.0	7.0	7.0	15.0	15.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	
Act Effct Green (s)	21.8	90.6	97.8	9.0	75.0	97.0		9.0	20.2	17.0	17.0	
Actuated g/C Ratio	0.16	0.65	0.70	0.06	0.54	0.69		0.06	0.14	0.12	0.12	
v/c Ratio	1.06	0.81	0.03	0.39	1.22	0.33		0.56	0.28	1.04	1.19	
Control Delay	127.5	24.2	4.0	73.5	133.2	9.6		83.3	55.2	130.0	175.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	127.5	24.2	4.0	73.5	133.2	9.6		83.3	55.2	130.0	175.3	
LOS	F	C	A	E	F	A		F	E	F	F	
Approach Delay		37.8			115.6			69.4			152.9	
Approach LOS		D			F			E			F	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green
Natural Cycle: 180
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.22
Intersection Signal Delay: 86.8 Intersection LOS: F
Intersection Capacity Utilization 105.1% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 104: US 74 & Faith Church Road

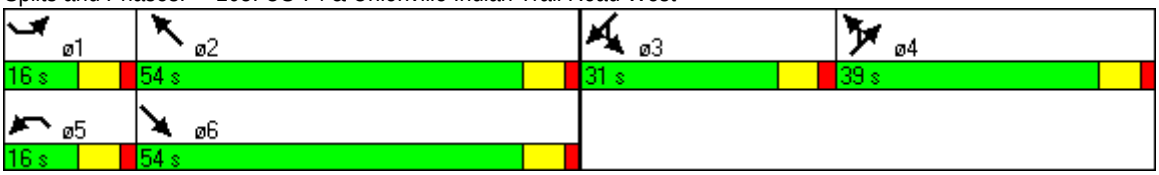


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	176	960	784	164	1300	259	727	109	112	325	200	299
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.933			0.975			0.924			0.910	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3208	0	1719	3352	0	1770	1721	0	1770	1695	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3208	0	1719	3352	0	1770	1721	0	1770	1695	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		606			973			698			813	
Travel Time (s)		7.5			12.1			10.6			12.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	196	1067	871	182	1444	288	808	121	124	361	222	332
Shared Lane Traffic (%)												
Lane Group Flow (vph)	196	1938	0	182	1732	0	808	245	0	361	554	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	1	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	5	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	5	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94				
Detector 2 Size(ft)		6			6			6				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type	Prot			Prot			Split			Split		
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases												
Detector Phase	1	6		5	2		4	4		3	3	
Switch Phase												
Minimum Initial (s)	7.0	14.0		7.0	14.0		7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	21.0		14.0	21.0		14.0	14.0		14.0	14.0	
Total Split (s)	16.0	54.0	0.0	16.0	54.0	0.0	39.0	39.0	0.0	31.0	31.0	0.0
Total Split (%)	11.4%	38.6%	0.0%	11.4%	38.6%	0.0%	27.9%	27.9%	0.0%	22.1%	22.1%	0.0%
Maximum Green (s)	9.0	47.0		9.0	47.0		32.0	32.0		24.0	24.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	11.0	49.0		11.0	49.0		34.0	34.0		26.0	26.0	
Actuated g/C Ratio	0.08	0.35		0.08	0.35		0.24	0.24		0.19	0.19	
v/c Ratio	1.45	1.73		1.35	1.48		1.88	0.59		1.10	1.76	
Control Delay	282.9	360.2		244.3	253.1		434.3	53.4		130.1	387.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	282.9	360.2		244.3	253.1		434.3	53.4		130.1	387.3	
LOS	F	F		F	F		F	D		F	F	
Approach Delay		353.1			252.2			345.7			285.9	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 170			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.88			
Intersection Signal Delay: 309.5		Intersection LOS: F	
Intersection Capacity Utilization 146.6%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 105: US 74 & Unionville Indian Trail Road West

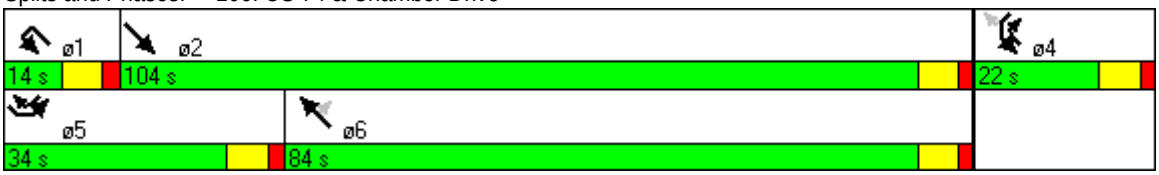


Lane Group	SEL	SET	NWU	NWT	NWR	SWL	SWR
Lane Configurations							
Volume (vph)	130	1210	10	1431	52	125	371
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Frt					0.850		0.850
Flt Protected	0.950		0.950			0.950	
Satd. Flow (prot)	1719	3438	1719	3438	1538	1770	1583
Flt Permitted	0.950		0.950			0.950	
Satd. Flow (perm)	1719	3438	1719	3438	1538	1770	1583
Right Turn on Red					No		No
Satd. Flow (RTOR)							
Link Speed (mph)		55		55		35	
Link Distance (ft)		2407		1378		1258	
Travel Time (s)		29.8		17.1		24.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	2%	2%
Adj. Flow (vph)	144	1344	11	1590	58	139	412
Shared Lane Traffic (%)							
Lane Group Flow (vph)	144	1344	11	1590	58	139	412
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Left	R NA	Left	Right	Left	Right
Median Width(ft)		12		12		12	
Link Offset(ft)		0		0		0	
Crosswalk Width(ft)		0		0		0	
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9		9	15	9
Number of Detectors	1	2	1	2	1	1	1
Detector Template	Left	Thru	Left	Thru	Right	Left	Right
Leading Detector (ft)	20	100	20	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94		94			
Detector 2 Size(ft)		6		6			
Detector 2 Type		Cl+Ex		Cl+Ex			
Detector 2 Channel							
Detector 2 Extend (s)		0.0		0.0			
Turn Type	Prot		Prot		pm+ov		pm+ov
Protected Phases	5	2	1	6	4	4	5
Permitted Phases					6		4
Detector Phase	5	2	1	6	4	4	5
Switch Phase							
Minimum Initial (s)	7.0	14.0	7.0	14.0	7.0	7.0	7.0

Lane Group	SEL	SET	NWU	NWT	NWR	SWL	SWR
Minimum Split (s)	14.0	21.0	14.0	21.0	14.0	14.0	14.0
Total Split (s)	34.0	104.0	14.0	84.0	22.0	22.0	34.0
Total Split (%)	24.3%	74.3%	10.0%	60.0%	15.7%	15.7%	24.3%
Maximum Green (s)	27.0	97.0	7.0	77.0	15.0	15.0	27.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag			Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	C-Max	None	None	None
Act Effct Green (s)	25.8	108.6	9.0	83.3	104.2	15.8	46.7
Actuated g/C Ratio	0.18	0.78	0.06	0.60	0.74	0.11	0.33
v/c Ratio	0.45	0.50	0.10	0.78	0.05	0.70	0.78
Control Delay	55.1	7.5	63.9	25.6	5.4	78.0	52.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.1	7.5	63.9	25.6	5.4	78.0	52.9
LOS	E	A	E	C	A	E	D
Approach Delay		12.1		25.1		59.2	
Approach LOS		B		C		E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay: 25.0		Intersection LOS: C	
Intersection Capacity Utilization 70.9%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 106: US 74 & Chamber Drive

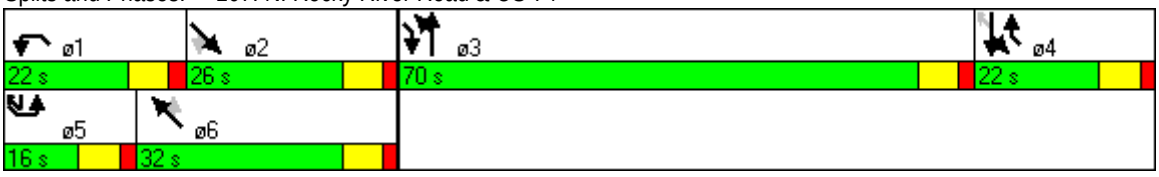


Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	809	121	371	204	106	266	176	510	472	274	646	171
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.962				0.850			0.850			0.850
Flt Protected		0.970			0.968		0.950			0.950		
Satd. Flow (prot)	0	1738	0	0	1803	1583	1719	3438	1538	1719	3438	1538
Flt Permitted		0.970			0.968		0.950			0.950		
Satd. Flow (perm)	0	1738	0	0	1803	1583	1719	3438	1538	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		1176			418			3021			3350	
Travel Time (s)		17.8			6.3			37.5			41.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	899	134	412	227	118	296	196	567	524	304	718	190
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1445	0	0	345	296	196	567	524	304	718	190
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	3	3		4	4	5	5	2	3	1	6	4
Permitted Phases						4			2			6
Detector Phase	3	3		4	4	5	5	2	3	1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	14.0	7.0	7.0	14.0	7.0

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0	14.0	14.0	21.0	14.0	14.0	21.0	14.0
Total Split (s)	70.0	70.0	0.0	22.0	22.0	16.0	16.0	26.0	70.0	22.0	32.0	22.0
Total Split (%)	50.0%	50.0%	0.0%	15.7%	15.7%	11.4%	11.4%	18.6%	50.0%	15.7%	22.9%	15.7%
Maximum Green (s)	63.0	63.0		15.0	15.0	9.0	9.0	19.0	63.0	15.0	25.0	15.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead		Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)		65.0			17.0	33.0	11.0	21.0	91.0	17.0	27.0	44.0
Actuated g/C Ratio		0.46			0.12	0.24	0.08	0.15	0.65	0.12	0.19	0.31
v/c Ratio		1.79			1.58	0.79	1.45	1.10	0.52	1.45	1.08	0.39
Control Delay		387.2			318.4	66.8	282.9	123.2	15.4	271.0	111.7	27.5
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		387.2			318.4	66.8	282.9	123.2	15.4	271.0	111.7	27.5
LOS		F			F	E	F	F	B	F	F	C
Approach Delay		387.2			202.2			103.6			138.5	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.79			
Intersection Signal Delay: 216.0		Intersection LOS: F	
Intersection Capacity Utilization 122.3%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 107: N. Rocky River Road & US 74

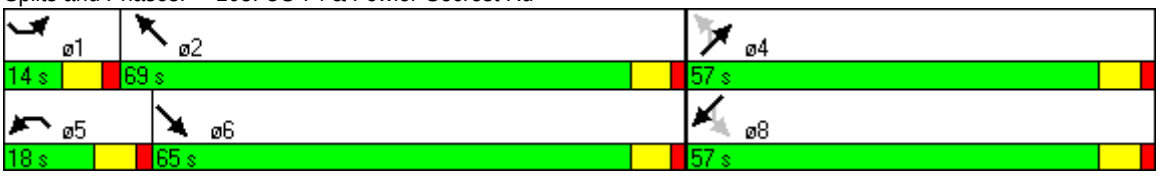


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	54	879	33	77	1099	138	29	70	54	173	125	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.983			0.952			0.970	
Flt Protected	0.950			0.950				0.991			0.978	
Satd. Flow (prot)	1719	3421	0	1719	3380	0	0	1757	0	0	1767	0
Flt Permitted	0.950			0.950				0.870			0.731	
Satd. Flow (perm)	1719	3421	0	1719	3380	0	0	1543	0	0	1321	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		2601			2354			277			1205	
Travel Time (s)		39.4			35.7			5.4			18.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	60	977	37	86	1221	153	32	78	60	192	139	94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	60	1014	0	86	1374	0	0	170	0	0	425	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		
Detector Phase	1	6		5	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		21.0	21.0	
Total Split (s)	14.0	65.0	0.0	18.0	69.0	0.0	57.0	57.0	0.0	57.0	57.0	0.0
Total Split (%)	10.0%	46.4%	0.0%	12.9%	49.3%	0.0%	40.7%	40.7%	0.0%	40.7%	40.7%	0.0%
Maximum Green (s)	7.0	58.0		11.0	62.0		50.0	50.0		50.0	50.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	9.3	64.0		12.2	69.7			48.8			48.8	
Actuated g/C Ratio	0.07	0.46		0.09	0.50			0.35			0.35	
v/c Ratio	0.52	0.65		0.57	0.82			0.32			0.92	
Control Delay	80.0	32.6		76.7	36.4			34.4			70.1	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	80.0	32.6		76.7	36.4			34.4			70.1	
LOS	F	C		E	D			C			E	
Approach Delay		35.3			38.8			34.4			70.1	
Approach LOS		D			D			C			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 41.6		Intersection LOS: D	
Intersection Capacity Utilization 87.2%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 108: US 74 & Fowler-Secrest Rd

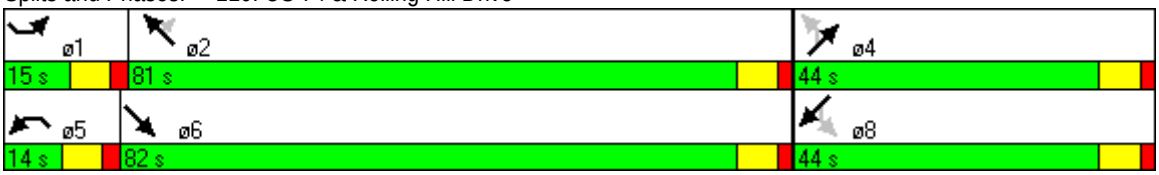


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	47	992	124	16	1207	7	157	11	16	9	13	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.983				0.850		0.988			0.896	
Flt Protected	0.950			0.950				0.959			0.995	
Satd. Flow (prot)	1719	3380	0	1719	3438	1538	0	1765	0	0	1661	0
Flt Permitted	0.950			0.950				0.626			0.966	
Satd. Flow (perm)	1719	3380	0	1719	3438	1538	0	1152	0	0	1612	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		309			978			474			425	
Travel Time (s)		4.7			14.8			12.9			11.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	52	1102	138	18	1341	8	174	12	18	10	14	82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	52	1240	0	18	1341	8	0	204	0	0	106	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot		Perm	Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases						2	4			8		
Detector Phase	1	6		5	2	2	4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	12.0	7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0		14.0	19.0	19.0	14.0	14.0		14.0	14.0	
Total Split (s)	15.0	82.0	0.0	14.0	81.0	81.0	44.0	44.0	0.0	44.0	44.0	0.0
Total Split (%)	10.7%	58.6%	0.0%	10.0%	57.9%	57.9%	31.4%	31.4%	0.0%	31.4%	31.4%	0.0%
Maximum Green (s)	8.0	75.0		7.0	74.0	74.0	37.0	37.0		37.0	37.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		None	None	
Act Effct Green (s)	10.8	93.8		9.2	86.6	86.6		30.5			30.5	
Actuated g/C Ratio	0.08	0.67		0.07	0.62	0.62		0.22			0.22	
v/c Ratio	0.39	0.55		0.16	0.63	0.01		0.81			0.30	
Control Delay	70.4	15.5		65.2	20.6	14.3		75.5			46.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	
Total Delay	70.4	15.5		65.2	20.6	14.3		75.5			46.3	
LOS	E	B		E	C	B		E			D	
Approach Delay		17.7			21.1			75.5			46.3	
Approach LOS		B			C			E			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 24.3		Intersection LOS: C	
Intersection Capacity Utilization 64.3%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 110: US 74 & Rolling Hill Drive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	126	10	113	72	10	79	84	811	133	150	1012	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.862			0.934			0.979				0.850
Flt Protected	0.950				0.978		0.950			0.950		
Satd. Flow (prot)	1770	1606	0	0	1702	0	1719	3366	0	1719	3438	1538
Flt Permitted	0.588				0.729		0.950			0.950		
Satd. Flow (perm)	1095	1606	0	0	1268	0	1719	3366	0	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		510			371			748			991	
Travel Time (s)		13.9			10.1			11.3			15.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	140	11	126	80	11	88	93	901	148	167	1124	106
Shared Lane Traffic (%)												
Lane Group Flow (vph)	140	137	0	0	179	0	93	1049	0	167	1124	106
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm			Perm			Prot			Prot		Perm
Protected Phases		3			8		1	6		5	2	
Permitted Phases	3			8								2
Detector Phase	3	3		8	8		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	12.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0		14.0	19.0	19.0
Total Split (s)	40.0	40.0	0.0	40.0	40.0	0.0	22.0	71.0	0.0	29.0	78.0	78.0
Total Split (%)	28.6%	28.6%	0.0%	28.6%	28.6%	0.0%	15.7%	50.7%	0.0%	20.7%	55.7%	55.7%
Maximum Green (s)	33.0	33.0		33.0	33.0		15.0	64.0		22.0	71.0	71.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?								Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	Max		None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	35.0	35.0			35.0		14.3	69.9		20.1	75.7	75.7
Actuated g/C Ratio	0.25	0.25			0.25		0.10	0.50		0.14	0.54	0.54
v/c Ratio	0.51	0.34			0.56		0.53	0.62		0.68	0.60	0.13
Control Delay	52.9	46.0			53.9		70.2	28.1		70.4	24.0	17.0
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	52.9	46.0			53.9		70.2	28.1		70.4	24.0	17.0
LOS	D	D			D		E	C		E	C	B
Approach Delay		49.4			53.9			31.6			29.0	
Approach LOS		D			D			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay: 33.4		Intersection LOS: C	
Intersection Capacity Utilization 68.5%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 111: Roland Drive & US 74

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	87	882	48	233	1067	98	32	41	129	121	91	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992				0.850		0.887				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3411	0	1719	3438	1538	1770	1652	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3411	0	1719	3438	1538	1770	1652	0	1770	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		822			734			281			279	
Travel Time (s)		12.5			11.1			5.5			7.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	97	980	53	259	1186	109	36	46	143	134	101	144
Shared Lane Traffic (%)												
Lane Group Flow (vph)	97	1033	0	259	1186	109	36	189	0	134	101	144
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot		pm+ov	Split			Split		pm+ov
Protected Phases	1	6		5	2	8	4	4		8	8	1
Permitted Phases						2						8
Detector Phase	1	6		5	2	8	4	4		8	8	1
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	7.0	7.0	7.0		7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0		14.0	19.0	14.0	14.0	14.0		14.0	14.0	14.0
Total Split (s)	20.0	57.0	0.0	34.0	71.0	21.0	28.0	28.0	0.0	21.0	21.0	20.0
Total Split (%)	14.3%	40.7%	0.0%	24.3%	50.7%	15.0%	20.0%	20.0%	0.0%	15.0%	15.0%	14.3%
Maximum Green (s)	13.0	50.0		27.0	64.0	14.0	21.0	21.0		14.0	14.0	13.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	C-Max		None	C-Max	Max	None	None		Max	Max	Max
Act Effct Green (s)	15.0	54.8		26.2	66.0	84.0	21.0	21.0		18.0	18.0	38.0
Actuated g/C Ratio	0.11	0.39		0.19	0.47	0.60	0.15	0.15		0.13	0.13	0.27
v/c Ratio	0.53	0.77		0.80	0.73	0.12	0.14	0.76		0.59	0.42	0.34
Control Delay	70.3	42.7		73.2	33.2	6.7	51.8	76.8		69.9	63.3	44.4
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	70.3	42.7		73.2	33.2	6.7	51.8	76.8		69.9	63.3	44.4
LOS	E	D		E	C	A	D	E		E	E	D
Approach Delay		45.0			38.0			72.8			58.4	
Approach LOS		D			D			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.80			
Intersection Signal Delay: 45.2		Intersection LOS: D	
Intersection Capacity Utilization 72.3%		ICU Level of Service C	
Analysis Period (min) 15			

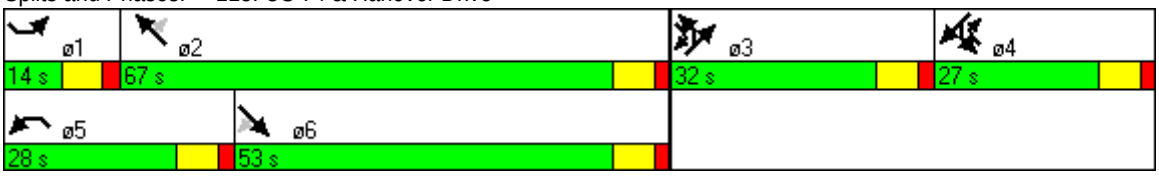
Splits and Phases: 112: US 74 & Williams Road

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	16	1025	110	257	1259	588	101	103	193	467	109	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850			0.850		0.902			0.982	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	1752	1664	0	3400	1811	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	1752	1664	0	3400	1811	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		338			529			376			313	
Travel Time (s)		5.1			8.0			7.3			8.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	18	1139	122	286	1399	653	112	114	214	519	121	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	18	1139	122	286	1399	653	112	328	0	519	138	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Split			Split		
Protected Phases	1	6	3	5	2	4	3	3		4	4	
Permitted Phases			6			2						
Detector Phase	1	6	3	5	2	4	3	3		4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0		14.0	14.0	
Total Split (s)	14.0	53.0	32.0	28.0	67.0	27.0	32.0	32.0	0.0	27.0	27.0	0.0
Total Split (%)	10.0%	37.9%	22.9%	20.0%	47.9%	19.3%	22.9%	22.9%	0.0%	19.3%	19.3%	0.0%
Maximum Green (s)	7.0	46.0	25.0	21.0	60.0	20.0	25.0	25.0		20.0	20.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Act Effct Green (s)	9.0	48.0	80.0	23.0	70.4	95.4	27.0	27.0		22.0	22.0	
Actuated g/C Ratio	0.06	0.34	0.57	0.16	0.50	0.68	0.19	0.19		0.16	0.16	
v/c Ratio	0.16	0.97	0.14	1.01	0.81	0.62	0.33	1.02		0.97	0.48	
Control Delay	65.6	64.4	14.5	114.3	34.9	14.8	52.0	110.8		90.8	60.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	65.6	64.4	14.5	114.3	34.9	14.8	52.0	110.8		90.8	60.3	
LOS	E	E	B	F	C	B	D	F		F	E	
Approach Delay		59.7			39.0			95.8			84.4	
Approach LOS		E			D			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 120			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.02			
Intersection Signal Delay: 56.2		Intersection LOS: E	
Intersection Capacity Utilization 89.8%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 113: US 74 & Hanover Drive

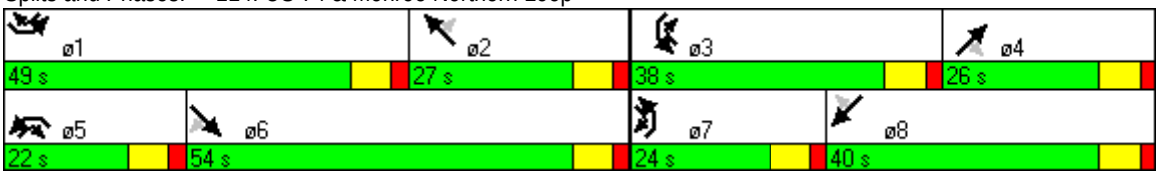


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	717	524	483	228	724	670	396	493	136	634	786	936
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3335	4940	1538	3335	4940	1538	3335	3438	1538	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	4940	1538	3335	4940	1538	3335	3438	1538	3433	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		858			915			405			209	
Travel Time (s)		13.0			13.9			7.9			3.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	2%	2%	2%
Adj. Flow (vph)	797	582	537	253	804	744	440	548	151	704	873	1040
Shared Lane Traffic (%)												
Lane Group Flow (vph)	797	582	537	253	804	744	440	548	151	704	873	1040
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	49.0	54.0	24.0	22.0	27.0	38.0	24.0	26.0	22.0	38.0	40.0	49.0
Total Split (%)	35.0%	38.6%	17.1%	15.7%	19.3%	27.1%	17.1%	18.6%	15.7%	27.1%	28.6%	35.0%
Maximum Green (s)	42.0	47.0	17.0	15.0	20.0	31.0	17.0	19.0	15.0	31.0	33.0	42.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	44.0	49.9	73.9	16.1	22.0	60.0	19.0	21.0	42.1	33.0	35.0	84.0
Actuated g/C Ratio	0.31	0.36	0.53	0.12	0.16	0.43	0.14	0.15	0.30	0.24	0.25	0.60
v/c Ratio	0.76	0.33	0.66	0.66	1.04	1.13	0.97	1.06	0.33	0.87	0.99	1.09
Control Delay	48.9	33.7	29.2	67.9	98.6	113.6	95.5	112.8	40.1	64.0	79.1	86.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.9	33.7	29.2	67.9	98.6	113.6	95.5	112.8	40.1	64.0	79.1	86.7
LOS	D	C	C	E	F	F	F	F	D	E	E	F
Approach Delay		38.8			100.5			96.4			78.1	
Approach LOS		D			F			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 140			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.13			
Intersection Signal Delay: 76.2		Intersection LOS: E	
Intersection Capacity Utilization 95.7%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 114: US 74 & Monroe Northern Loop



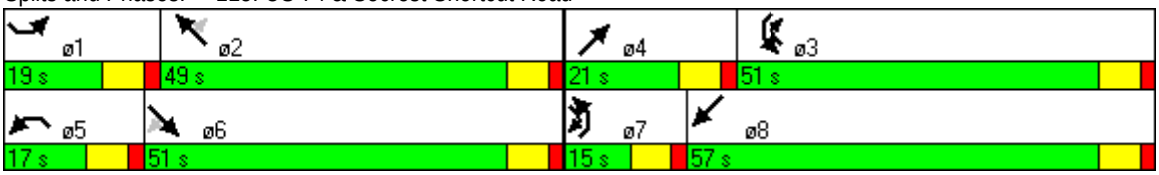
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	151	1076	57	152	1372	476	55	46	115	515	66	208
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.893			0.886	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	3335	4940	1538	1770	1663	0	1770	1650	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	3335	4940	1538	1770	1663	0	1770	1650	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		413			1354			238			233	
Travel Time (s)		6.3			20.5			6.5			4.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	168	1196	63	169	1524	529	61	51	128	572	73	231
Shared Lane Traffic (%)												
Lane Group Flow (vph)	168	1196	63	169	1524	529	61	179	0	572	304	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot			Prot		
Protected Phases	1	6	7	5	2	3	7	4		3	8	
Permitted Phases			6			2						
Detector Phase	1	6	7	5	2	3	7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	

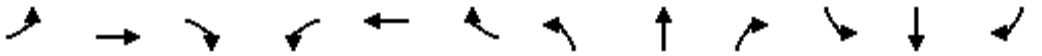
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0		14.0	14.0	
Total Split (s)	19.0	51.0	15.0	17.0	49.0	51.0	15.0	21.0	0.0	51.0	57.0	0.0
Total Split (%)	13.6%	36.4%	10.7%	12.1%	35.0%	36.4%	10.7%	15.0%	0.0%	36.4%	40.7%	0.0%
Maximum Green (s)	12.0	44.0	8.0	10.0	42.0	44.0	8.0	14.0		44.0	50.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Act Effct Green (s)	14.0	46.2	61.0	11.8	44.0	90.0	9.8	16.0		46.0	52.2	
Actuated g/C Ratio	0.10	0.33	0.44	0.08	0.31	0.64	0.07	0.11		0.33	0.37	
v/c Ratio	0.98	0.73	0.09	0.60	0.98	0.53	0.49	0.94		0.98	0.49	
Control Delay	124.8	44.7	23.8	71.3	66.2	9.1	76.7	112.6		79.8	37.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	124.8	44.7	23.8	71.3	66.2	9.1	76.7	112.6		79.8	37.2	
LOS	F	D	C	E	E	A	E	F		E	D	
Approach Delay		53.2			53.0			103.5			65.0	
Approach LOS		D			D			F			E	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.98
Intersection Signal Delay: 57.8 Intersection LOS: E
Intersection Capacity Utilization 89.6% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 115: US 74 & Secrest Shortcut Road





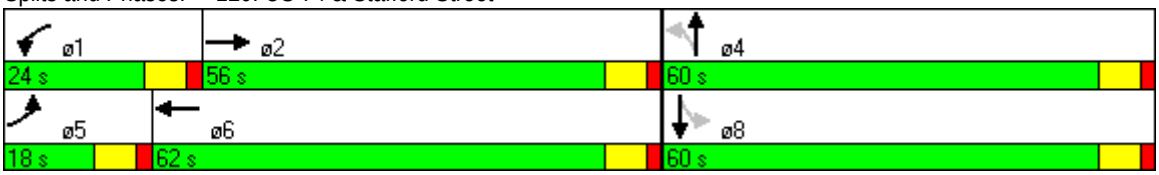
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	181	1554	151	221	1945	138	253	141	297	155	118	254
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.987			0.990			0.898			0.898	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4876	0	1719	4891	0	1770	1673	0	1770	1673	0
Flt Permitted	0.950			0.950			0.328			0.252		
Satd. Flow (perm)	1719	4876	0	1719	4891	0	611	1673	0	469	1673	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		443			590			549			636	
Travel Time (s)		6.7			8.9			15.0			12.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	201	1727	168	246	2161	153	281	157	330	172	131	282
Shared Lane Traffic (%)												
Lane Group Flow (vph)	201	1895	0	246	2314	0	281	487	0	172	413	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

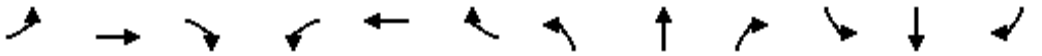
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	18.0	56.0	0.0	24.0	62.0	0.0	60.0	60.0	0.0	60.0	60.0	0.0
Total Split (%)	12.9%	40.0%	0.0%	17.1%	44.3%	0.0%	42.9%	42.9%	0.0%	42.9%	42.9%	0.0%
Maximum Green (s)	11.0	49.0		17.0	55.0		53.0	53.0		53.0	53.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	13.0	51.0		19.0	57.0		55.0	55.0		55.0	55.0	
Actuated g/C Ratio	0.09	0.36		0.14	0.41		0.39	0.39		0.39	0.39	
v/c Ratio	1.26	1.07		1.06	1.16		1.17	0.74		0.93	0.63	
Control Delay	205.7	84.3		131.1	116.9		150.6	44.6		93.1	39.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	205.7	84.3		131.1	116.9		150.6	44.6		93.1	39.5	
LOS	F	F		F	F		F	D		F	D	
Approach Delay		95.9			118.3			83.4			55.3	
Approach LOS		F			F			F			E	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.26
Intersection Signal Delay: 99.9 Intersection LOS: F
Intersection Capacity Utilization 103.2% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 120: US 74 & Stafford Street





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	78	1697	159	195	2076	53	117	10	117	107	10	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.987			0.996			0.862			0.857	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4876	0	1719	4920	0	1770	1606	0	1770	1596	0
Flt Permitted	0.950			0.950			0.374			0.562		
Satd. Flow (perm)	1719	4876	0	1719	4920	0	697	1606	0	1047	1596	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			20	
Link Distance (ft)		493			536			238			211	
Travel Time (s)		7.5			8.1			6.5			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	87	1886	177	217	2307	59	130	11	130	119	11	217
Shared Lane Traffic (%)												
Lane Group Flow (vph)	87	2063	0	217	2366	0	130	141	0	119	228	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	15.0	73.0	0.0	29.0	87.0	0.0	38.0	38.0	0.0	38.0	38.0	0.0
Total Split (%)	10.7%	52.1%	0.0%	20.7%	62.1%	0.0%	27.1%	27.1%	0.0%	27.1%	27.1%	0.0%
Maximum Green (s)	8.0	66.0		22.0	80.0		31.0	31.0		31.0	31.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	10.9	74.1		22.5	85.7		28.4	28.4		28.4	28.4	
Actuated g/C Ratio	0.08	0.53		0.16	0.61		0.20	0.20		0.20	0.20	
v/c Ratio	0.65	0.80		0.78	0.79		0.92	0.43		0.56	0.71	
Control Delay	84.6	31.2		76.1	23.5		111.2	52.0		59.7	63.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	84.6	31.2		76.1	23.5		111.2	52.0		59.7	63.5	
LOS	F	C		E	C		F	D		E	E	
Approach Delay		33.4			27.9			80.4			62.2	
Approach LOS		C			C			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 35.0		Intersection LOS: D	
Intersection Capacity Utilization 82.9%		ICU Level of Service E	
Analysis Period (min) 15			

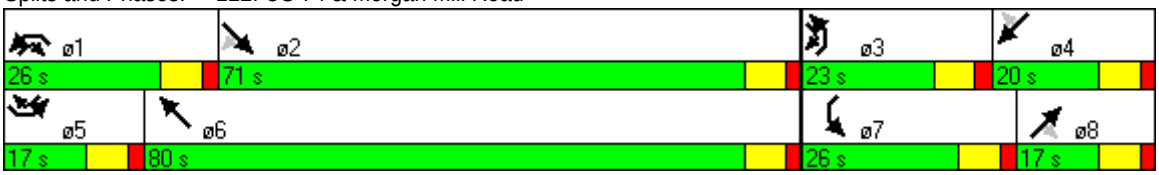
Splits and Phases: 121: US 74 & Boyte Street

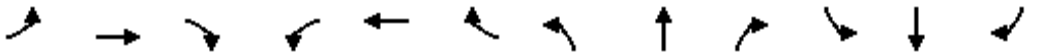
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	108	1625	161	138	2026	151	158	89	109	195	145	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.990				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	1719	4891	0	1687	1776	1509	1687	1776	1509
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	1719	4891	0	1687	1776	1509	1687	1776	1509
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		515			499			502			475	
Travel Time (s)		7.8			7.6			9.8			9.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	7%	7%	7%	7%	7%	7%
Adj. Flow (vph)	120	1806	179	153	2251	168	176	99	121	217	161	193
Shared Lane Traffic (%)												
Lane Group Flow (vph)	120	1806	179	153	2419	0	176	99	121	217	161	193
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot			Prot		pm+ov	Prot		pm+ov
Protected Phases	5	2	3	1	6		3	8	1	7	4	5
Permitted Phases			2						8			4
Detector Phase	5	2	3	1	6		3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0		7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0		14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	17.0	71.0	23.0	26.0	80.0	0.0	23.0	17.0	26.0	26.0	20.0	17.0
Total Split (%)	12.1%	50.7%	16.4%	18.6%	57.1%	0.0%	16.4%	12.1%	18.6%	18.6%	14.3%	12.1%
Maximum Green (s)	10.0	64.0	16.0	19.0	73.0		16.0	10.0	19.0	19.0	13.0	10.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max		None	None	None	None	None	None
Act Effct Green (s)	12.1	69.0	91.6	18.4	75.3		17.6	12.0	35.4	20.6	15.0	32.1
Actuated g/C Ratio	0.09	0.49	0.65	0.13	0.54		0.13	0.09	0.25	0.15	0.11	0.23
v/c Ratio	0.81	0.74	0.18	0.68	0.92		0.83	0.65	0.32	0.88	0.85	0.56
Control Delay	98.7	31.2	10.4	72.9	36.6		89.9	82.2	44.4	90.5	95.8	54.8
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	98.7	31.2	10.4	72.9	36.6		89.9	82.2	44.4	90.5	95.8	54.8
LOS	F	C	B	E	D		F	F	D	F	F	D
Approach Delay		33.3			38.8			74.1			80.0	
Approach LOS		C			D			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 43.4		Intersection LOS: D	
Intersection Capacity Utilization 81.8%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 122: US 74 & Morgan Mill Road



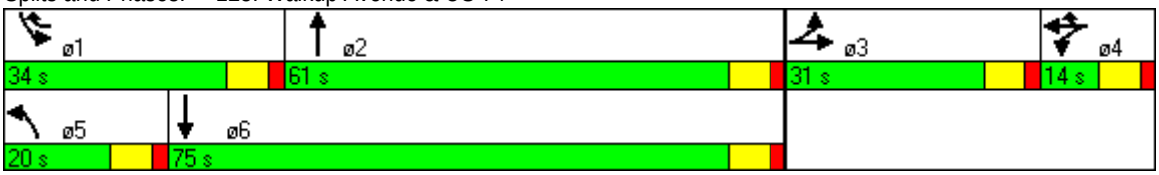


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	89	184	92	31	131	348	91	1873	43	382	1482	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.966				0.850		0.997			0.993	
Flt Protected		0.988		0.950			0.950			0.950		
Satd. Flow (prot)	0	1778	0	1770	1863	1583	1719	4925	0	1719	4905	0
Flt Permitted		0.988		0.950			0.950			0.950		
Satd. Flow (perm)	0	1778	0	1770	1863	1583	1719	4925	0	1719	4905	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		443			502			602			356	
Travel Time (s)		12.1			9.8			9.1			5.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	99	204	102	34	146	387	101	2081	48	424	1647	77
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	405	0	34	146	387	101	2129	0	424	1724	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pt+ov	Prot			Prot		
Protected Phases	3	3		4	4	4 1	5	2		1	6	
Permitted Phases												
Detector Phase	3	3		4	4	4 1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0		14.0	19.0	
Total Split (s)	31.0	31.0	0.0	14.0	14.0	48.0	20.0	61.0	0.0	34.0	75.0	0.0
Total Split (%)	22.1%	22.1%	0.0%	10.0%	10.0%	34.3%	14.3%	43.6%	0.0%	24.3%	53.6%	0.0%
Maximum Green (s)	24.0	24.0		7.0	7.0		13.0	54.0		27.0	68.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lead		Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)		26.0		9.0	9.0	43.0	13.7	56.0		29.0	71.3	
Actuated g/C Ratio		0.19		0.06	0.06	0.31	0.10	0.40		0.21	0.51	
v/c Ratio		1.23		0.30	1.22	0.80	0.60	1.08		1.19	0.69	
Control Delay		172.9		69.7	204.1	58.0	75.3	86.0		157.5	28.1	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		172.9		69.7	204.1	58.0	75.3	86.0		157.5	28.1	
LOS		F		E	F	E	E	F		F	C	
Approach Delay		172.9			96.3			85.5			53.6	
Approach LOS		F			F			F			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.23			
Intersection Signal Delay: 80.5		Intersection LOS: F	
Intersection Capacity Utilization 102.1%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 123: Walkup Avenue & US 74

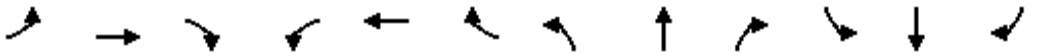


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	115	1338	210	66	1673	208	169	235	43	139	244	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.983			0.977			0.958	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	1719	4856	0	1752	1802	0	1752	1767	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	1719	4856	0	1752	1802	0	1752	1767	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		425			487			426			331	
Travel Time (s)		6.4			7.4			11.6			6.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	128	1487	233	73	1859	231	188	261	48	154	271	107
Shared Lane Traffic (%)												
Lane Group Flow (vph)	128	1487	233	73	2090	0	188	309	0	154	378	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot			Prot			Prot		
Protected Phases	1	6	7	5	2		7	4		3	8	
Permitted Phases			6									
Detector Phase	1	6	7	5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	16.0	67.0	21.0	17.0	68.0	0.0	21.0	35.0	0.0	21.0	35.0	0.0
Total Split (%)	11.4%	47.9%	15.0%	12.1%	48.6%	0.0%	15.0%	25.0%	0.0%	15.0%	25.0%	0.0%
Maximum Green (s)	9.0	60.0	14.0	10.0	61.0		14.0	28.0		14.0	28.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes			Yes			Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max		None	None		None	None	
Act Effct Green (s)	11.0	65.5	86.5	11.3	63.0		16.0	30.4		15.6	30.0	
Actuated g/C Ratio	0.08	0.47	0.62	0.08	0.45		0.11	0.22		0.11	0.21	
v/c Ratio	0.95	0.64	0.25	0.53	0.96		0.94	0.79		0.79	1.00	
Control Delay	127.9	30.8	13.7	75.7	48.7		110.6	67.4		87.7	100.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	127.9	30.8	13.7	75.7	48.7		110.6	67.4		87.7	100.1	
LOS	F	C	B	E	D		F	E		F	F	
Approach Delay		35.3			49.6			83.7			96.5	
Approach LOS		D			D			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.00			
Intersection Signal Delay: 52.7		Intersection LOS: D	
Intersection Capacity Utilization 88.0%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 124: US 74 & Sutherland Avenue



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	2	34	27	20	48	115	61	1758	32	151	1426	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.934			0.894				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1740	0	1770	1665	0	1719	4940	1538	1719	4940	1538
Flt Permitted	0.402			0.713			0.950			0.950		
Satd. Flow (perm)	749	1740	0	1328	1665	0	1719	4940	1538	1719	4940	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		163			218			356			257	
Travel Time (s)		5.6			4.2			5.4			3.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	2	38	30	22	53	128	68	1953	36	168	1584	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	68	0	22	181	0	68	1953	36	168	1584	4
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm			Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	12.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	19.0
Total Split (s)	32.0	32.0	0.0	32.0	32.0	0.0	17.0	78.0	78.0	30.0	91.0	91.0
Total Split (%)	22.9%	22.9%	0.0%	22.9%	22.9%	0.0%	12.1%	55.7%	55.7%	21.4%	65.0%	65.0%
Maximum Green (s)	25.0	25.0		25.0	25.0		10.0	71.0	71.0	23.0	84.0	84.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	21.9	21.9		21.9	21.9		11.7	82.7	82.7	20.4	94.2	94.2
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.08	0.59	0.59	0.15	0.67	0.67
v/c Ratio	0.02	0.25		0.11	0.70		0.47	0.67	0.04	0.67	0.48	0.00
Control Delay	47.0	52.7		49.6	69.6		72.0	22.1	14.8	69.6	12.9	10.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.0	52.7		49.6	69.6		72.0	22.1	14.8	69.6	12.9	10.2
LOS	D	D		D	E		E	C	B	E	B	B
Approach Delay		52.5			67.5			23.6			18.3	
Approach LOS		D			E			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay: 24.0		Intersection LOS: C	
Intersection Capacity Utilization 64.4%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 125: Dove Street & US 74

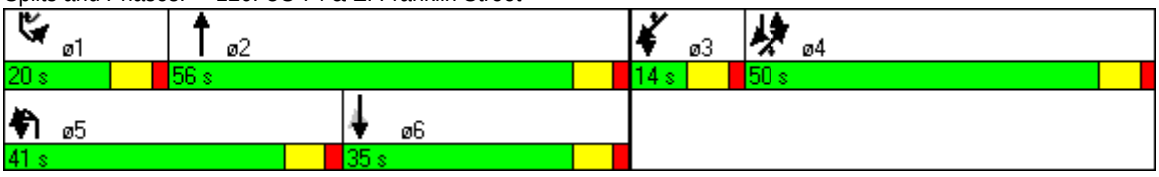
Lane Group	NBU	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT
Lane Configurations												
Volume (vph)	13	979	1389	122	127	1056	250	348	95	1038	124	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.86	0.97	0.86	0.86	1.00	0.91	1.00	1.00	1.00	0.88	1.00	1.00
Frt			0.988				0.850			0.850		
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	3335	6150	0	1719	4940	1538	1752	1845	2760	1752	1845
Flt Permitted		0.950			0.950			0.950			0.950	
Satd. Flow (perm)	0	3335	6150	0	1719	4940	1538	1752	1845	2760	1752	1845
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			45			35			20
Link Distance (ft)			341			436			391			335
Travel Time (s)			5.2			6.6			7.6			11.4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%
Adj. Flow (vph)	14	1088	1543	136	141	1173	278	387	106	1153	138	101
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1102	1679	0	141	1173	278	387	106	1153	138	101
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			24			24			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1	1	2		1	2	1	1	2	1	1	2
Detector Template	Left	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru
Leading Detector (ft)	20	20	100		20	100	20	20	100	20	20	100
Trailing Detector (ft)	0	0	0		0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0		0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	6		20	6	20	20	6	20	20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94			94			94			94
Detector 2 Size(ft)			6			6			6			6
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			0.0
Turn Type	Prot	Prot			Prot		pm+ov	Split		Prot	Split	
Protected Phases	5	5	2		1	6	4	4	4	4	3	3
Permitted Phases							6					
Detector Phase	5	5	2		1	6	4	4	4	4	3	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	12.0		7.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SWR
Lane Configurations	
Volume (vph)	170
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1568
Flt Permitted	
Satd. Flow (perm)	1568
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	3%
Adj. Flow (vph)	189
Shared Lane Traffic (%)	
Lane Group Flow (vph)	189
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	pt+ov
Protected Phases	3 1
Permitted Phases	
Detector Phase	3 1
Switch Phase	
Minimum Initial (s)	

Lane Group	NBU	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT
Minimum Split (s)	14.0	14.0	19.0		14.0	19.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	41.0	41.0	56.0	0.0	20.0	35.0	50.0	50.0	50.0	50.0	14.0	14.0
Total Split (%)	29.3%	29.3%	40.0%	0.0%	14.3%	25.0%	35.7%	35.7%	35.7%	35.7%	10.0%	10.0%
Maximum Green (s)	34.0	34.0	49.0		13.0	28.0	43.0	43.0	43.0	43.0	7.0	7.0
Yellow Time (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag		Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max		None	C-Max	None	None	None	None	None	None
Act Effct Green (s)		36.0	51.4		14.6	30.0	75.0	45.0	45.0	45.0	9.0	9.0
Actuated g/C Ratio		0.26	0.37		0.10	0.21	0.54	0.32	0.32	0.32	0.06	0.06
v/c Ratio		1.28	0.74		0.78	1.11	0.34	0.69	0.18	1.30	1.22	0.85
Control Delay		178.7	41.2		89.5	112.0	12.1	48.8	35.3	182.0	208.0	113.5
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		178.7	41.2		89.5	112.0	12.1	48.8	35.3	182.0	208.0	113.5
LOS		F	D		F	F	B	D	D	F	F	F
Approach Delay			95.7			92.6			141.2			114.4
Approach LOS			F			F			F			F

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.30			
Intersection Signal Delay: 107.8		Intersection LOS: F	
Intersection Capacity Utilization 108.6%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 126: US 74 & E. Franklin Street



Lane Group	SWR
Minimum Split (s)	
Total Split (s)	34.0
Total Split (%)	24.3%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Act Effct Green (s)	23.6
Actuated g/C Ratio	0.17
v/c Ratio	0.71
Control Delay	46.5
Queue Delay	0.0
Total Delay	46.5
LOS	D
Approach Delay	
Approach LOS	

Intersection Summary

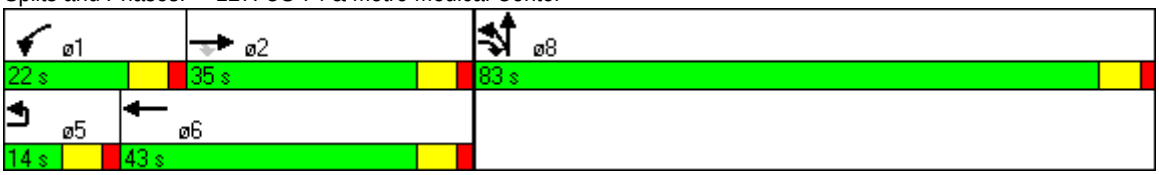
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	10	0	1081	918	232	1251	18	1524	0	332	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.91	0.91	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.998			0.945			
Flt Protected	0.950				0.950			0.950	0.969			
Satd. Flow (prot)	1719	0	4940	1538	1736	4978	0	1504	1450	0	0	0
Flt Permitted	0.950				0.950			0.950	0.969			
Satd. Flow (perm)	1719	0	4940	1538	1736	4978	0	1504	1450	0	0	0
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			55			45			25
Link Distance (ft)			239			375			459			142
Travel Time (s)			3.6			4.6			7.0			3.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	4%	4%	4%	14%	14%	14%	2%	2%
Adj. Flow (vph)	11	0	1201	1020	258	1390	20	1693	0	369	0	0
Shared Lane Traffic (%)								38%				
Lane Group Flow (vph)	11	0	1201	1020	258	1410	0	1050	1012	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			12			12			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1		2	1	1	2		1	2			
Detector Template	Left		Thru	Right	Left	Thru		Left	Thru			
Leading Detector (ft)	20		100	20	20	100		20	100			
Trailing Detector (ft)	0		0	0	0	0		0	0			
Detector 1 Position(ft)	0		0	0	0	0		0	0			
Detector 1 Size(ft)	20		6	20	20	6		20	6			
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 2 Position(ft)			94			94			94			
Detector 2 Size(ft)			6			6			6			
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			
Turn Type	Prot			pm+ov	Prot			Split				
Protected Phases	5		2	8	1	6		8	8			
Permitted Phases				2								
Detector Phase	5		2	8	1	6		8	8			
Switch Phase												
Minimum Initial (s)	7.0		12.0	12.0	7.0	14.0		12.0	12.0			

Lane Group	SBR
Lane Configurations	
Volume (vph)	29
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.865
Flt Protected	
Satd. Flow (prot)	1611
Flt Permitted	
Satd. Flow (perm)	1611
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	2%
Adj. Flow (vph)	32
Shared Lane Traffic (%)	
Lane Group Flow (vph)	32
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Detector Phase	
Switch Phase	
Minimum Initial (s)	

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Minimum Split (s)	14.0		19.0	19.0	14.0	21.0		19.0	19.0			
Total Split (s)	14.0	0.0	35.0	83.0	22.0	43.0	0.0	83.0	83.0	0.0	0.0	0.0
Total Split (%)	10.0%	0.0%	25.0%	59.3%	15.7%	30.7%	0.0%	59.3%	59.3%	0.0%	0.0%	0.0%
Maximum Green (s)	7.0		28.0	76.0	15.0	36.0		76.0	76.0			
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0		5.0	5.0			
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0		2.0	2.0			
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	2.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	2.0	2.0
Lead/Lag	Lead		Lag		Lead	Lag						
Lead-Lag Optimize?			Yes			Yes						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0		3.0	3.0			
Recall Mode	None		C-Max	None	None	C-Max		None	None			
Act Effct Green (s)	9.0		30.0	113.0	17.0	46.4		78.0	78.0			
Actuated g/C Ratio	0.06		0.21	0.81	0.12	0.33		0.56	0.56			
v/c Ratio	0.10		1.13	0.82	1.22	0.85		1.25	1.25			
Control Delay	63.9		121.2	15.0	184.8	50.0		153.1	153.2			
Queue Delay	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Total Delay	63.9		121.2	15.0	184.8	50.0		153.1	153.2			
LOS	E		F	B	F	D		F	F			
Approach Delay			72.4			70.9			153.1			
Approach LOS			E			E			F			

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 170			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.25			
Intersection Signal Delay: 99.3		Intersection LOS: F	
Intersection Capacity Utilization 98.6%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 127: US 74 & Metro Medical Center



Lane Group	SBR
Minimum Split (s)	
Total Split (s)	0.0
Total Split (%)	0.0%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	2.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Act Effct Green (s)	140.0
Actuated g/C Ratio	1.00
v/c Ratio	0.02
Control Delay	0.0
Queue Delay	0.0
Total Delay	0.0
LOS	A
Approach Delay	
Approach LOS	

Intersection Summary

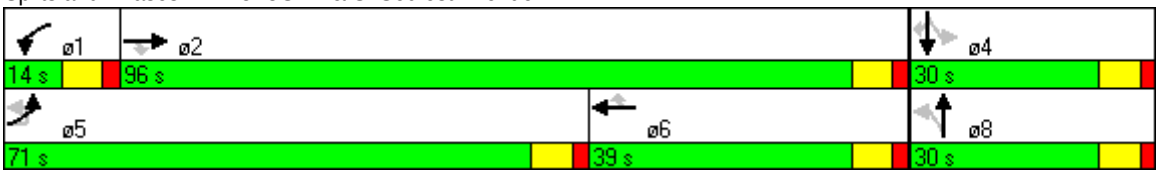
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	12	295	1042	36	9	1307	254	47	238	9	111	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850			0.850		0.996			
Flt Protected		0.950			0.950				0.992			0.974
Satd. Flow (prot)	0	1736	3471	1553	1736	3471	1553	0	1840	0	0	1814
Flt Permitted		0.061			0.950				0.501			0.333
Satd. Flow (perm)	0	111	3471	1553	1736	3471	1553	0	930	0	0	620
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			55			55			35			35
Link Distance (ft)			411			374			242			283
Travel Time (s)			5.1			4.6			4.7			5.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%
Adj. Flow (vph)	13	328	1158	40	10	1452	282	52	264	10	123	110
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	341	1158	40	10	1452	282	0	326	0	0	233
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			12			12			0			0
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1	1	2	1	1	2	1	1	2		1	2
Detector Template	Left	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru
Leading Detector (ft)	20	20	100	20	20	100	20	20	100		20	100
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0		0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0		0	0
Detector 1 Size(ft)	20	20	6	20	20	6	20	20	6		20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)			94			94			94			94
Detector 2 Size(ft)			6			6			6			6
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			0.0
Turn Type	custom	Prot		Perm	Prot		Perm	Perm			Perm	
Protected Phases		5	2		1	6			8			4
Permitted Phases	5			2			6	8			4	
Detector Phase	5	5	2	2	1	6	6	8	8		4	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	14.0	14.0	7.0	14.0	14.0	7.0	7.0		7.0	7.0

Lane Group	SBR
Lane Configurations	
Volume (vph)	162
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	2%
Adj. Flow (vph)	180
Shared Lane Traffic (%)	
Lane Group Flow (vph)	180
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Detector Phase	4
Switch Phase	
Minimum Initial (s)	7.0

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Minimum Split (s)	14.0	14.0	21.0	21.0	14.0	21.0	21.0	14.0	14.0		14.0	14.0
Total Split (s)	71.0	71.0	96.0	96.0	14.0	39.0	39.0	30.0	30.0	0.0	30.0	30.0
Total Split (%)	50.7%	50.7%	68.6%	68.6%	10.0%	27.9%	27.9%	21.4%	21.4%	0.0%	21.4%	21.4%
Maximum Green (s)	64.0	64.0	89.0	89.0	7.0	32.0	32.0	23.0	23.0		23.0	23.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Time Before Reduce (s)	0.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0	0.0		0.0	0.0
Time To Reduce (s)	0.0	0.0	50.0	50.0	0.0	50.0	50.0	0.0	0.0		0.0	0.0
Recall Mode	None	None	C-Min	C-Min	None	C-Min	C-Min	None	None		None	None
Act Effct Green (s)		66.0	102.2	102.2	9.0	34.0	34.0		25.0			25.0
Actuated g/C Ratio		0.47	0.73	0.73	0.06	0.24	0.24		0.18			0.18
v/c Ratio		6.56	0.46	0.04	0.09	1.72	0.75		1.96			2.10
Control Delay		2549.8	8.9	6.4	63.7	362.6	62.6		484.7			551.9
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0
Total Delay		2549.8	8.9	6.4	63.7	362.6	62.6		484.7			551.9
LOS		F	A	A	E	F	E		F			F
Approach Delay			571.8			312.4			484.7			339.5
Approach LOS			F			F			F			F

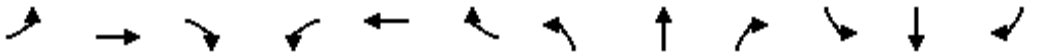
Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 6.56			
Intersection Signal Delay: 428.4		Intersection LOS: F	
Intersection Capacity Utilization 95.5%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 128: US 74 & S. Secrest Avenue



Lane Group	SBR
Minimum Split (s)	14.0
Total Split (s)	30.0
Total Split (%)	21.4%
Maximum Green (s)	23.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Minimum Gap (s)	3.0
Time Before Reduce (s)	0.0
Time To Reduce (s)	0.0
Recall Mode	None
Act Effct Green (s)	25.0
Actuated g/C Ratio	0.18
v/c Ratio	0.64
Control Delay	64.6
Queue Delay	0.0
Total Delay	64.6
LOS	E
Approach Delay	
Approach LOS	

Intersection Summary

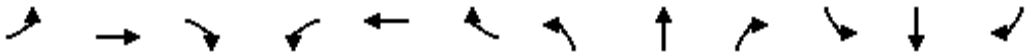


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	109	1102	32	6	1367	101	20	18	3	59	20	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.990			0.991				0.850
Flt Protected	0.950			0.950				0.976			0.964	
Satd. Flow (prot)	1736	3457	0	1736	3436	0	0	1802	0	0	1796	1583
Flt Permitted	0.950			0.950				0.767			0.790	
Satd. Flow (perm)	1736	3457	0	1736	3436	0	0	1416	0	0	1472	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			20			25	
Link Distance (ft)		245			259			179			276	
Travel Time (s)		4.8			5.0			6.1			7.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	121	1224	36	7	1519	112	22	20	3	66	22	88
Shared Lane Traffic (%)												
Lane Group Flow (vph)	121	1260	0	7	1631	0	0	45	0	0	88	88
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		pm+ov
Protected Phases	5	2		1	6			8			4	5
Permitted Phases							8			4		4
Detector Phase	5	2		1	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	17.0		14.0	17.0		14.0	14.0		14.0	14.0	14.0
Total Split (s)	25.0	106.0	0.0	14.0	95.0	0.0	20.0	20.0	0.0	20.0	20.0	25.0
Total Split (%)	17.9%	75.7%	0.0%	10.0%	67.9%	0.0%	14.3%	14.3%	0.0%	14.3%	14.3%	17.9%
Maximum Green (s)	18.0	99.0		7.0	88.0		13.0	13.0		13.0	13.0	18.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None
Act Effct Green (s)	16.5	112.8		9.0	94.1			14.4			14.4	35.9
Actuated g/C Ratio	0.12	0.81		0.06	0.67			0.10			0.10	0.26
v/c Ratio	0.59	0.45		0.06	0.71			0.31			0.58	0.22
Control Delay	70.2	5.4		63.0	17.3			63.2			75.1	40.9
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Delay	70.2	5.4		63.0	17.3			63.2			75.1	40.9
LOS	E	A		E	B			E			E	D
Approach Delay		11.1			17.5			63.2			58.0	
Approach LOS		B			B			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 17.6		Intersection LOS: B	
Intersection Capacity Utilization 68.4%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 129: US 74 & Bivens Street

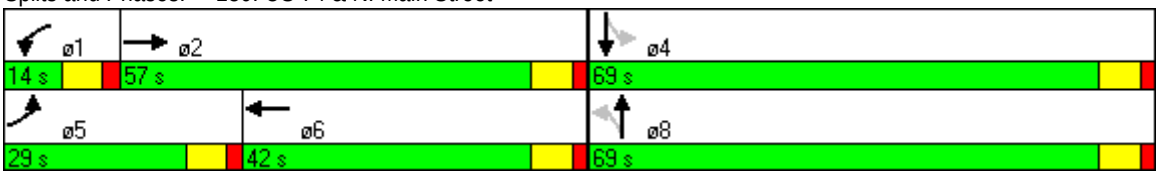


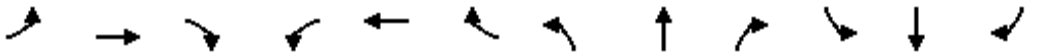
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	376	791	39	56	1011	102	50	369	55	77	279	361
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993			0.986			0.984			0.915	
Flt Protected	0.950			0.950				0.995		0.950		
Satd. Flow (prot)	1736	3447	0	1736	3423	0	0	1824	0	1770	1704	0
Flt Permitted	0.950			0.950				0.414		0.366		
Satd. Flow (perm)	1736	3447	0	1736	3423	0	0	759	0	682	1704	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		282			333			173			197	
Travel Time (s)		5.5			6.5			3.4			3.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	418	879	43	62	1123	113	56	410	61	86	310	401
Shared Lane Traffic (%)												
Lane Group Flow (vph)	418	922	0	62	1236	0	0	527	0	86	711	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	17.0		14.0	17.0		14.0	14.0		14.0	14.0	
Total Split (s)	29.0	57.0	0.0	14.0	42.0	0.0	69.0	69.0	0.0	69.0	69.0	0.0
Total Split (%)	20.7%	40.7%	0.0%	10.0%	30.0%	0.0%	49.3%	49.3%	0.0%	49.3%	49.3%	0.0%
Maximum Green (s)	22.0	50.0		7.0	35.0		62.0	62.0		62.0	62.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	None		None	None		None	None	
Act Effct Green (s)	24.0	54.8		9.0	37.0			64.0		64.0	64.0	
Actuated g/C Ratio	0.17	0.39		0.06	0.26			0.46		0.46	0.46	
v/c Ratio	1.40	0.68		0.55	1.37			1.52		0.28	0.91	
Control Delay	242.0	39.4		82.6	211.1			277.7		26.7	53.0	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	242.0	39.4		82.6	211.1			277.7		26.7	53.0	
LOS	F	D		F	F			F		C	D	
Approach Delay		102.6			204.9			277.7			50.1	
Approach LOS		F			F			F			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.52			
Intersection Signal Delay: 148.9		Intersection LOS: F	
Intersection Capacity Utilization 129.8%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 130: US 74 & N. Main Street





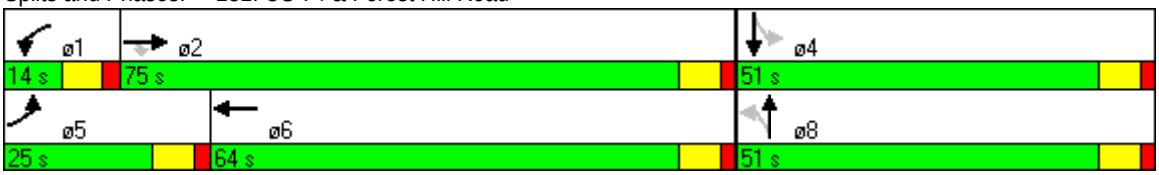
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	108	741	111	28	913	11	120	31	25	11	36	136
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.998			0.981			0.900	
Flt Protected	0.950			0.950				0.967			0.997	
Satd. Flow (prot)	1736	3471	1553	1736	3464	0	0	1684	0	0	1639	0
Flt Permitted	0.950			0.950				0.516			0.977	
Satd. Flow (perm)	1736	3471	1553	1736	3464	0	0	899	0	0	1606	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			35	
Link Distance (ft)		576			646			376			353	
Travel Time (s)		7.1			8.0			4.7			6.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	7%	7%	7%	4%	4%	4%
Adj. Flow (vph)	120	823	123	31	1014	12	133	34	28	12	40	151
Shared Lane Traffic (%)												
Lane Group Flow (vph)	120	823	123	31	1026	0	0	195	0	0	203	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		Perm	Prot			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8			4		
Detector Phase	5	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	14.0	14.0	7.0	14.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	21.0	21.0	14.0	21.0		14.0	14.0		14.0	14.0	
Total Split (s)	25.0	75.0	75.0	14.0	64.0	0.0	51.0	51.0	0.0	51.0	51.0	0.0
Total Split (%)	17.9%	53.6%	53.6%	10.0%	45.7%	0.0%	36.4%	36.4%	0.0%	36.4%	36.4%	0.0%
Maximum Green (s)	18.0	68.0	68.0	7.0	57.0		44.0	44.0		44.0	44.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	
Act Effct Green (s)	16.5	86.8	86.8	9.6	74.4			34.1			34.1	
Actuated g/C Ratio	0.12	0.62	0.62	0.07	0.53			0.24			0.24	
v/c Ratio	0.59	0.38	0.13	0.26	0.56			0.89			0.52	
Control Delay	69.9	16.3	14.8	67.4	25.5			87.6			49.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Delay	69.9	16.3	14.8	67.4	25.5			87.6			49.1	
LOS	E	B	B	E	C			F			D	
Approach Delay		22.2			26.7			87.6			49.1	
Approach LOS		C			C			F			D	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 31.3 Intersection LOS: C
Intersection Capacity Utilization 68.9% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 131: US 74 & Forest Hill Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	498	203	60	36	125	70	106	3032	464	44	2428	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1719	3438	1538	1719	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	1719	3438	1538	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			45			55			55	
Link Distance (ft)		1096			1168			1536			3465	
Travel Time (s)		21.4			17.7			19.0			43.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	553	226	67	40	139	78	118	3369	516	49	2698	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	553	226	67	40	139	78	118	3369	516	49	2698	49
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	1	6	7	5	2	3
Permitted Phases			4			8			6			2
Detector Phase	7	4	5	3	8	1	1	6	7	5	2	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	14.0	7.0	7.0	14.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0	14.0	14.0	21.0	14.0	14.0	21.0	14.0
Total Split (s)	21.0	21.0	14.0	14.0	14.0	14.0	14.0	91.0	21.0	14.0	91.0	14.0
Total Split (%)	15.0%	15.0%	10.0%	10.0%	10.0%	10.0%	10.0%	65.0%	15.0%	10.0%	65.0%	10.0%
Maximum Green (s)	14.0	14.0	7.0	7.0	7.0	7.0	7.0	84.0	14.0	7.0	84.0	7.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	16.0	18.8	32.8	9.0	9.0	23.0	9.0	88.8	109.8	9.0	86.0	100.0
Actuated g/C Ratio	0.11	0.13	0.23	0.06	0.06	0.16	0.06	0.63	0.78	0.06	0.61	0.71
v/c Ratio	1.41	0.48	0.18	0.18	0.61	0.30	1.06	1.54	0.43	0.44	1.28	0.04
Control Delay	243.0	61.0	46.4	64.1	75.7	55.1	163.7	271.9	6.6	76.1	155.4	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	243.0	61.0	46.4	64.1	75.7	55.1	163.7	271.9	6.6	76.1	155.4	6.0
LOS	F	E	D	E	E	E	F	F	A	E	F	A
Approach Delay		178.8			67.7			234.5			151.4	
Approach LOS		F			E			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.54			
Intersection Signal Delay: 193.7		Intersection LOS: F	
Intersection Capacity Utilization 120.6%		ICU Level of Service H	
Analysis Period (min) 15			

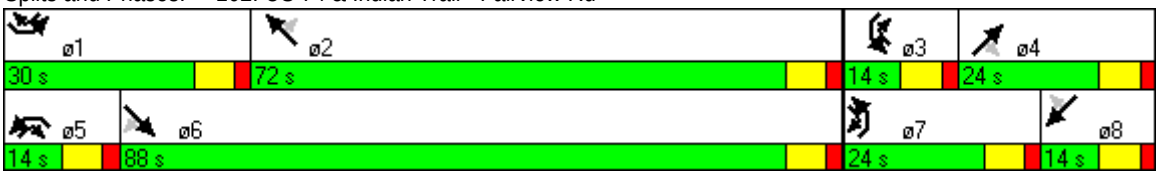
Splits and Phases: 101: Stallings Road & US 74

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	642	2049	455	92	1674	132	480	248	120	88	128	349
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3335	3438	1538	1719	3438	1538	3335	3438	1538	3335	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3438	1538	1719	3438	1538	3335	3438	1538	3335	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			35			35	
Link Distance (ft)		2103			2380			902			1112	
Travel Time (s)		26.1			29.5			17.6			21.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	713	2277	506	102	1860	147	533	276	133	98	142	388
Shared Lane Traffic (%)												
Lane Group Flow (vph)	713	2277	506	102	1860	147	533	276	133	98	142	388
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	7.0	14.0	7.0	7.0	14.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	21.0	14.0	14.0	21.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	30.0	88.0	24.0	14.0	72.0	14.0	24.0	24.0	14.0	14.0	14.0	30.0
Total Split (%)	21.4%	62.9%	17.1%	10.0%	51.4%	10.0%	17.1%	17.1%	10.0%	10.0%	10.0%	21.4%
Maximum Green (s)	23.0	81.0	17.0	7.0	65.0	7.0	17.0	17.0	7.0	7.0	7.0	23.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	25.0	83.0	107.0	9.0	67.0	81.0	19.0	19.0	33.0	9.0	9.0	39.0
Actuated g/C Ratio	0.18	0.59	0.76	0.06	0.48	0.58	0.14	0.14	0.24	0.06	0.06	0.28
v/c Ratio	1.20	1.12	0.43	0.92	1.13	0.17	1.18	0.59	0.37	0.46	0.64	0.91
Control Delay	152.3	88.6	7.1	129.9	101.7	14.3	151.6	62.6	48.3	70.4	77.8	74.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	152.3	88.6	7.1	129.9	101.7	14.3	151.6	62.6	48.3	70.4	77.8	74.5
LOS	F	F	A	F	F	B	F	E	D	E	E	E
Approach Delay		89.8			97.0			110.9			74.6	
Approach LOS		F			F			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.20			
Intersection Signal Delay: 93.3		Intersection LOS: F	
Intersection Capacity Utilization 100.8%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 102: US 74 & Indian Trail - Fairview Rd

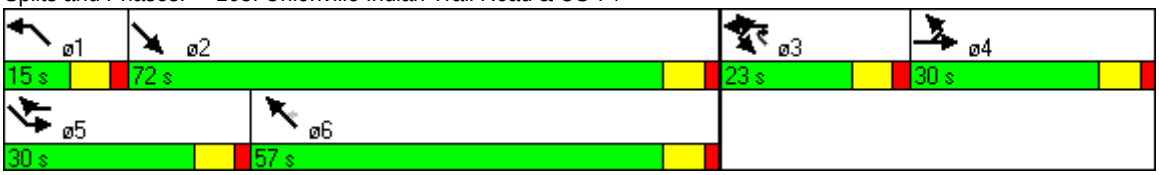


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	56	364	238	322	151	396	682	1652	40	139	1354	454
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Frt		0.946				0.850		0.996				0.850
Flt Protected		0.996		0.950	0.982		0.950			0.950		
Satd. Flow (prot)	0	3302	0	1665	1721	1568	3335	3424	0	1719	3438	1538
Flt Permitted		0.996		0.950	0.982		0.950			0.950		
Satd. Flow (perm)	0	3302	0	1665	1721	1568	3335	3424	0	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			45			55			55	
Link Distance (ft)		795			1304			1032			1062	
Travel Time (s)		15.5			19.8			12.8			13.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	62	404	264	358	168	440	758	1836	44	154	1504	504
Shared Lane Traffic (%)				28%								
Lane Group Flow (vph)	0	730	0	258	268	440	758	1880	0	154	1504	504
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pt+ov	Prot			Prot		pm+ov
Protected Phases	4	4		3	3	3 5	5	2		1	6	3
Permitted Phases												6
Detector Phase	4	4		3	3	3 5	5	2		1	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	14.0		7.0	14.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	21.0		14.0	21.0	14.0
Total Split (s)	30.0	30.0	0.0	23.0	23.0	53.0	30.0	72.0	0.0	15.0	57.0	23.0
Total Split (%)	21.4%	21.4%	0.0%	16.4%	16.4%	37.9%	21.4%	51.4%	0.0%	10.7%	40.7%	16.4%
Maximum Green (s)	23.0	23.0		16.0	16.0		23.0	65.0		8.0	50.0	16.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	None
Act Effct Green (s)		25.0		18.0	18.0	43.0	25.0	67.0		10.0	52.0	75.0
Actuated g/C Ratio		0.18		0.13	0.13	0.31	0.18	0.48		0.07	0.37	0.54
v/c Ratio		1.24		1.21	1.21	0.91	1.27	1.15		1.25	1.18	0.61
Control Delay		167.6		178.3	179.8	55.8	180.7	108.3		214.4	127.8	26.5
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay		167.6		178.3	179.8	55.8	180.7	108.3		214.4	127.8	26.5
LOS		F		F	F	E	F	F		F	F	C
Approach Delay		167.6			122.9			129.1			110.4	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 170			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.27			
Intersection Signal Delay: 126.3		Intersection LOS: F	
Intersection Capacity Utilization 105.8%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 103: Unionville Indian Trail Road & US 74

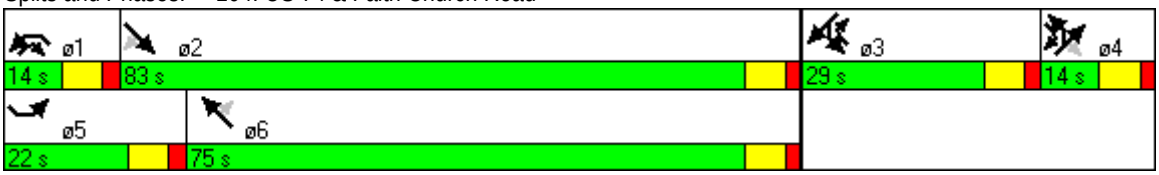


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	199	2016	40	53	1627	201	24	7	39	320	14	256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.858	
Flt Protected	0.950			0.950				0.963		0.950		
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	0	1679	1482	1770	1598	0
Flt Permitted	0.950			0.950				0.963		0.950		
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	0	1679	1482	1770	1598	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			15			35	
Link Distance (ft)		1177			2588			625			368	
Travel Time (s)		14.6			32.1			28.4			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	9%	9%	9%	2%	2%	2%
Adj. Flow (vph)	221	2240	44	59	1808	223	27	8	43	356	16	284
Shared Lane Traffic (%)												
Lane Group Flow (vph)	221	2240	44	59	1808	223	0	35	43	356	300	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	5	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	5	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Split		pm+ov	Split		
Protected Phases	5	2	4	1	6	3	4	4	1	3	3	
Permitted Phases			2			6			4			
Detector Phase	5	2	4	1	6	3	4	4	1	3	3	
Switch Phase												
Minimum Initial (s)	7.0	14.0	7.0	7.0	14.0	7.0	7.0	7.0	7.0	7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	21.0	14.0	14.0	21.0	14.0	14.0	14.0	14.0	14.0	14.0	
Total Split (s)	22.0	83.0	14.0	14.0	75.0	29.0	14.0	14.0	14.0	29.0	29.0	0.0
Total Split (%)	15.7%	59.3%	10.0%	10.0%	53.6%	20.7%	10.0%	10.0%	10.0%	20.7%	20.7%	0.0%
Maximum Green (s)	15.0	76.0	7.0	7.0	68.0	22.0	7.0	7.0	7.0	22.0	22.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	
Act Effct Green (s)	19.4	83.6	90.8	9.0	70.4	99.4		9.0	20.2	24.0	24.0	
Actuated g/C Ratio	0.14	0.60	0.65	0.06	0.50	0.71		0.06	0.14	0.17	0.17	
v/c Ratio	0.92	1.09	0.04	0.53	1.05	0.20		0.32	0.20	1.17	1.09	
Control Delay	101.4	78.5	5.7	81.2	69.1	7.5		71.1	53.2	157.2	134.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	101.4	78.5	5.7	81.2	69.1	7.5		71.1	53.2	157.2	134.8	
LOS	F	E	A	F	E	A		E	D	F	F	
Approach Delay		79.3			62.9			61.2			147.0	
Approach LOS		E			E			E			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.17			
Intersection Signal Delay: 80.9		Intersection LOS: F	
Intersection Capacity Utilization 98.5%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 104: US 74 & Faith Church Road

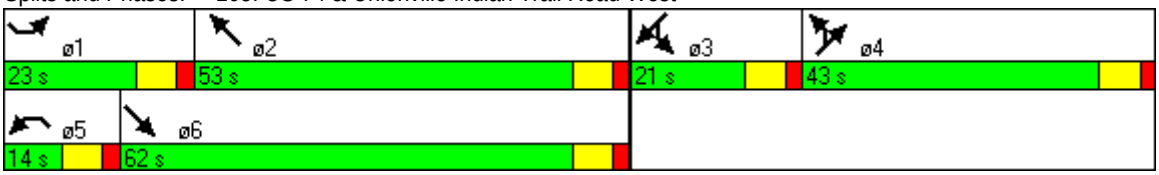


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	299	1300	727	112	960	325	784	200	164	259	109	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.946			0.962			0.932			0.907	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3252	0	1719	3307	0	1770	1736	0	1770	1690	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3252	0	1719	3307	0	1770	1736	0	1770	1690	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		606			973			698			813	
Travel Time (s)		7.5			12.1			10.6			12.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	332	1444	808	124	1067	361	871	222	182	288	121	196
Shared Lane Traffic (%)												
Lane Group Flow (vph)	332	2252	0	124	1428	0	871	404	0	288	317	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Split			Split		
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases												
Detector Phase	1	6		5	2		4	4		3	3	
Switch Phase												
Minimum Initial (s)	7.0	14.0		7.0	14.0		7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	21.0		14.0	21.0		14.0	14.0		14.0	14.0	
Total Split (s)	23.0	62.0	0.0	14.0	53.0	0.0	43.0	43.0	0.0	21.0	21.0	0.0
Total Split (%)	16.4%	44.3%	0.0%	10.0%	37.9%	0.0%	30.7%	30.7%	0.0%	15.0%	15.0%	0.0%
Maximum Green (s)	16.0	55.0		7.0	46.0		36.0	36.0		14.0	14.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	7.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	16.0	57.0		9.0	48.0		38.0	38.0		16.0	16.0	
Actuated g/C Ratio	0.11	0.41		0.06	0.34		0.27	0.27		0.11	0.11	
v/c Ratio	1.69	1.70		1.12	1.26		1.81	0.86		1.43	1.64	
Control Delay	369.4	347.5		177.7	162.7		405.1	66.9		260.8	348.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	369.4	347.5		177.7	162.7		405.1	66.9		260.8	348.5	
LOS	F	F		F	F		F	E		F	F	
Approach Delay		350.3			163.9			297.9			306.7	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.81			
Intersection Signal Delay: 286.8		Intersection LOS: F	
Intersection Capacity Utilization 142.1%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 105: US 74 & Unionville Indian Trail Road West

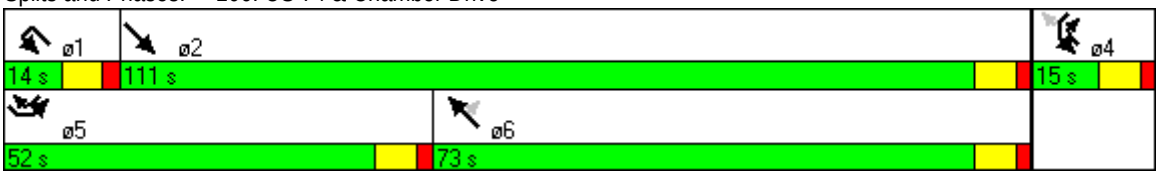


Lane Group	SEL	SET	NWU	NWT	NWR	SWL	SWR
Lane Configurations							
Volume (vph)	371	1431	10	1210	125	52	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Frt					0.850		0.850
Flt Protected	0.950		0.950			0.950	
Satd. Flow (prot)	1719	3438	1719	3438	1538	1770	1583
Flt Permitted	0.950		0.950			0.950	
Satd. Flow (perm)	1719	3438	1719	3438	1538	1770	1583
Right Turn on Red					No		No
Satd. Flow (RTOR)							
Link Speed (mph)		55		55		35	
Link Distance (ft)		2407		1378		1258	
Travel Time (s)		29.8		17.1		24.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	2%	2%
Adj. Flow (vph)	412	1590	11	1344	139	58	144
Shared Lane Traffic (%)							
Lane Group Flow (vph)	412	1590	11	1344	139	58	144
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Left	R NA	Left	Right	Left	Right
Median Width(ft)		12		12		12	
Link Offset(ft)		0		0		0	
Crosswalk Width(ft)		0		0		0	
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9		9	15	9
Number of Detectors	1	2	1	2	1	1	1
Detector Template	Left	Thru	Left	Thru	Right	Left	Right
Leading Detector (ft)	20	100	20	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94		94			
Detector 2 Size(ft)		6		6			
Detector 2 Type		Cl+Ex		Cl+Ex			
Detector 2 Channel							
Detector 2 Extend (s)		0.0		0.0			
Turn Type	Prot		Prot		pm+ov		pm+ov
Protected Phases	5	2	1	6	4	4	5
Permitted Phases					6		4
Detector Phase	5	2	1	6	4	4	5
Switch Phase							
Minimum Initial (s)	7.0	14.0	7.0	14.0	7.0	7.0	7.0

Lane Group	SEL	SET	NWU	NWT	NWR	SWL	SWR
Minimum Split (s)	14.0	21.0	14.0	21.0	14.0	14.0	14.0
Total Split (s)	52.0	111.0	14.0	73.0	15.0	15.0	52.0
Total Split (%)	37.1%	79.3%	10.0%	52.1%	10.7%	10.7%	37.1%
Maximum Green (s)	45.0	104.0	7.0	66.0	8.0	8.0	45.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag			Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	C-Max	None	None	None
Act Effct Green (s)	40.0	114.6	9.0	75.2	90.0	9.8	54.8
Actuated g/C Ratio	0.29	0.82	0.06	0.54	0.64	0.07	0.39
v/c Ratio	0.84	0.57	0.10	0.73	0.14	0.47	0.23
Control Delay	62.1	6.0	63.9	28.7	11.3	75.4	28.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.1	6.0	63.9	28.7	11.3	75.4	28.3
LOS	E	A	E	C	B	E	C
Approach Delay		17.5		27.3		41.8	
Approach LOS		B		C		D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 22.8		Intersection LOS: C	
Intersection Capacity Utilization 72.3%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 106: US 74 & Chamber Drive

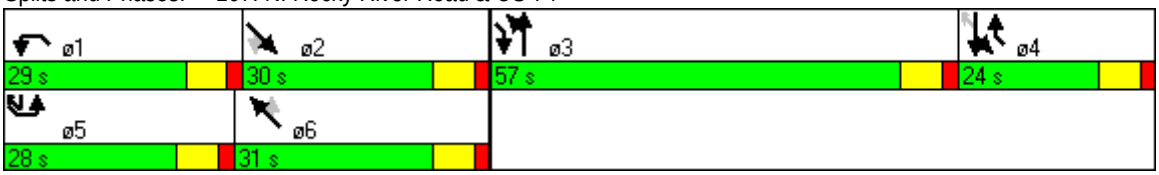


Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	472	106	274	171	121	176	266	646	809	371	510	204
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.957				0.850			0.850			0.850
Flt Protected		0.973			0.972		0.950			0.950		
Satd. Flow (prot)	0	1735	0	0	1811	1583	1719	3438	1538	1719	3438	1538
Flt Permitted		0.973			0.972		0.950			0.950		
Satd. Flow (perm)	0	1735	0	0	1811	1583	1719	3438	1538	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		1176			418			3021			3350	
Travel Time (s)		17.8			6.3			37.5			41.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	524	118	304	190	134	196	296	718	899	412	567	227
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	946	0	0	324	196	296	718	899	412	567	227
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	3	3		4	4	5	5	2	3	1	6	4
Permitted Phases						4			2			6
Detector Phase	3	3		4	4	5	5	2	3	1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	14.0	7.0	7.0	14.0	7.0

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0	14.0	14.0	21.0	14.0	14.0	21.0	14.0
Total Split (s)	57.0	57.0	0.0	24.0	24.0	28.0	28.0	30.0	57.0	29.0	31.0	24.0
Total Split (%)	40.7%	40.7%	0.0%	17.1%	17.1%	20.0%	20.0%	21.4%	40.7%	20.7%	22.1%	17.1%
Maximum Green (s)	50.0	50.0		17.0	17.0	21.0	21.0	23.0	50.0	22.0	24.0	17.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead		Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)		52.0			19.0	47.0	23.0	25.0	82.0	24.0	26.0	45.0
Actuated g/C Ratio		0.37			0.14	0.34	0.16	0.18	0.59	0.17	0.19	0.32
v/c Ratio		1.47			1.32	0.37	1.05	1.17	1.00	1.40	0.89	0.46
Control Delay		252.9			214.1	37.8	122.5	142.2	58.6	239.7	72.5	24.1
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		252.9			214.1	37.8	122.5	142.2	58.6	239.7	72.5	24.1
LOS		F			F	D	F	F	E	F	E	C
Approach Delay		252.9			147.7			99.9			120.5	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.47			
Intersection Signal Delay: 142.3		Intersection LOS: F	
Intersection Capacity Utilization 119.4%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 107: N. Rocky River Road & US 74

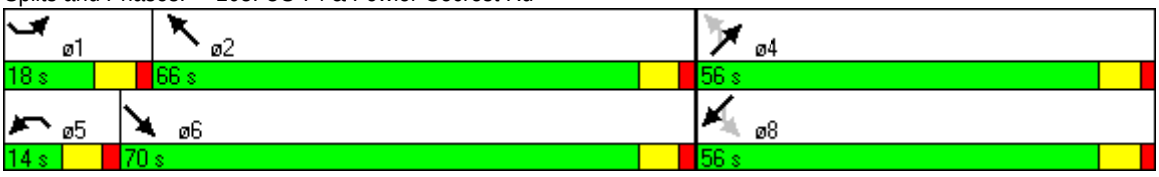


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	85	1099	29	54	879	173	33	125	77	138	70	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.975			0.956			0.972	
Flt Protected	0.950			0.950				0.993			0.974	
Satd. Flow (prot)	1719	3424	0	1719	3352	0	0	1768	0	0	1764	0
Flt Permitted	0.950			0.950				0.915			0.576	
Satd. Flow (perm)	1719	3424	0	1719	3352	0	0	1629	0	0	1043	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		2601			2354			277			1205	
Travel Time (s)		39.4			35.7			5.4			18.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	94	1221	32	60	977	192	37	139	86	153	78	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	94	1253	0	60	1169	0	0	262	0	0	291	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		
Detector Phase	1	6		5	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	18.0	70.0	0.0	14.0	66.0	0.0	56.0	56.0	0.0	56.0	56.0	0.0
Total Split (%)	12.9%	50.0%	0.0%	10.0%	47.1%	0.0%	40.0%	40.0%	0.0%	40.0%	40.0%	0.0%
Maximum Green (s)	11.0	63.0		7.0	59.0		49.0	49.0		49.0	49.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	13.1	74.7		10.3	69.2			42.8			42.8	
Actuated g/C Ratio	0.09	0.53		0.07	0.49			0.31			0.31	
v/c Ratio	0.58	0.69		0.47	0.71			0.53			0.92	
Control Delay	75.8	28.9		75.2	32.1			43.1			78.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	75.8	28.9		75.2	32.1			43.1			78.7	
LOS	E	C		E	C			D			E	
Approach Delay		32.1			34.2			43.1			78.7	
Approach LOS		C			C			D			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 38.2		Intersection LOS: D	
Intersection Capacity Utilization 81.5%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 108: US 74 & Fowler-Secrest Rd



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	74	1207	157	16	992	9	124	13	15	7	10	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00											
Frt		0.983				0.850		0.986			0.901	
Flt Protected	0.950			0.950				0.961			0.994	
Satd. Flow (prot)	1719	3380	0	1719	3266	1538	0	1765	0	0	1668	0
Flt Permitted	0.950			0.950				0.701			0.965	
Satd. Flow (perm)	1717	3380	0	1719	3266	1538	0	1288	0	0	1620	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		309			978			474			425	
Travel Time (s)		4.7			14.8			12.9			11.6	
Confl. Peds. (#/hr)	1											
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Parking (#/hr)					0							
Adj. Flow (vph)	82	1341	174	18	1102	10	138	14	17	8	11	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	82	1515	0	18	1102	10	0	169	0	0	71	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.07	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot		Perm	Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases						2	4			8		

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector Phase	1	6		5	2	2	4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	12.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	19.0		14.0	19.0	19.0	14.0	14.0		14.0	14.0	
Total Split (s)	18.0	90.0	0.0	14.0	86.0	86.0	36.0	36.0	0.0	36.0	36.0	0.0
Total Split (%)	12.9%	64.3%	0.0%	10.0%	61.4%	61.4%	25.7%	25.7%	0.0%	25.7%	25.7%	0.0%
Maximum Green (s)	11.0	83.0		7.0	79.0	79.0	29.0	29.0		29.0	29.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		None	None	
Act Effct Green (s)	12.7	99.6		9.2	87.7	87.7		24.6			24.6	
Actuated g/C Ratio	0.09	0.71		0.07	0.63	0.63		0.18			0.18	
v/c Ratio	0.53	0.63		0.16	0.54	0.01		0.75			0.25	
Control Delay	72.8	14.2		65.2	17.0	12.2		74.0			50.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	
Total Delay	72.8	14.2		65.2	17.0	12.2		74.0			50.1	
LOS	E	B		E	B	B		E			D	
Approach Delay		17.2			17.7			74.0			50.1	
Approach LOS		B			B			E			D	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 21.4 Intersection LOS: C
Intersection Capacity Utilization 71.8% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 110: US 74 & Rolling Hill Drive

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	133	10	150	95	10	84	79	1012	126	113	811	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.859			0.940			0.983				0.850
Flt Protected	0.950				0.975		0.950			0.950		
Satd. Flow (prot)	1770	1600	0	0	1707	0	1719	3380	0	1719	3438	1538
Flt Permitted	0.592				0.638		0.950			0.950		
Satd. Flow (perm)	1103	1600	0	0	1117	0	1719	3380	0	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		510			371			748			991	
Travel Time (s)		13.9			10.1			11.3			15.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	148	11	167	106	11	93	88	1124	140	126	901	80
Shared Lane Traffic (%)												
Lane Group Flow (vph)	148	178	0	0	210	0	88	1264	0	126	901	80
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm			Perm			Prot			Prot		Perm
Protected Phases		3			8		1	6		5	2	
Permitted Phases	3			8								2
Detector Phase	3	3		8	8		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	12.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0		14.0	19.0	19.0
Total Split (s)	45.0	45.0	0.0	45.0	45.0	0.0	19.0	72.0	0.0	23.0	76.0	76.0
Total Split (%)	32.1%	32.1%	0.0%	32.1%	32.1%	0.0%	13.6%	51.4%	0.0%	16.4%	54.3%	54.3%
Maximum Green (s)	38.0	38.0		38.0	38.0		12.0	65.0		16.0	69.0	69.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?								Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	Max		None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	40.0	40.0			40.0		12.8	68.9		16.1	72.2	72.2
Actuated g/C Ratio	0.29	0.29			0.29		0.09	0.49		0.12	0.52	0.52
v/c Ratio	0.47	0.39			0.66		0.56	0.76		0.64	0.51	0.10
Control Delay	47.2	43.3			55.3		74.5	32.9		73.9	23.7	18.2
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	47.2	43.3			55.3		74.5	32.9		73.9	23.7	18.2
LOS	D	D			E		E	C		E	C	B
Approach Delay		45.1			55.3			35.6			29.0	
Approach LOS		D			E			D			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 35.6		Intersection LOS: D	
Intersection Capacity Utilization 75.6%		ICU Level of Service D	
Analysis Period (min) 15			

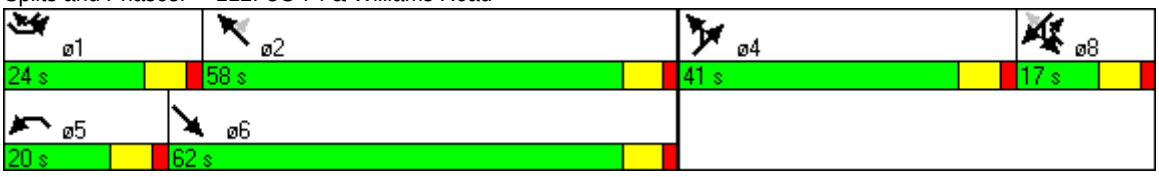
Splits and Phases: 111: Roland Drive & US 74

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	130	1067	32	129	882	121	48	91	233	98	41	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996				0.850		0.892				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3424	0	1719	3438	1538	1770	1662	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3424	0	1719	3438	1538	1770	1662	0	1770	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		822			734			281			279	
Travel Time (s)		12.5			11.1			5.5			7.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	144	1186	36	143	980	134	53	101	259	109	46	97
Shared Lane Traffic (%)												
Lane Group Flow (vph)	144	1222	0	143	980	134	53	360	0	109	46	97
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot		pm+ov	Split			Split		pm+ov
Protected Phases	1	6		5	2	8	4	4		8	8	1
Permitted Phases						2						8
Detector Phase	1	6		5	2	8	4	4		8	8	1
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	7.0	7.0	7.0		7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0		14.0	19.0	14.0	14.0	14.0		14.0	14.0	14.0
Total Split (s)	24.0	62.0	0.0	20.0	58.0	17.0	41.0	41.0	0.0	17.0	17.0	24.0
Total Split (%)	17.1%	44.3%	0.0%	14.3%	41.4%	12.1%	29.3%	29.3%	0.0%	12.1%	12.1%	17.1%
Maximum Green (s)	17.0	55.0		13.0	51.0	10.0	34.0	34.0		10.0	10.0	17.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	C-Max		None	C-Max	Max	None	None		Max	Max	Max
Act Effct Green (s)	19.0	57.3		14.7	53.0	66.9	34.1	34.1		13.9	13.9	37.9
Actuated g/C Ratio	0.14	0.41		0.10	0.38	0.48	0.24	0.24		0.10	0.10	0.27
v/c Ratio	0.62	0.87		0.79	0.75	0.18	0.12	0.89		0.62	0.25	0.23
Control Delay	69.5	46.2		90.4	42.3	12.0	41.2	75.1		77.2	63.6	42.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	69.5	46.2		90.4	42.3	12.0	41.2	75.1		77.2	63.6	42.3
LOS	E	D		F	D	B	D	E		E	E	D
Approach Delay		48.6			44.5			70.7			61.3	
Approach LOS		D			D			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 50.8		Intersection LOS: D	
Intersection Capacity Utilization 79.3%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 112: US 74 & Williams Road

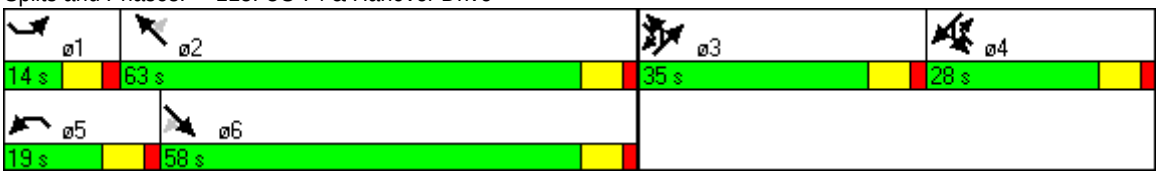


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	15	1259	101	193	1025	467	110	109	257	588	103	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850			0.850		0.895			0.980	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	1752	1651	0	3400	1808	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	1752	1651	0	3400	1808	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		338			529			376			313	
Travel Time (s)		5.1			8.0			7.3			8.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	17	1399	112	214	1139	519	122	121	286	653	114	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	1399	112	214	1139	519	122	407	0	653	132	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Split			Split		
Protected Phases	1	6	3	5	2	4	3	3		4	4	
Permitted Phases			6			2						
Detector Phase	1	6	3	5	2	4	3	3		4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0		14.0	14.0	
Total Split (s)	14.0	58.0	35.0	19.0	63.0	28.0	35.0	35.0	0.0	28.0	28.0	0.0
Total Split (%)	10.0%	41.4%	25.0%	13.6%	45.0%	20.0%	25.0%	25.0%	0.0%	20.0%	20.0%	0.0%
Maximum Green (s)	7.0	51.0	28.0	12.0	56.0	21.0	28.0	28.0		21.0	21.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Act Effct Green (s)	9.0	53.0	88.0	14.0	66.4	92.4	30.0	30.0		23.0	23.0	
Actuated g/C Ratio	0.06	0.38	0.63	0.10	0.47	0.66	0.21	0.21		0.16	0.16	
v/c Ratio	0.15	1.07	0.12	1.24	0.70	0.51	0.33	1.15		1.17	0.44	
Control Delay	65.3	89.0	10.8	199.0	33.0	12.5	49.3	143.3		143.8	58.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	65.3	89.0	10.8	199.0	33.0	12.5	49.3	143.3		143.8	58.2	
LOS	E	F	B	F	C	B	D	F		F	E	
Approach Delay		83.0			46.3			121.6			129.4	
Approach LOS		F			D			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.24			
Intersection Signal Delay: 80.5		Intersection LOS: F	
Intersection Capacity Utilization 100.5%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 113: US 74 & Hanover Drive

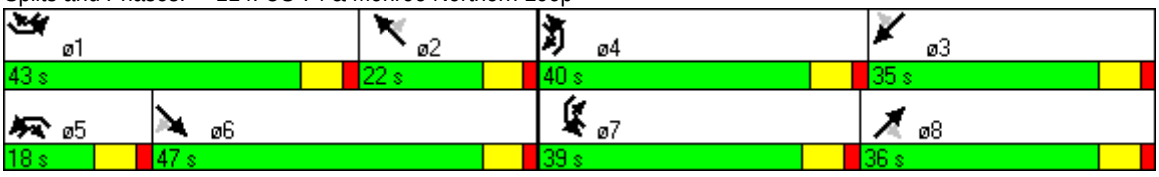


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	936	724	396	136	524	634	483	786	228	670	493	717
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3335	4940	1538	3335	4940	1538	3335	3438	1538	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	4940	1538	3335	4940	1538	3335	3438	1538	3433	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		858			915			405			209	
Travel Time (s)		13.0			13.9			7.9			3.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	2%	2%	2%
Adj. Flow (vph)	1040	804	440	151	582	704	537	873	253	744	548	797
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1040	804	440	151	582	704	537	873	253	744	548	797
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	1	6	4	5	2	7	4	8	5	7	3	1
Permitted Phases			6			2			8			3
Detector Phase	1	6	4	5	2	7	4	8	5	7	3	1
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	43.0	47.0	40.0	18.0	22.0	39.0	40.0	36.0	18.0	39.0	35.0	43.0
Total Split (%)	30.7%	33.6%	28.6%	12.9%	15.7%	27.9%	28.6%	25.7%	12.9%	27.9%	25.0%	30.7%
Maximum Green (s)	36.0	40.0	33.0	11.0	15.0	32.0	33.0	29.0	11.0	32.0	28.0	36.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	38.0	42.7	77.8	12.3	17.0	56.0	30.2	31.0	48.3	34.0	34.8	77.8
Actuated g/C Ratio	0.27	0.30	0.56	0.09	0.12	0.40	0.22	0.22	0.34	0.24	0.25	0.56
v/c Ratio	1.15	0.53	0.51	0.51	0.97	1.14	0.75	1.15	0.48	0.89	0.62	0.91
Control Delay	125.3	42.1	21.5	67.3	90.9	121.8	58.0	129.2	39.4	65.3	51.3	44.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	125.3	42.1	21.5	67.3	90.9	121.8	58.0	129.2	39.4	65.3	51.3	44.0
LOS	F	D	C	E	F	F	E	F	D	E	D	D
Approach Delay		76.0			103.5			92.5			53.5	
Approach LOS		E			F			F			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 120			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.15			
Intersection Signal Delay: 78.7		Intersection LOS: E	
Intersection Capacity Utilization 100.2%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 114: US 74 & Monroe Northern Loop

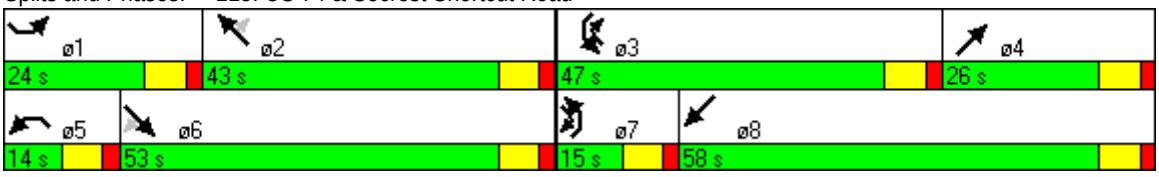


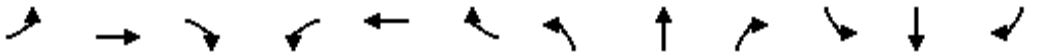
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	208	1372	55	115	1076	515	57	66	152	476	46	151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.895			0.885	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	3335	4940	1538	1770	1667	0	1770	1649	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	3335	4940	1538	1770	1667	0	1770	1649	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		413			1354			238			233	
Travel Time (s)		6.3			20.5			6.5			4.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	231	1524	61	128	1196	572	63	73	169	529	51	168
Shared Lane Traffic (%)												
Lane Group Flow (vph)	231	1524	61	128	1196	572	63	242	0	529	219	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot			Prot		
Protected Phases	1	6	7	5	2	3	7	4		3	8	
Permitted Phases			6			2						
Detector Phase	1	6	7	5	2	3	7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0		14.0	14.0	
Total Split (s)	24.0	53.0	15.0	14.0	43.0	47.0	15.0	26.0	0.0	47.0	58.0	0.0
Total Split (%)	17.1%	37.9%	10.7%	10.0%	30.7%	33.6%	10.7%	18.6%	0.0%	33.6%	41.4%	0.0%
Maximum Green (s)	17.0	46.0	8.0	7.0	36.0	40.0	8.0	19.0		40.0	51.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Act Effct Green (s)	19.0	48.0	62.8	9.0	38.0	85.0	9.8	21.0		42.0	53.2	
Actuated g/C Ratio	0.14	0.34	0.45	0.06	0.27	0.61	0.07	0.15		0.30	0.38	
v/c Ratio	0.99	0.90	0.09	0.60	0.89	0.61	0.51	0.97		1.00	0.35	
Control Delay	116.5	52.0	22.6	75.9	58.5	20.8	77.6	107.9		86.8	33.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	116.5	52.0	22.6	75.9	58.5	20.8	77.6	107.9		86.8	33.1	
LOS	F	D	C	E	E	C	E	F		F	C	
Approach Delay		59.2			48.3			101.6			71.1	
Approach LOS		E			D			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.00			
Intersection Signal Delay: 59.4		Intersection LOS: E	
Intersection Capacity Utilization 88.2%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 115: US 74 & Secrest Shortcut Road



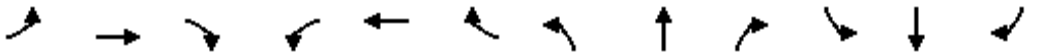


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	254	1945	253	297	1554	155	151	118	221	138	141	181
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00											
Frt		0.983			0.986			0.902			0.916	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4856	0	1719	4871	0	1770	1680	0	1770	1706	0
Flt Permitted	0.950			0.950			0.276			0.249		
Satd. Flow (perm)	1719	4856	0	1719	4871	0	514	1680	0	464	1706	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		443			590			549			636	
Travel Time (s)		6.7			8.9			15.0			12.4	
Confl. Peds. (#/hr)	1											
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	282	2161	281	330	1727	172	168	131	246	153	157	201
Shared Lane Traffic (%)												
Lane Group Flow (vph)	282	2442	0	330	1899	0	168	377	0	153	358	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Detector Phase	5	2		1	6		4	4		8	8	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	29.0	67.0	0.0	28.0	66.0	0.0	45.0	45.0	0.0	45.0	45.0	0.0
Total Split (%)	20.7%	47.9%	0.0%	20.0%	47.1%	0.0%	32.1%	32.1%	0.0%	32.1%	32.1%	0.0%
Maximum Green (s)	22.0	60.0		21.0	59.0		38.0	38.0		38.0	38.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	24.0	62.0		23.0	61.0		40.0	40.0		40.0	40.0	
Actuated g/C Ratio	0.17	0.44		0.16	0.44		0.29	0.29		0.29	0.29	
v/c Ratio	0.96	1.14		1.17	0.89		1.14	0.79		1.15	0.74	
Control Delay	99.4	103.8		157.7	43.2		162.5	59.0		168.7	55.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	99.4	103.8		157.7	43.2		162.5	59.0		168.7	55.5	
LOS	F	F		F	D		F	E		F	E	
Approach Delay		103.3			60.2			90.9			89.4	
Approach LOS		F			E			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 120			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.17			
Intersection Signal Delay: 85.0		Intersection LOS: F	
Intersection Capacity Utilization 103.8%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 120: US 74 & Stafford Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	195	2076	117	117	1697	107	159	10	195	53	10	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992			0.991			0.857			0.867	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4900	0	1719	4896	0	1770	1596	0	1770	1615	0
Flt Permitted	0.950			0.950			0.650			0.333		
Satd. Flow (perm)	1719	4900	0	1719	4896	0	1211	1596	0	620	1615	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			20	
Link Distance (ft)		493			536			238			211	
Travel Time (s)		7.5			8.1			6.5			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	217	2307	130	130	1886	119	177	11	217	59	11	87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	217	2437	0	130	2005	0	177	228	0	59	98	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	32.0	86.0	0.0	21.0	75.0	0.0	33.0	33.0	0.0	33.0	33.0	0.0
Total Split (%)	22.9%	61.4%	0.0%	15.0%	53.6%	0.0%	23.6%	23.6%	0.0%	23.6%	23.6%	0.0%
Maximum Green (s)	25.0	79.0		14.0	68.0		26.0	26.0		26.0	26.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	23.5	84.5		15.2	76.2		25.3	25.3		25.3	25.3	
Actuated g/C Ratio	0.17	0.60		0.11	0.54		0.18	0.18		0.18	0.18	
v/c Ratio	0.75	0.82		0.70	0.75		0.81	0.79		0.53	0.34	
Control Delay	71.5	25.7		79.9	28.1		81.4	74.3		68.8	52.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	71.5	25.7		79.9	28.1		81.4	74.3		68.8	52.5	
LOS	E	C		E	C		F	E		E	D	
Approach Delay		29.5			31.2			77.4			58.6	
Approach LOS		C			C			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 34.7		Intersection LOS: C	
Intersection Capacity Utilization 84.3%		ICU Level of Service E	
Analysis Period (min) 15			

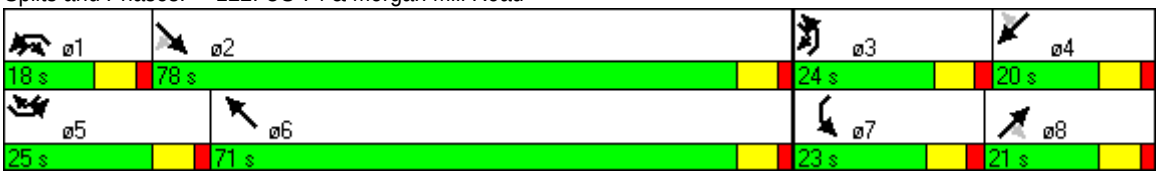
Splits and Phases: 121: US 74 & Boyte Street

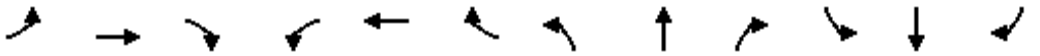
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	174	2026	158	109	1625	195	161	145	138	151	89	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.984				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	1719	4861	0	1687	1776	1509	1687	1776	1509
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	1719	4861	0	1687	1776	1509	1687	1776	1509
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		515			499			502			475	
Travel Time (s)		7.8			7.6			9.8			9.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	7%	7%	7%	7%	7%	7%
Adj. Flow (vph)	193	2251	176	121	1806	217	179	161	153	168	99	120
Shared Lane Traffic (%)												
Lane Group Flow (vph)	193	2251	176	121	2023	0	179	161	153	168	99	120
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot			Prot		pm+ov	Prot		pm+ov
Protected Phases	5	2	3	1	6		3	8	1	7	4	5
Permitted Phases			2						8			4
Detector Phase	5	2	3	1	6		3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0		7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0		14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	25.0	78.0	24.0	18.0	71.0	0.0	24.0	21.0	18.0	23.0	20.0	25.0
Total Split (%)	17.9%	55.7%	17.1%	12.9%	50.7%	0.0%	17.1%	15.0%	12.9%	16.4%	14.3%	17.9%
Maximum Green (s)	18.0	71.0	17.0	11.0	64.0		17.0	14.0	11.0	16.0	13.0	18.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max		None	None	None	None	None	None
Act Effct Green (s)	19.3	74.1	97.5	12.8	67.6		18.3	15.7	33.5	17.4	14.7	39.0
Actuated g/C Ratio	0.14	0.53	0.70	0.09	0.48		0.13	0.11	0.24	0.12	0.10	0.28
v/c Ratio	0.81	0.86	0.16	0.77	0.86		0.81	0.81	0.42	0.80	0.53	0.29
Control Delay	84.2	33.1	7.8	91.8	37.2		85.7	89.5	49.2	86.3	70.3	41.4
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.2	33.1	7.8	91.8	37.2		85.7	89.5	49.2	86.3	70.3	41.4
LOS	F	C	A	F	D		F	F	D	F	E	D
Approach Delay		35.2			40.3			75.6			68.2	
Approach LOS		D			D			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 42.9		Intersection LOS: D	
Intersection Capacity Utilization 78.0%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 122: US 74 & Morgan Mill Road



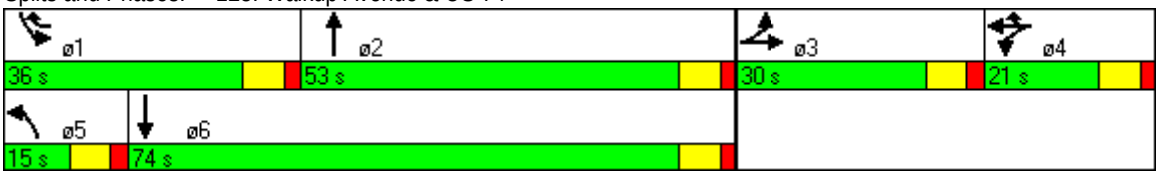


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	69	131	91	43	184	382	92	1482	31	348	1873	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.958				0.850		0.997			0.993	
Flt Protected		0.988		0.950			0.950			0.950		
Satd. Flow (prot)	0	1763	0	1770	1863	1583	1719	4925	0	1719	4905	0
Flt Permitted		0.988		0.950			0.950			0.950		
Satd. Flow (perm)	0	1763	0	1770	1863	1583	1719	4925	0	1719	4905	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		443			502			602			356	
Travel Time (s)		12.1			9.8			9.1			5.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	77	146	101	48	204	424	102	1647	34	387	2081	99
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	324	0	48	204	424	102	1681	0	387	2180	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pt+ov	Prot			Prot		
Protected Phases	3	3		4	4	4 1	5	2		1	6	
Permitted Phases												
Detector Phase	3	3		4	4	4 1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0		14.0	19.0	
Total Split (s)	30.0	30.0	0.0	21.0	21.0	57.0	15.0	53.0	0.0	36.0	74.0	0.0
Total Split (%)	21.4%	21.4%	0.0%	15.0%	15.0%	40.7%	10.7%	37.9%	0.0%	25.7%	52.9%	0.0%
Maximum Green (s)	23.0	23.0		14.0	14.0		8.0	46.0		29.0	67.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lead		Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)		25.0		16.0	16.0	52.0	10.0	48.0		31.0	69.0	
Actuated g/C Ratio		0.18		0.11	0.11	0.37	0.07	0.34		0.22	0.49	
v/c Ratio		1.03		0.24	0.96	0.72	0.83	1.00		1.02	0.90	
Control Delay		113.7		59.8	112.6	46.1	108.7	66.5		103.5	38.8	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		113.7		59.8	112.6	46.1	108.7	66.5		103.5	38.8	
LOS		F		E	F	D	F	E		F	D	
Approach Delay		113.7			67.2			68.9			48.5	
Approach LOS		F			E			E			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.03			
Intersection Signal Delay: 61.6		Intersection LOS: E	
Intersection Capacity Utilization 91.2%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 123: Walkup Avenue & US 74



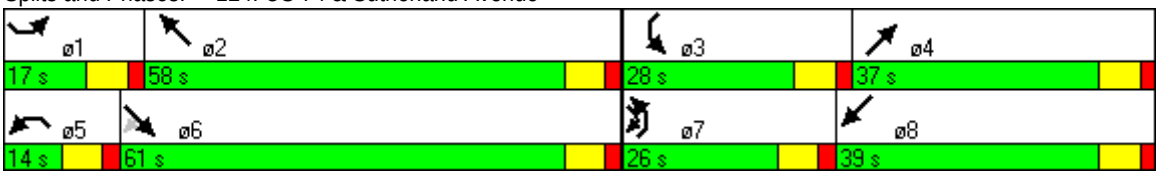
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	96	1673	169	43	1338	139	210	244	66	208	235	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.986			0.968			0.951	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	1719	4871	0	1752	1786	0	1752	1754	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	1719	4871	0	1752	1786	0	1752	1754	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		425			487			426			331	
Travel Time (s)		6.4			7.4			11.6			6.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	107	1859	188	48	1487	154	233	271	73	231	261	128
Shared Lane Traffic (%)												
Lane Group Flow (vph)	107	1859	188	48	1641	0	233	344	0	231	389	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot			Prot			Prot		
Protected Phases	1	6	7	5	2		7	4		3	8	
Permitted Phases			6									
Detector Phase	1	6	7	5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0		7.0	7.0		7.0	7.0	

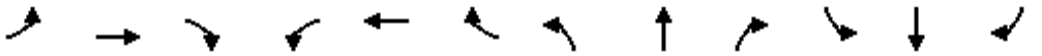
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	17.0	61.0	26.0	14.0	58.0	0.0	26.0	37.0	0.0	28.0	39.0	0.0
Total Split (%)	12.1%	43.6%	18.6%	10.0%	41.4%	0.0%	18.6%	26.4%	0.0%	20.0%	27.9%	0.0%
Maximum Green (s)	10.0	54.0	19.0	7.0	51.0		19.0	30.0		21.0	32.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes			Yes			Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max		None	None		None	None	
Act Effct Green (s)	11.8	59.6	85.4	9.0	54.0		20.8	32.1		22.1	33.4	
Actuated g/C Ratio	0.08	0.43	0.61	0.06	0.39		0.15	0.23		0.16	0.24	
v/c Ratio	0.74	0.88	0.20	0.43	0.87		0.89	0.84		0.83	0.93	
Control Delay	90.8	44.0	13.7	75.6	46.3		92.3	70.5		81.7	81.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	90.8	44.0	13.7	75.6	46.3		92.3	70.5		81.7	81.7	
LOS	F	D	B	E	D		F	E		F	F	
Approach Delay		43.7			47.2			79.3			81.7	
Approach LOS		D			D			E			F	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 53.6 Intersection LOS: D
Intersection Capacity Utilization 85.8% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 124: US 74 & Sutherland Avenue





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	48	61	31	34	152	26	1424	19	115	1760	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.916			0.878				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1706	0	1770	1635	0	1719	4940	1538	1719	4940	1538
Flt Permitted	0.377			0.589			0.950			0.950		
Satd. Flow (perm)	702	1706	0	1097	1635	0	1719	4940	1538	1719	4940	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		163			218			356			257	
Travel Time (s)		5.6			4.2			5.4			3.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	4	53	68	34	38	169	29	1582	21	128	1956	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	121	0	34	207	0	29	1582	21	128	1956	2
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm			Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	12.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	19.0
Total Split (s)	39.0	39.0	0.0	39.0	39.0	0.0	16.0	74.0	74.0	27.0	85.0	85.0
Total Split (%)	27.9%	27.9%	0.0%	27.9%	27.9%	0.0%	11.4%	52.9%	52.9%	19.3%	60.7%	60.7%
Maximum Green (s)	32.0	32.0		32.0	32.0		9.0	67.0	67.0	20.0	78.0	78.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	24.9	24.9		24.9	24.9		10.2	82.4	82.4	17.6	95.5	95.5
Actuated g/C Ratio	0.18	0.18		0.18	0.18		0.07	0.59	0.59	0.13	0.68	0.68
v/c Ratio	0.03	0.40		0.17	0.71		0.23	0.54	0.02	0.59	0.58	0.00
Control Delay	44.2	53.4		48.3	67.0		65.2	19.7	15.6	68.3	14.6	11.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.2	53.4		48.3	67.0		65.2	19.7	15.6	68.3	14.6	11.5
LOS	D	D		D	E		E	B	B	E	B	B
Approach Delay		53.2			64.4			20.4			17.9	
Approach LOS		D			E			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 22.8		Intersection LOS: C	
Intersection Capacity Utilization 63.5%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 125: Dove Street & US 74

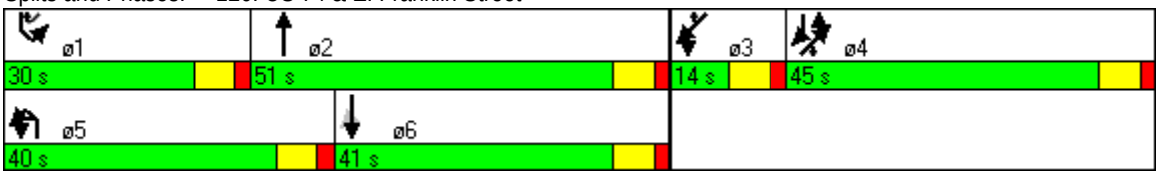
Lane Group	NBU	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT
Lane Configurations												
Volume (vph)	9	1038	1056	124	170	1389	348	250	91	979	122	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.86	0.97	0.86	0.86	1.00	0.91	1.00	1.00	1.00	0.88	1.00	1.00
Frt			0.984				0.850			0.850		
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	3335	6125	0	1719	4940	1538	1752	1845	2760	1752	1845
Flt Permitted		0.950			0.950			0.950			0.950	
Satd. Flow (perm)	0	3335	6125	0	1719	4940	1538	1752	1845	2760	1752	1845
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			45			35			20
Link Distance (ft)			341			436			391			335
Travel Time (s)			5.2			6.6			7.6			11.4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%
Adj. Flow (vph)	10	1153	1173	138	189	1543	387	278	101	1088	136	106
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1163	1311	0	189	1543	387	278	101	1088	136	106
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			24			24			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1	1	2		1	2	1	1	2	1	1	2
Detector Template	Left	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru
Leading Detector (ft)	20	20	100		20	100	20	20	100	20	20	100
Trailing Detector (ft)	0	0	0		0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0		0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	6		20	6	20	20	6	20	20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94			94			94			94
Detector 2 Size(ft)			6			6			6			6
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			0.0
Turn Type	Prot	Prot			Prot		pm+ov	Split		Prot	Split	
Protected Phases	5	5	2		1	6	4	4	4	4	3	3
Permitted Phases							6					
Detector Phase	5	5	2		1	6	4	4	4	4	3	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	12.0		7.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SWR
Lane Configurations	
Volume (vph)	127
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1568
Flt Permitted	
Satd. Flow (perm)	1568
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	3%
Adj. Flow (vph)	141
Shared Lane Traffic (%)	
Lane Group Flow (vph)	141
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	pt+ov
Protected Phases	3 1
Permitted Phases	
Detector Phase	3 1
Switch Phase	
Minimum Initial (s)	

Lane Group	NBU	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT
Minimum Split (s)	14.0	14.0	19.0		14.0	19.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	40.0	40.0	51.0	0.0	30.0	41.0	45.0	45.0	45.0	45.0	14.0	14.0
Total Split (%)	28.6%	28.6%	36.4%	0.0%	21.4%	29.3%	32.1%	32.1%	32.1%	32.1%	10.0%	10.0%
Maximum Green (s)	33.0	33.0	44.0		23.0	34.0	38.0	38.0	38.0	38.0	7.0	7.0
Yellow Time (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag		Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max		None	C-Max	None	None	None	None	None	None
Act Effct Green (s)		35.0	49.5		21.5	36.0	76.0	40.0	40.0	40.0	9.0	9.0
Actuated g/C Ratio		0.25	0.35		0.15	0.26	0.54	0.29	0.29	0.29	0.06	0.06
v/c Ratio		1.39	0.61		0.72	1.21	0.46	0.55	0.19	1.38	1.20	0.89
Control Delay		224.0	39.2		71.2	148.1	13.5	47.5	39.0	216.7	202.4	121.3
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		224.0	39.2		71.2	148.1	13.5	47.5	39.0	216.7	202.4	121.3
LOS		F	D		E	F	B	D	D	F	F	F
Approach Delay			126.1			116.7			172.4			115.4
Approach LOS			F			F			F			F

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.39			
Intersection Signal Delay: 132.9		Intersection LOS: F	
Intersection Capacity Utilization 114.4%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 126: US 74 & E. Franklin Street



Lane Group	SWR
Minimum Split (s)	
Total Split (s)	44.0
Total Split (%)	31.4%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Act Effct Green (s)	30.5
Actuated g/C Ratio	0.22
v/c Ratio	0.41
Control Delay	27.1
Queue Delay	0.0
Total Delay	27.1
LOS	C
Approach Delay	
Approach LOS	

Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	10	0	1273	1527	329	1063	29	914	0	236	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.91	0.91	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.996			0.937			
Flt Protected	0.950				0.950			0.950	0.972			
Satd. Flow (prot)	1719	0	4940	1538	1736	4968	0	1504	1442	0	0	0
Flt Permitted	0.950				0.950			0.950	0.972			
Satd. Flow (perm)	1719	0	4940	1538	1736	4968	0	1504	1442	0	0	0
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			55			45			25
Link Distance (ft)			239			375			459			145
Travel Time (s)			3.6			4.6			7.0			4.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	4%	4%	4%	14%	14%	14%	2%	2%
Adj. Flow (vph)	11	0	1414	1697	366	1181	32	1016	0	262	0	0
Shared Lane Traffic (%)								36%				
Lane Group Flow (vph)	11	0	1414	1697	366	1213	0	650	628	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			12			12			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1		2	1	1	2		1	2			
Detector Template	Left		Thru	Right	Left	Thru		Left	Thru			
Leading Detector (ft)	20		100	20	20	100		20	100			
Trailing Detector (ft)	0		0	0	0	0		0	0			
Detector 1 Position(ft)	0		0	0	0	0		0	0			
Detector 1 Size(ft)	20		6	20	20	6		20	6			
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 2 Position(ft)			94			94			94			
Detector 2 Size(ft)			6			6			6			
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			
Turn Type	Prot			pm+ov	Prot			Split				
Protected Phases	5		2	8	1	6		8	8			
Permitted Phases				2								
Detector Phase	5		2	8	1	6		8	8			
Switch Phase												
Minimum Initial (s)	7.0		12.0	12.0	7.0	14.0		12.0	12.0			

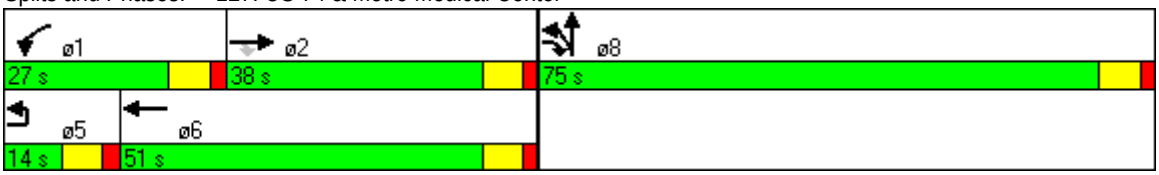
Lane Group	SBR
Lane Configurations	
Volume (vph)	18
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.865
Flt Protected	
Satd. Flow (prot)	1611
Flt Permitted	
Satd. Flow (perm)	1611
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	2%
Adj. Flow (vph)	20
Shared Lane Traffic (%)	
Lane Group Flow (vph)	20
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Detector Phase	
Switch Phase	
Minimum Initial (s)	

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Minimum Split (s)	14.0		19.0	19.0	14.0	21.0		19.0	19.0			
Total Split (s)	14.0	0.0	38.0	75.0	27.0	51.0	0.0	75.0	75.0	0.0	0.0	0.0
Total Split (%)	10.0%	0.0%	27.1%	53.6%	19.3%	36.4%	0.0%	53.6%	53.6%	0.0%	0.0%	0.0%
Maximum Green (s)	7.0		31.0	68.0	20.0	44.0		68.0	68.0			
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0		5.0	5.0			
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0		2.0	2.0			
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	2.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	2.0	2.0
Lead/Lag	Lead		Lag		Lead	Lag						
Lead-Lag Optimize?			Yes			Yes						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0		3.0	3.0			
Recall Mode	None		C-Max	None	None	C-Max		None	None			
Act Effct Green (s)	9.0		33.0	108.0	22.0	54.4		70.0	70.0			
Actuated g/C Ratio	0.06		0.24	0.77	0.16	0.39		0.50	0.50			
v/c Ratio	0.10		1.21	1.43	1.34	0.63		0.86	0.87			
Control Delay	63.9		149.7	219.2	220.0	37.4		44.4	45.6			
Queue Delay	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Total Delay	63.9		149.7	219.2	220.0	37.4		44.4	45.6			
LOS	E		F	F	F	D		D	D			
Approach Delay			187.2			79.8			45.0			
Approach LOS			F			E			D			

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.43
Intersection Signal Delay: 128.0 Intersection LOS: F
Intersection Capacity Utilization 121.1% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 127: US 74 & Metro Medical Center



Lane Group	SBR
Minimum Split (s)	
Total Split (s)	0.0
Total Split (%)	0.0%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	2.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Act Effct Green (s)	140.0
Actuated g/C Ratio	1.00
v/c Ratio	0.01
Control Delay	0.0
Queue Delay	0.0
Total Delay	0.0
LOS	A
Approach Delay	
Approach LOS	

Intersection Summary

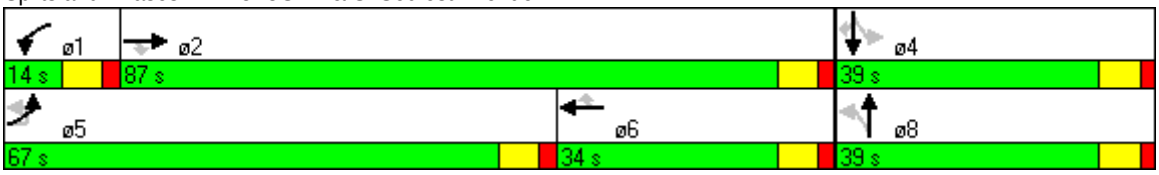
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	20	162	1307	47	9	1042	111	35	99	9	254	238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850			0.850		0.992			
Flt Protected		0.950			0.950				0.988			0.975
Satd. Flow (prot)	0	1736	3471	1553	1736	3471	1553	0	1826	0	0	1816
Flt Permitted		0.065			0.950				0.161			0.678
Satd. Flow (perm)	0	119	3471	1553	1736	3471	1553	0	298	0	0	1263
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			55			55			35			35
Link Distance (ft)			411			374			242			283
Travel Time (s)			5.1			4.6			4.7			5.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%
Adj. Flow (vph)	22	180	1452	52	10	1158	123	39	110	10	282	264
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	202	1452	52	10	1158	123	0	159	0	0	546
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			12			12			0			0
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1	1	2	1	1	2	1	1	2		1	2
Detector Template	Left	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru
Leading Detector (ft)	20	20	100	20	20	100	20	20	100		20	100
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0		0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0		0	0
Detector 1 Size(ft)	20	20	6	20	20	6	20	20	6		20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)			94			94			94			94
Detector 2 Size(ft)			6			6			6			6
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			0.0
Turn Type	custom	Prot		Perm	Prot		Perm	Perm			Perm	
Protected Phases		5	2		1	6			8			4
Permitted Phases	5			2			6	8			4	
Detector Phase	5	5	2	2	1	6	6	8	8		4	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	14.0	14.0	7.0	14.0	14.0	7.0	7.0		7.0	7.0

Lane Group	SBR
Lane Configurations	
Volume (vph)	295
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	2%
Adj. Flow (vph)	328
Shared Lane Traffic (%)	
Lane Group Flow (vph)	328
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Detector Phase	4
Switch Phase	
Minimum Initial (s)	7.0

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Minimum Split (s)	14.0	14.0	21.0	21.0	14.0	21.0	21.0	14.0	14.0		14.0	14.0
Total Split (s)	67.0	67.0	87.0	87.0	14.0	34.0	34.0	39.0	39.0	0.0	39.0	39.0
Total Split (%)	47.9%	47.9%	62.1%	62.1%	10.0%	24.3%	24.3%	27.9%	27.9%	0.0%	27.9%	27.9%
Maximum Green (s)	60.0	60.0	80.0	80.0	7.0	27.0	27.0	32.0	32.0		32.0	32.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Time Before Reduce (s)	0.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0	0.0		0.0	0.0
Time To Reduce (s)	0.0	0.0	50.0	50.0	0.0	50.0	50.0	0.0	0.0		0.0	0.0
Recall Mode	None	None	C-Min	C-Min	None	C-Min	C-Min	None	None		None	None
Act Effct Green (s)		62.0	93.2	93.2	9.0	29.0	29.0		34.0			34.0
Actuated g/C Ratio		0.44	0.67	0.67	0.06	0.21	0.21		0.24			0.24
v/c Ratio		3.81	0.63	0.05	0.09	1.61	0.38		2.21			1.78
Control Delay		1323.9	15.7	9.4	63.7	316.7	51.9		611.8			394.8
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0
Total Delay		1323.9	15.7	9.4	63.7	316.7	51.9		611.8			394.8
LOS		F	B	A	E	F	D		F			F
Approach Delay			170.4			289.5			611.8			273.6
Approach LOS			F			F			F			F

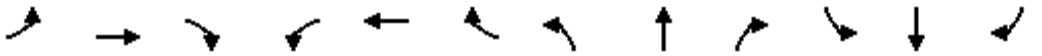
Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 3.81			
Intersection Signal Delay: 248.4		Intersection LOS: F	
Intersection Capacity Utilization 91.0%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 128: US 74 & S. Secrest Avenue



Lane Group	SBR
Minimum Split (s)	14.0
Total Split (s)	39.0
Total Split (%)	27.9%
Maximum Green (s)	32.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Minimum Gap (s)	3.0
Time Before Reduce (s)	0.0
Time To Reduce (s)	0.0
Recall Mode	None
Act Effct Green (s)	34.0
Actuated g/C Ratio	0.24
v/c Ratio	0.85
Control Delay	71.9
Queue Delay	0.0
Total Delay	71.9
LOS	E
Approach Delay	
Approach LOS	

Intersection Summary

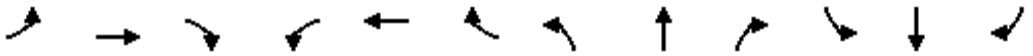


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	79	1367	20	3	1102	58	32	20	6	101	18	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.993			0.985				0.850
Flt Protected	0.950			0.950				0.973			0.959	
Satd. Flow (prot)	1736	3464	0	1736	3447	0	0	1785	0	0	1786	1583
Flt Permitted	0.950			0.950				0.669			0.722	
Satd. Flow (perm)	1736	3464	0	1736	3447	0	0	1227	0	0	1345	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			20			25	
Link Distance (ft)		242			246			170			270	
Travel Time (s)		4.7			4.8			5.8			7.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	88	1519	22	3	1224	64	36	22	7	112	20	122
Shared Lane Traffic (%)												
Lane Group Flow (vph)	88	1541	0	3	1288	0	0	65	0	0	132	122
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		pm+ov
Protected Phases	5	2		1	6			8			4	5
Permitted Phases							8			4		4
Detector Phase	5	2		1	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	17.0		14.0	17.0		14.0	14.0		14.0	14.0	14.0
Total Split (s)	20.0	94.0	0.0	14.0	88.0	0.0	32.0	32.0	0.0	32.0	32.0	20.0
Total Split (%)	14.3%	67.1%	0.0%	10.0%	62.9%	0.0%	22.9%	22.9%	0.0%	22.9%	22.9%	14.3%
Maximum Green (s)	13.0	87.0		7.0	81.0		25.0	25.0		25.0	25.0	13.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None
Act Effct Green (s)	14.1	106.3		9.0	90.0			20.9			20.9	40.0
Actuated g/C Ratio	0.10	0.76		0.06	0.64			0.15			0.15	0.29
v/c Ratio	0.51	0.59		0.03	0.58			0.36			0.66	0.27
Control Delay	69.2	10.0		62.0	16.8			57.1			70.7	38.3
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Delay	69.2	10.0		62.0	16.8			57.1			70.7	38.3
LOS	E	B		E	B			E			E	D
Approach Delay		13.2			16.9			57.1			55.1	
Approach LOS		B			B			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 18.9		Intersection LOS: B	
Intersection Capacity Utilization 66.6%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 129: US 74 & Bivens Street

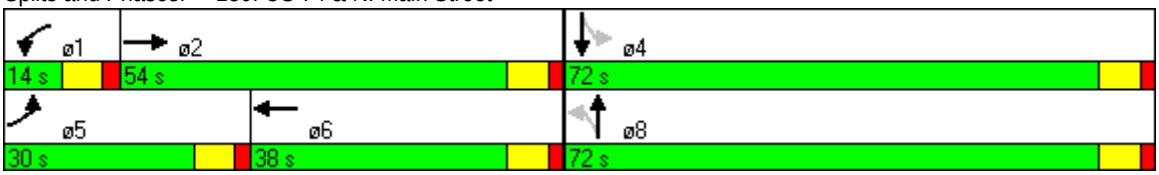


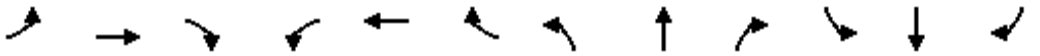
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	361	1011	50	55	791	77	39	279	56	102	369	376
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993			0.987			0.980			0.924	
Flt Protected	0.950			0.950				0.995		0.950		
Satd. Flow (prot)	1736	3447	0	1736	3426	0	0	1816	0	1770	1721	0
Flt Permitted	0.950			0.950				0.341		0.440		
Satd. Flow (perm)	1736	3447	0	1736	3426	0	0	622	0	820	1721	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		282			333			173			197	
Travel Time (s)		5.5			6.5			3.4			3.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	401	1123	56	61	879	86	43	310	62	113	410	418
Shared Lane Traffic (%)												
Lane Group Flow (vph)	401	1179	0	61	965	0	0	415	0	113	828	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	17.0		14.0	17.0		14.0	14.0		14.0	14.0	
Total Split (s)	30.0	54.0	0.0	14.0	38.0	0.0	72.0	72.0	0.0	72.0	72.0	0.0
Total Split (%)	21.4%	38.6%	0.0%	10.0%	27.1%	0.0%	51.4%	51.4%	0.0%	51.4%	51.4%	0.0%
Maximum Green (s)	23.0	47.0		7.0	31.0		65.0	65.0		65.0	65.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	None		None	None		None	None	
Act Effct Green (s)	25.0	51.8		9.0	33.0			67.0		67.0	67.0	
Actuated g/C Ratio	0.18	0.37		0.06	0.24			0.48		0.48	0.48	
v/c Ratio	1.29	0.92		0.54	1.19			1.39		0.29	1.00	
Control Delay	198.8	55.6		82.0	145.1			226.9		24.6	69.0	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	198.8	55.6		82.0	145.1			226.9		24.6	69.0	
LOS	F	E		F	F			F		C	E	
Approach Delay		91.9			141.3			226.9			63.7	
Approach LOS		F			F			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.39			
Intersection Signal Delay: 112.2		Intersection LOS: F	
Intersection Capacity Utilization 108.2%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 130: US 74 & N. Main Street





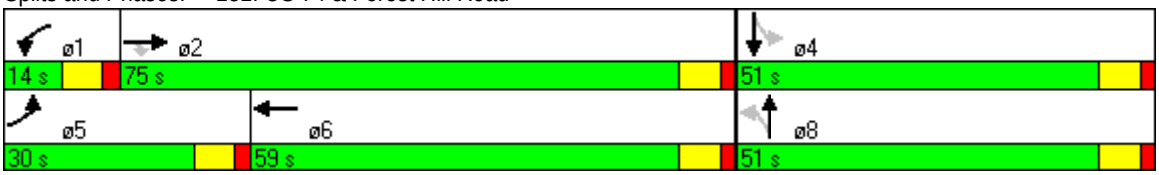
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	136	913	120	25	741	11	111	36	28	11	31	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.998			0.978			0.902	
Flt Protected	0.950			0.950				0.969			0.996	
Satd. Flow (prot)	1736	3471	1553	1736	3464	0	0	1683	0	0	1641	0
Flt Permitted	0.950			0.950				0.576			0.972	
Satd. Flow (perm)	1736	3471	1553	1736	3464	0	0	1000	0	0	1602	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			35	
Link Distance (ft)		576			646			376			353	
Travel Time (s)		7.1			8.0			4.7			6.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	7%	7%	7%	4%	4%	4%
Adj. Flow (vph)	151	1014	133	28	823	12	123	40	31	12	34	120
Shared Lane Traffic (%)												
Lane Group Flow (vph)	151	1014	133	28	835	0	0	194	0	0	166	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		Perm	Prot			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8			4		
Detector Phase	5	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	14.0	14.0	7.0	14.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	21.0	21.0	14.0	21.0		14.0	14.0		14.0	14.0	
Total Split (s)	30.0	75.0	75.0	14.0	59.0	0.0	51.0	51.0	0.0	51.0	51.0	0.0
Total Split (%)	21.4%	53.6%	53.6%	10.0%	42.1%	0.0%	36.4%	36.4%	0.0%	36.4%	36.4%	0.0%
Maximum Green (s)	23.0	68.0	68.0	7.0	52.0		44.0	44.0		44.0	44.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	
Act Effct Green (s)	19.4	88.8	88.8	10.2	74.0			31.6			31.6	
Actuated g/C Ratio	0.14	0.63	0.63	0.07	0.53			0.23			0.23	
v/c Ratio	0.63	0.46	0.14	0.22	0.46			0.86			0.46	
Control Delay	67.9	16.7	14.0	65.0	23.7			83.4			49.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Delay	67.9	16.7	14.0	65.0	23.7			83.4			49.4	
LOS	E	B	B	E	C			F			D	
Approach Delay		22.3			25.0			83.4			49.4	
Approach LOS		C			C			F			D	

Intersection Summary

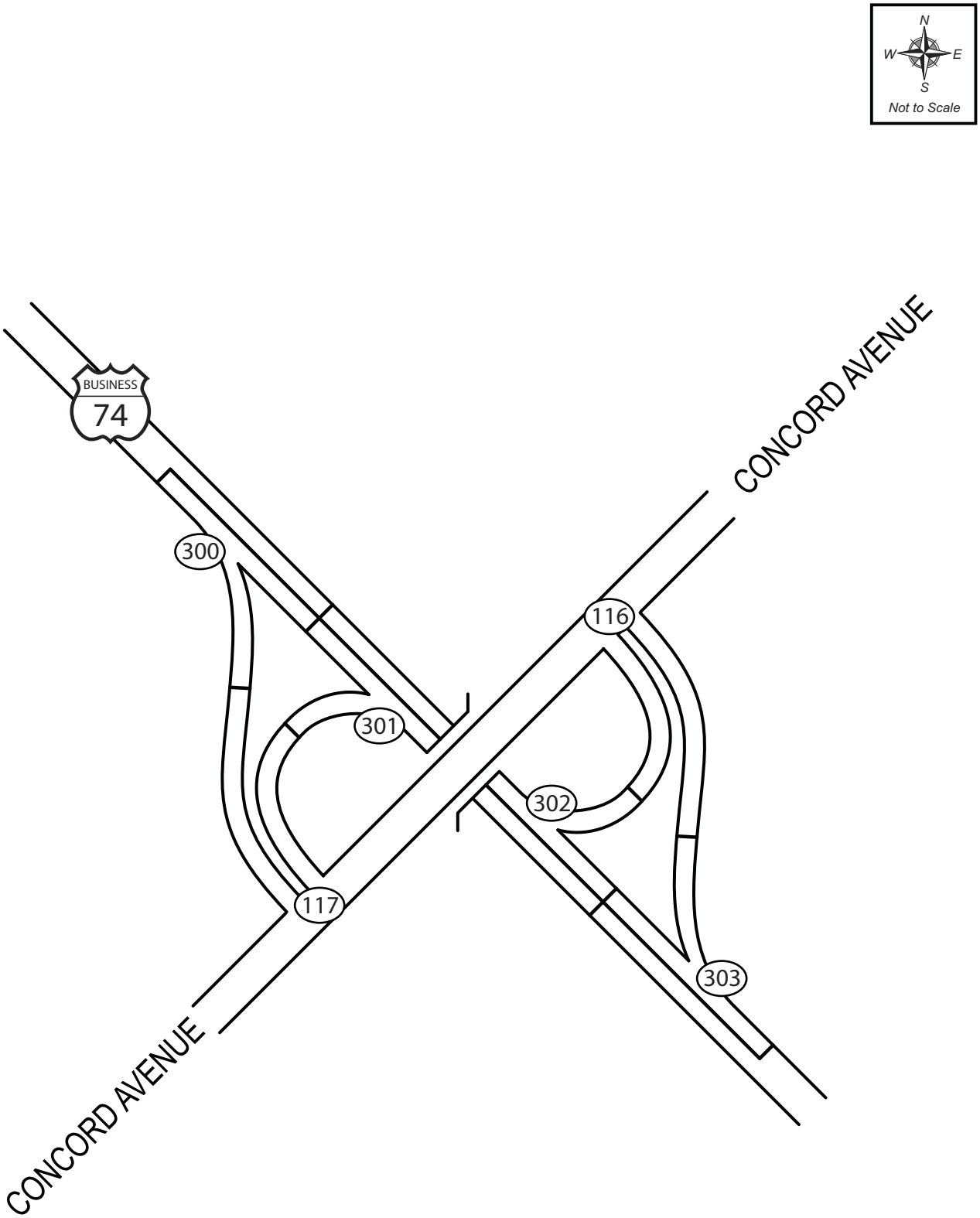
Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 29.7 Intersection LOS: C
Intersection Capacity Utilization 66.4% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 131: US 74 & Forest Hill Road



E-8-2

Business US 74 / Concord Ave I/C



NORTH CAROLINA Turnpike Authority

MONROE CONNECTOR / BYPASS

TIP Project Numbers R-3329 & R-2559

Mecklenburg and Union Counties

Business US 74 Corridor
Concord Avenue
Key Sheet

Appendix E

KeySheetUS74CorridorConcordAve.ai

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*WB US 74 Ramp at Concord Ave*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 2D*
Analysis Time Period	*AM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *WB US 74 Ramp*	North/South Street: *Concord Ave.*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*370*	*114*	*106*	*431*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*411*	*126*	*117*	*478*	*0*
Percent Heavy Vehicles		--	--	*4*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*183*	*0*	*67*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*203*	*0*	*74*	*0*	*0*	*0*
Percent Heavy Vehicles	*5*		*5*			
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (vph)		*117*		*277*				
C (m) (vph)		*1021*		*223*				
v/c		*0.11*		*1.24*				
95% queue length		*0.39*		*14.11*				
Control Delay		*9.0*		*185.1*				
LOS		*A*		*F*				
Approach Delay	--	--	*185.1*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*WB US 74 Ramp at Concord Ave*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 2D*
Analysis Time Period	*PM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *WB US 74 Ramp*	North/South Street: *Concord Ave.*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*469*	*116*	*85*	*352*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*521*	*128*	*94*	*391*	*0*
Percent Heavy Vehicles		--	--	*4*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*145*	*0*	*68*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*161*	*0*	*75*	*0*	*0*	*0*
Percent Heavy Vehicles	*5*		*5*			
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (vph)		*94*		*236*				
C (m) (vph)		*927*		*238*				
v/c		*0.10*		*0.99*				
95% queue length		*0.34*		*9.28*				
Control Delay		*9.3*		*100.4*				
LOS		*A*		*F*				
Approach Delay	--	--	*100.4*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*EB US 74 Ramp at Concord Ave*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 2D*
Analysis Time Period	*AM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *EB US 74 Ramp*	North/South Street: *Concord Ave.*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*145*	*399*			*546*	*67*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*161*	*443*	*0*	*0*	*606*	*74*
Percent Heavy Vehicles	*4*	--	--		--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume		*0*		*85*	*0*	*116*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*94*	*0*	*128*
Percent Heavy Vehicles				*5*		*5*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*161*						*222*	
C (m) (vph)	*903*						*215*	
v/c	*0.18*						*1.03*	
95% queue length	*0.65*						*9.57*	
Control Delay	*9.8*						*117.6*	
LOS	*A*						*F*	
Approach Delay	--	--				*117.6*		
Approach LOS	--	--				*F*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*EB US 74 Ramp at Concord Ave*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 2D*
Analysis Time Period	*PM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *EB US 74 Ramp*	North/South Street: *Concord Ave.*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*183*	*479*			*430*	*67*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*203*	*532*	*0*	*0*	*477*	*74*
Percent Heavy Vehicles	*4*	--	--		--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume		*0*		*106*	*0*	*114*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*117*	*0*	*126*
Percent Heavy Vehicles				*5*		*5*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*203*						*243*	
C (m) (vph)	*1009*						*192*	
v/c	*0.20*						*1.27*	
95% queue length	*0.75*						*13.25*	
Control Delay	*9.5*						*202.9*	
LOS	*A*						*F*	
Approach Delay	--	--				*202.9*		
Approach LOS	--	--				*F*		

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Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB off to Concord Ave.
Junction:	300
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1673	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	201	vph
Length of first accel/decel lane	680	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	213	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1673	201	213	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	465	56	59	v
Trucks and buses	5	5	4	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.943	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1998	240	251	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.699 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1469 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	1998	6750	No
v_{12}	1469	4400	No
$v_{FO} = v_F - v_R$	1758	6750	No
v_R	240	2100	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 10.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.385	
Space mean speed in ramp influence area,	S_R = 50.0	mph
Space mean speed in outer lanes,	S_0 = 60.3	mph
Space mean speed for all vehicles,	S = 52.4	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB off to Concord Ave.
Junction:	300
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2037	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	220	vph
Length of first accel/decel lane	680	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	250	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2037	220	250	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	566	61	69	v
Trucks and buses	5	5	4	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.943	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2433	263	294	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.687 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1754 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2433	6750	No
v_{12}	1754	4400	No
$v_{FO} = v_F - v_R$	2170	6750	No
v_R	263	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 13.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.387	
Space mean speed in ramp influence area,	S_R = 50.0	mph
Space mean speed in outer lanes,	S_0 = 60.3	mph
Space mean speed for all vehicles,	S = 52.5	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB on from Concord Ave.
Junction:	301
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1472	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	213	vph
Length of first accel/decel lane	100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	201	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1472	213	201	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	409	59	56	v
Trucks and buses	5	4	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1758	251	240	pcph

Estimation of V12 Merge Areas

L_{EQ} = -620.67 (Equation 25-2 or 25-3)

P_{FM} = 0.580 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1020 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2009	6750	No
v_{R12}	1271	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 14.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.330

Space mean speed in ramp influence area, S_R = 50.7 mph

Space mean speed in outer lanes, S_O = 54.1 mph

Space mean speed for all vehicles, S = 51.9 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB on from Concord Ave.
Junction:	301
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1817	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	250	vph
Length of first accel/decel lane	100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	220	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1817	250	220	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	505	69	61	v
Trucks and buses	5	4	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2170	294	263	pcph

Estimation of V12 Merge Areas

L_{EQ} = -523.30 (Equation 25-2 or 25-3)

P_{FM} = 0.580 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1259 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2464	6750	No
v_{R12}	1553	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 16.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.334	
Space mean speed in ramp influence area,	S_R = 50.7	mph
Space mean speed in outer lanes,	S_O = 53.5	mph
Space mean speed for all vehicles,	S = 51.7	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB on from Concord Ave.
Junction:	302
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1817	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	220	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	250	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1817	220	250	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	505	61	69	v
Trucks and buses	5	4	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2170	259	299	pcph

Estimation of V12 Merge Areas

L_{EQ} = -441.99 (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1271 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2429	6750	No
v_{R12}	1530	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 15.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.324

Space mean speed in ramp influence area, S_R = 50.8 mph

Space mean speed in outer lanes, S_O = 53.6 mph

Space mean speed for all vehicles, S = 51.8 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB on from Concord Ave.
Junction:	302
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1472	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	201	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	213	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1472	201	213	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	409	56	59	v
Trucks and buses	5	4	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1758	237	254	pcph

Estimation of V12 Merge Areas

L_{EQ} = -534.87 (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1030 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	1995	6750	No
v_{R12}	1267	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 13.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.320	
Space mean speed in ramp influence area,	S_R = 50.8	mph
Space mean speed in outer lanes,	S_O = 54.2	mph
Space mean speed for all vehicles,	S = 52.0	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB off to Concord Ave.
Junction:	303
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2067	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	250	vph
Length of first accel/decel lane	680	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	220	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2067		250		220		vph
Peak-hour factor, PHF	0.90		0.90		0.90		
Peak 15-min volume, v15	574		69		61		v
Trucks and buses	5		5		4		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		

Heavy vehicle adjustment, fHV	0.930	0.930	0.943	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2469	299	259	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.685 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1784 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2469	6750	No
v_{12}	1784	4400	No
$v_{FO} = v_F - v_R$	2170	6750	No
v_R	299	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 13.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.390	
Space mean speed in ramp influence area,	S_R = 49.9	mph
Space mean speed in outer lanes,	S_O = 60.3	mph
Space mean speed for all vehicles,	S = 52.4	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB off to Concord Ave.
Junction:	303
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1685	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	213	vph
Length of first accel/decel lane	680	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	201	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	1685		213		201		vph
Peak-hour factor, PHF	0.90		0.90		0.90		
Peak 15-min volume, v15	468		59		56		v
Trucks and buses	5		5		4		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		

Heavy vehicle adjustment, fHV	0.930	0.930	0.943	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2013	254	237	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.698 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1482 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2013	6750	No
v_{12}	1482	4400	No
$v_{FO} = v_F - v_R$	1759	6750	No
v_R	254	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 10.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.386

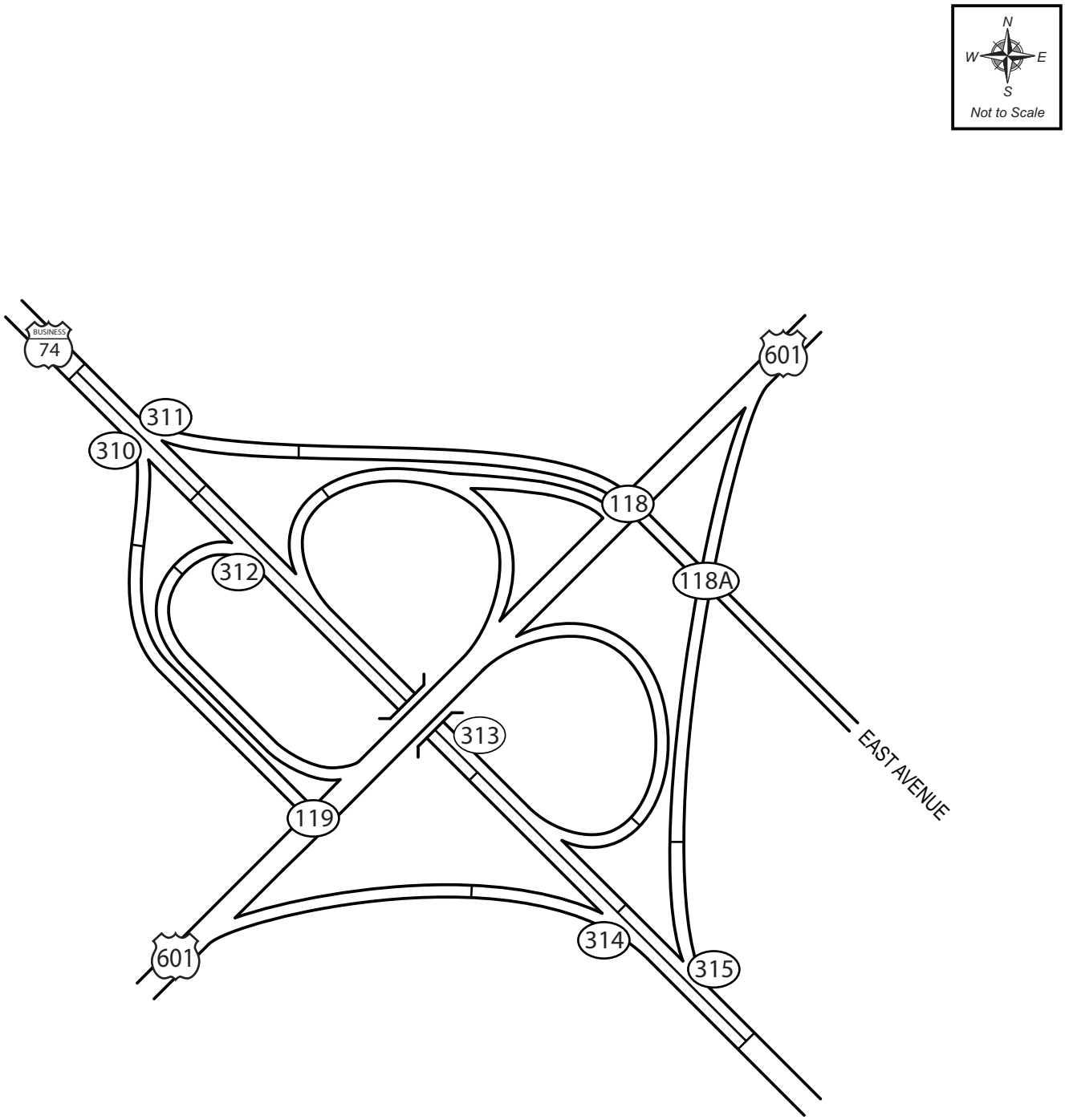
Space mean speed in ramp influence area, S_R = 50.0 mph

Space mean speed in outer lanes, S_0 = 60.3 mph

Space mean speed for all vehicles, S = 52.4 mph

E-8-3

Business US 74 / US 601I/C



NORTH CAROLINA Turnpike Authority

MONROE CONNECTOR / BYPASS

TIP Project Numbers R-3329 & R-2559

Mecklenburg and Union Counties

Business US 74 Corridor
US 601
Key Sheet

Appendix E

KeySheetUS74CorridorUS601.ai

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*East Ave. at US 74 Off Ramp*
Agency/Co.	*PBS&J*	Jurisdiction	*118A*
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 2D*
Analysis Time Period	*AM Peak Hour*		
Project Description	*Monroe Connector/Bypass*		
East/West Street:	*East Ave.*	North/South Street:	*US 74 Off Ramp*
Intersection Orientation:	*North-South*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*10*	*375*	*10*			
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*11*	*416*	*11*	*0*	*0*	*0*
Percent Heavy Vehicles	*5*	--	--		--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration	*LTR*					
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume		*120*	*150*	*10*	*270*	
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*133*	*166*	*11*	*300*	*0*
Percent Heavy Vehicles		*5*	*5*	*8*	*8*	
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*				*TR*	*LT*		
v (vph)	*11*				*299*	*311*		
C (m) (vph)	*1604*				*562*	*473*		
v/c	*0.01*				*0.53*	*0.66*		
95% queue length	*0.02*				*3.12*	*4.68*		
Control Delay	*7.3*				*18.5*	*26.1*		
LOS	*A*				*C*	*D*		
Approach Delay	--	--	*18.5*			*26.1*		
Approach LOS	--	--	*C*			*D*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*East Ave. at US 74 Off Ramp*
Agency/Co.	*PBS&J*	Jurisdiction	*118A*
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 2D*
Analysis Time Period	*PM Peak Hour*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *East Ave.*	North/South Street: *US 74 Off Ramp*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*10*	*282*	*10*			
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*11*	*313*	*11*	*0*	*0*	*0*
Percent Heavy Vehicles	*5*	--	--		--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration	*LTR*					
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume		*150*	*150*	*10*	*290*	
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*166*	*166*	*11*	*322*	*0*
Percent Heavy Vehicles		*5*	*5*	*8*	*8*	
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*				*TR*	*LT*		
v (vph)	*11*				*332*	*333*		
C (m) (vph)	*1604*				*636*	*544*		
v/c	*0.01*				*0.52*	*0.61*		
95% queue length	*0.02*				*3.03*	*4.10*		
Control Delay	*7.3*				*16.7*	*21.5*		
LOS	*A*				*C*	*C*		
Approach Delay	--	--	*16.7*			*21.5*		
Approach LOS	--	--	*C*			*C*		

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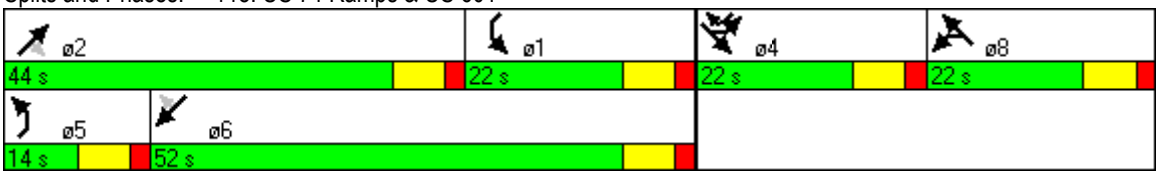
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	10	10	10	120	10	0	10	646	150	120	499	329
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.955							0.850			0.850
Flt Protected		0.984		0.950			0.950			0.950		
Satd. Flow (prot)	0	1700	0	1719	1810	0	1671	3343	1495	1671	3343	1495
Flt Permitted		0.984		0.950			0.950			0.950		
Satd. Flow (perm)	0	1700	0	1719	1810	0	1671	3343	1495	1671	3343	1495
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		412			451			446			441	
Travel Time (s)		8.0			8.8			6.8			6.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	8%	8%	8%	8%	8%	8%
Adj. Flow (vph)	11	11	11	133	11	0	11	718	167	133	554	366
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	33	0	133	11	0	11	718	167	133	554	366
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split			Prot		Perm	Prot		pm+ov
Protected Phases	4	4		8	8		5	2		1	6	4
Permitted Phases									2			6
Detector Phase	4	4		8	8		5	2	2	1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	14.0
Total Split (s)	22.0	22.0	0.0	22.0	22.0	0.0	14.0	44.0	44.0	22.0	52.0	22.0
Total Split (%)	20.0%	20.0%	0.0%	20.0%	20.0%	0.0%	12.7%	40.0%	40.0%	20.0%	47.3%	20.0%
Maximum Green (s)	15.0	15.0		15.0	15.0		7.0	37.0	37.0	15.0	45.0	15.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	None	None
Act Effct Green (s)		10.2		15.7	15.7		9.0	49.2	49.2	14.8	66.3	81.5
Actuated g/C Ratio		0.09		0.14	0.14		0.08	0.45	0.45	0.13	0.60	0.74
v/c Ratio		0.21		0.54	0.04		0.08	0.48	0.25	0.59	0.28	0.33
Control Delay		48.7		51.4	38.5		48.2	24.3	22.4	55.4	12.7	7.4
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		48.7		51.4	38.5		48.2	24.3	22.4	55.4	12.7	7.4
LOS		D		D	D		D	C	C	E	B	A
Approach Delay		48.7			50.4			24.2			16.2	
Approach LOS		D			D			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 2:NET, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 22.4		Intersection LOS: C	
Intersection Capacity Utilization 50.3%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 118: US 74 Ramps & US 601

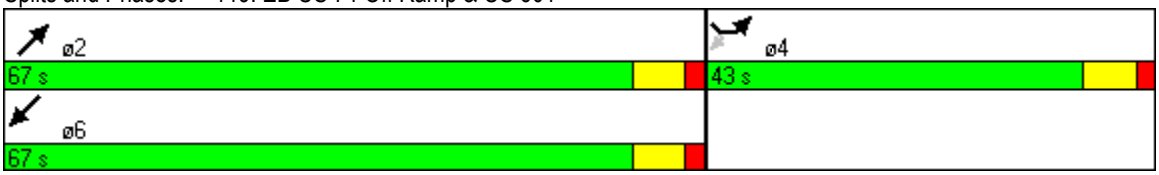


Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (vph)	339	143	0	653	660	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	3335	1538	0	3343	3343	0
Flt Permitted	0.950					
Satd. Flow (perm)	3335	1538	0	3343	3343	0
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	35			45	45	
Link Distance (ft)	529			486	575	
Travel Time (s)	10.3			7.4	8.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	8%	8%	8%	8%
Adj. Flow (vph)	377	159	0	726	733	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	377	159	0	726	733	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (ft)	20	20		100	100	
Trailing Detector (ft)	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	
Detector 1 Size(ft)	20	20		6	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type		Perm				
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						
Minimum Initial (s)	7.0	7.0		12.0	12.0	

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Minimum Split (s)	14.0	14.0		19.0	19.0	
Total Split (s)	43.0	43.0	0.0	67.0	67.0	0.0
Total Split (%)	39.1%	39.1%	0.0%	60.9%	60.9%	0.0%
Maximum Green (s)	36.0	36.0		60.0	60.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		C-Max	C-Max	
Act Effct Green (s)	38.0	38.0		62.0	62.0	
Actuated g/C Ratio	0.35	0.35		0.56	0.56	
v/c Ratio	0.33	0.30		0.39	0.39	
Control Delay	27.6	28.2		14.1	14.2	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	27.6	28.2		14.1	14.2	
LOS	C	C		B	B	
Approach Delay	27.8			14.1	14.2	
Approach LOS	C			B	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 2:NET and 6:SWT, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.39			
Intersection Signal Delay: 17.8		Intersection LOS: B	
Intersection Capacity Utilization 36.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 119: EB US 74 Off Ramp & US 601

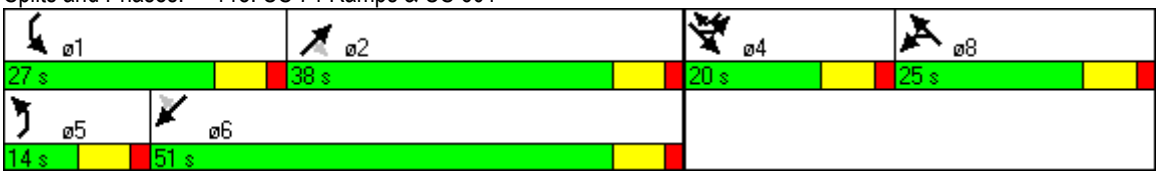


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	10	10	10	150	10	0	10	546	120	170	682	339
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.955							0.850			0.850
Flt Protected		0.984		0.950			0.950			0.950		
Satd. Flow (prot)	0	1700	0	1719	1810	0	1671	3343	1495	1671	3343	1495
Flt Permitted		0.984		0.950			0.950			0.950		
Satd. Flow (perm)	0	1700	0	1719	1810	0	1671	3343	1495	1671	3343	1495
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		412			451			446			441	
Travel Time (s)		8.0			8.8			6.8			6.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	8%	8%	8%	8%	8%	8%
Adj. Flow (vph)	11	11	11	167	11	0	11	607	133	189	758	377
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	33	0	167	11	0	11	607	133	189	758	377
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split			Prot		Perm	Prot		pm+ov
Protected Phases	4	4		8	8		5	2		1	6	4
Permitted Phases									2			6
Detector Phase	4	4		8	8		5	2	2	1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	14.0
Total Split (s)	20.0	20.0	0.0	25.0	25.0	0.0	14.0	38.0	38.0	27.0	51.0	20.0
Total Split (%)	18.2%	18.2%	0.0%	22.7%	22.7%	0.0%	12.7%	34.5%	34.5%	24.5%	46.4%	18.2%
Maximum Green (s)	13.0	13.0		18.0	18.0		7.0	31.0	31.0	20.0	44.0	13.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		Max	Max		None	C-Max	C-Max	None	None	None
Act Effct Green (s)		10.2		24.8	24.8		9.0	36.3	36.3	18.7	57.2	72.4
Actuated g/C Ratio		0.09		0.23	0.23		0.08	0.33	0.33	0.17	0.52	0.66
v/c Ratio		0.21		0.43	0.03		0.08	0.55	0.27	0.66	0.44	0.38
Control Delay		48.7		41.3	34.8		48.2	33.2	30.2	53.9	18.2	10.6
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		48.7		41.3	34.8		48.2	33.2	30.2	53.9	18.2	10.6
LOS		D		D	C		D	C	C	D	B	B
Approach Delay		48.7			40.9			32.9			21.2	
Approach LOS		D			D			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 2:NET, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 26.9		Intersection LOS: C	
Intersection Capacity Utilization 52.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 118: US 74 Ramps & US 601



Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (vph)	329	196	0	480	777	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	3335	1538	0	3343	3343	0
Flt Permitted	0.950					
Satd. Flow (perm)	3335	1538	0	3343	3343	0
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	35			45	45	
Link Distance (ft)	529			486	575	
Travel Time (s)	10.3			7.4	8.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	8%	8%	8%	8%
Adj. Flow (vph)	366	218	0	533	863	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	366	218	0	533	863	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (ft)	20	20		100	100	
Trailing Detector (ft)	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	
Detector 1 Size(ft)	20	20		6	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type		Perm				
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						
Minimum Initial (s)	7.0	7.0		12.0	12.0	

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Minimum Split (s)	14.0	14.0		19.0	19.0	
Total Split (s)	45.0	45.0	0.0	65.0	65.0	0.0
Total Split (%)	40.9%	40.9%	0.0%	59.1%	59.1%	0.0%
Maximum Green (s)	38.0	38.0		58.0	58.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		None	None	
Act Effct Green (s)	40.2	40.2		28.9	28.9	
Actuated g/C Ratio	0.51	0.51		0.37	0.37	
v/c Ratio	0.22	0.28		0.44	0.71	
Control Delay	12.1	13.6		19.9	24.8	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	12.1	13.6		19.9	24.8	
LOS	B	B		B	C	
Approach Delay	12.7			19.9	24.8	
Approach LOS	B			B	C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 79.1			
Natural Cycle: 40			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 19.9		Intersection LOS: B	
Intersection Capacity Utilization 41.9%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 119: EB US 74 Off Ramp & US 601

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB off to US 601
Junction:	310
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1682	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	482	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	282	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	700	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	1682		482		282		vph
Peak-hour factor, PHF	0.90		0.90		0.90		
Peak 15-min volume, v15	467		134		78		v
Trucks and buses	5		5		8		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		

Heavy vehicle adjustment, fHV	0.930	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2009	576	351	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.683 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1555 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2009	6750	No
v_{12}	1555	4400	No
$v_{FO} = v_F - v_R$	1433	6750	No
v_R	576	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 15.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.415	
Space mean speed in ramp influence area,	S_R = 49.6	mph
Space mean speed in outer lanes,	S_O = 60.3	mph
Space mean speed for all vehicles,	S = 51.7	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB off to US 601
Junction:	310
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2073	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	525	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	375	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	700	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2073		525		375		vph
Peak-hour factor, PHF	0.90		0.90		0.90		
Peak 15-min volume, v15	576		146		104		v
Trucks and buses	5		5		8		%
Recreational vehicles	0		0		0		%
Terrain type:	Rolling		Rolling		Rolling		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	2.5		2.5		2.5		
Recreational vehicle PCE, ER	2.0		2.0		2.0		

Heavy vehicle adjustment, fHV	0.930	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2476	627	467	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.669 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1864 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2476	6750	No
v_{12}	1864	4400	No
$v_{FO} = v_F - v_R$	1849	6750	No
v_R	627	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 18.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.419

Space mean speed in ramp influence area, S_R = 49.5 mph

Space mean speed in outer lanes, S_0 = 60.3 mph

Space mean speed for all vehicles, S = 51.8 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB on from US 601
Junction:	311
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1744	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	40.0	mph
Volume on ramp	349	vph
Length of first accel/decel lane	250	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	443	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1744	349	443	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	484	97	123	v
Trucks and buses	5	8	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2083	434	529	pcph

Estimation of V12 Merge Areas

L_{EQ} = 339.44 (Equation 25-2 or 25-3)

P_{FM} = 0.585 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1218 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2517	6750	No
v_{R12}	1652	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 16.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.321	
Space mean speed in ramp influence area,	S_R = 50.8	mph
Space mean speed in outer lanes,	S_O = 53.7	mph
Space mean speed for all vehicles,	S = 51.8	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB on from US 601
Junction:	311
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1343	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	40.0	mph
Volume on ramp	359	vph
Length of first accel/decel lane	250	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	470	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1343	359	470	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	373	100	131	v
Trucks and buses	5	8	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1604	447	561	pcph

Estimation of V12 Merge Areas

L_{EQ} = 239.71 (Equation 25-2 or 25-3)

P_{FM} = 0.585 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 938 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2051	6750	No
v_{R12}	1385	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 14.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.317

Space mean speed in ramp influence area, S_R = 50.9 mph

Space mean speed in outer lanes, S_O = 54.4 mph

Space mean speed for all vehicles, S = 52.0 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB on from US 601 SB
Junction:	312
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1200	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	282	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	482	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	700	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1200	282	482	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	333	78	134	v
Trucks and buses	5	8	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1433	351	576	pcph

Estimation of V12 Merge Areas

L_{EQ} = -580.02 (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 840 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	1784	6750	No
v_{R12}	1191	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 12.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.319

Space mean speed in ramp influence area, S_R = 50.9 mph

Space mean speed in outer lanes, S_O = 54.7 mph

Space mean speed for all vehicles, S = 52.1 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB on from US 601 SB
Junction:	312
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1548	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	375	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	525	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	700	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1548	375	525	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	430	104	146	v
Trucks and buses	5	8	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1849	467	627	pcph

Estimation of V12 Merge Areas

L_{EQ} = -466.18 (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1083 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2316	6750	No
v_{R12}	1550	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 15.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.324

Space mean speed in ramp influence area, S_R = 50.8 mph

Space mean speed in outer lanes, S_O = 54.0 mph

Space mean speed for all vehicles, S = 51.8 mph

FREEWAY WEAVING WORKSHEET

General Information

Analyst	OSR
Agency/Company	PBSJ
Date Performed	4/30/08
Analysis Time Period	AM Peak

Site Information

Freeway/Dir of Travel	US 74 WB
Weaving Seg Location	313
Jurisdiction	
Analysis Year	2035 Build Alternative 2D

Inputs

Freeway free-flow speed, S_{FF} (mi/h)	55	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.29
Weaving seg length, L (ft)	550	Weaving ratio, R	0.31
Terrain	Rolling		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	1548	0.90	5	0	2.5	2.0	0.930	1.00	1848
Vo2	0	0.90	0	0	2.5	2.0	1.000	1.00	0
Vw1	443	0.90	5	0	2.5	2.0	0.930	1.00	529
Vw2	196	0.91	8	0	2.5	2.0	0.893	1.00	241
Vw				770	Vnw				1848
V									2618

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.15	0.00		
b (Exhibit 24-6)	2.20	4.00		
c (Exhibit 24-6)	0.97	1.30		
d (Exhibit 24-6)	0.80	0.75		
Weaving intensity factor, Wi	0.92	0.40		
Weaving and non-weaving speeds, Si (mi/h)	38.49	47.24		

Number of lanes required for unconstrained operation, Nw 1.30
Maximum number of lanes, Nw (max) 1.40

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	44.28
Weaving segment density, D (pc/mi/ln)	14.78
Level of service, LOS	B
Capacity of base condition, c_b (pc/h)	5807
Capacity as a 15-minute flow rate, c (veh/h)	5402
Capacity as a full-hour volume, c_h (veh/h)	4867

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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FREEWAY WEAVING WORKSHEET

General Information

Analyst	OSR
Agency/Company	PBSJ
Date Performed	4/30/08
Analysis Time Period	PM Peak

Site Information

Freeway/Dir of Travel	US 74 WB
Weaving Seg Location	313
Jurisdiction	
Analysis Year	2035 Build Alternative 2D

Inputs

Freeway free-flow speed, SFF (mi/h)	55	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.34
Weaving seg length, L (ft)	550	Weaving ratio, R	0.24
Terrain	Rolling		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	1200	0.90	5	0	2.5	2.0	0.930	1.00	1433
Vo2	0	0.90	0	0	2.5	2.0	1.000	1.00	0
Vw1	470	0.90	5	0	2.5	2.0	0.930	1.00	561
Vw2	143	0.90	8	0	2.5	2.0	0.893	1.00	177
Vw				738	Vnw				1433
V									2171

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.15	0.00		
b (Exhibit 24-6)	2.20	4.00		
c (Exhibit 24-6)	0.97	1.30		
d (Exhibit 24-6)	0.80	0.75		
Weaving intensity factor, Wi	0.82	0.36		
Weaving and non-weaving speeds, Si (mi/h)	39.67	48.17		

Number of lanes required for unconstrained operation, Nw 1.40
Maximum number of lanes, Nw (max) 1.40

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	44.90
Weaving segment density, D (pc/mi/ln)	12.09
Level of service, LOS	B
Capacity of base condition, c_b (pc/h)	5560
Capacity as a 15-minute flow rate, c (veh/h)	5172
Capacity as a full-hour volume, c_h (veh/h)	4655

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB on from US 601 NB
Junction:	314
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1482	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	40.0	mph
Volume on ramp	470	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	282	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1482	470	282	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	412	131	78	v
Trucks and buses	5	8	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1770	585	351	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1037 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2355	6750	No
v_{R12}	1622	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 16.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.317	
Space mean speed in ramp influence area,	S_R = 50.9	mph
Space mean speed in outer lanes,	S_O = 54.2	mph
Space mean speed for all vehicles,	S = 51.9	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB on from US 601 NB
Junction:	314
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1923	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	40.0	mph
Volume on ramp	443	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	375	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1923	443	375	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	534	123	104	v
Trucks and buses	5	8	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2297	551	467	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1346 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2848	6750	No
v_{R12}	1897	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 18.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.323

Space mean speed in ramp influence area, S_R = 50.8 mph

Space mean speed in outer lanes, S_O = 53.4 mph

Space mean speed for all vehicles, S = 51.6 mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB off to US 601
Junction:	315
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2366	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	375	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	196	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	400	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2366	375	196	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	657	104	54	v
Trucks and buses	5	5	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2826	448	244	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.669 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2038 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2826	6750	No
v_{12}	2038	4400	No
$v_{FO} = v_F - v_R$	2378	6750	No
v_R	448	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 19.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.403	
Space mean speed in ramp influence area,	S_R = 49.8	mph
Space mean speed in outer lanes,	S_0 = 60.3	mph
Space mean speed for all vehicles,	S = 52.3	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB off to US 601
Junction:	315
Jurisdiction:	
Analysis Year:	2035 Build Alternative 2D
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1952	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	282	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	143	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	400	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1952	282	143	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	542	78	40	v
Trucks and buses	5	5	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2332	337	178	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.686 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1706 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2332	6750	No
v_{12}	1706	4400	No
$v_{FO} = v_F - v_R$	1995	6750	No
v_R	337	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 16.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

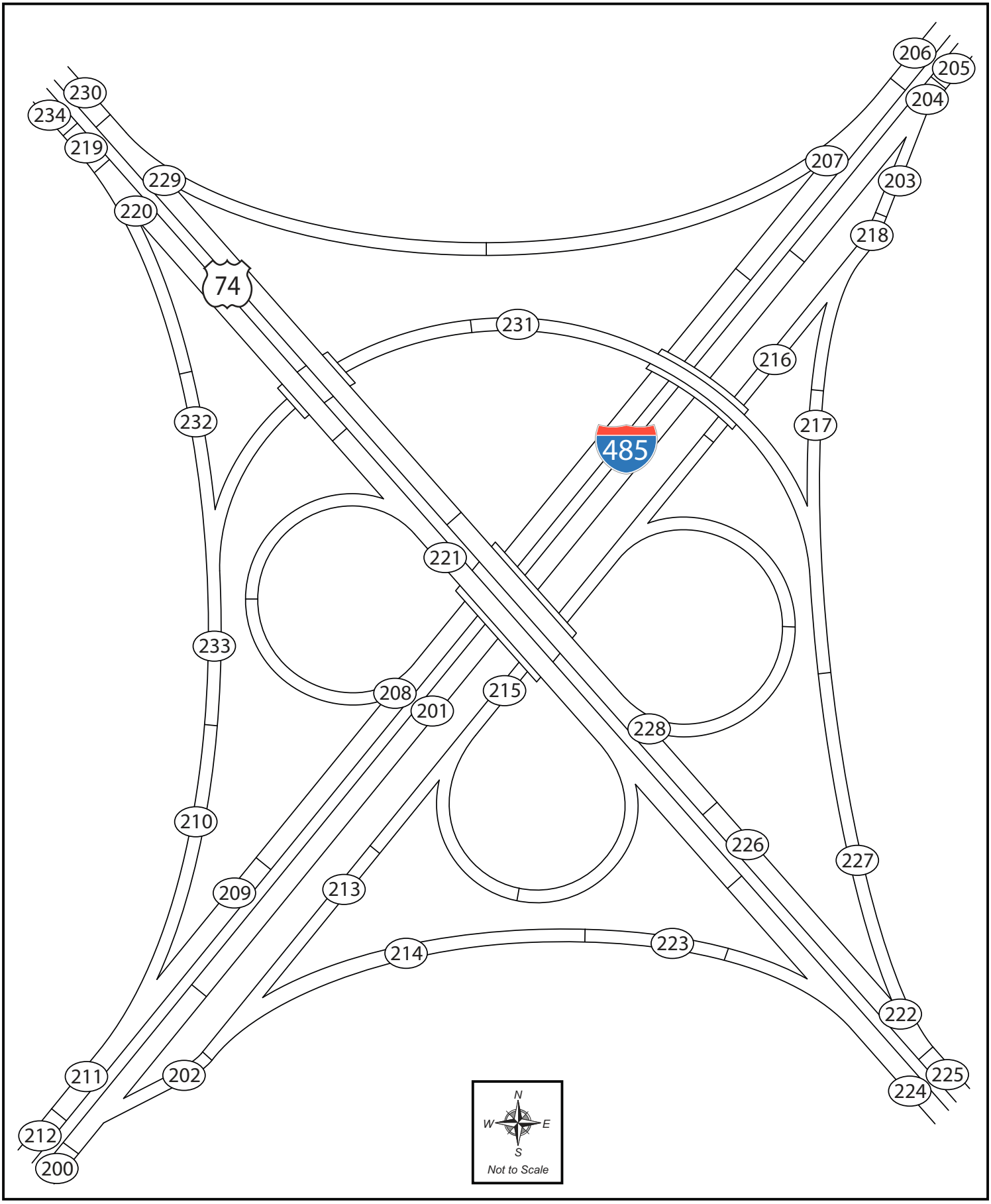
Intermediate speed variable,	D_S = 0.393	
Space mean speed in ramp influence area,	S_R = 49.9	mph
Space mean speed in outer lanes,	S_0 = 60.3	mph
Space mean speed for all vehicles,	S = 52.3	mph

E-9

Alternative 3A

E-9-1

US 74 / I-485 I/C



NORTH CAROLINA Turnpike Authority

MONROE CONNECTOR / BYPASS

TIP Project Numbers R-3329 & R-2559

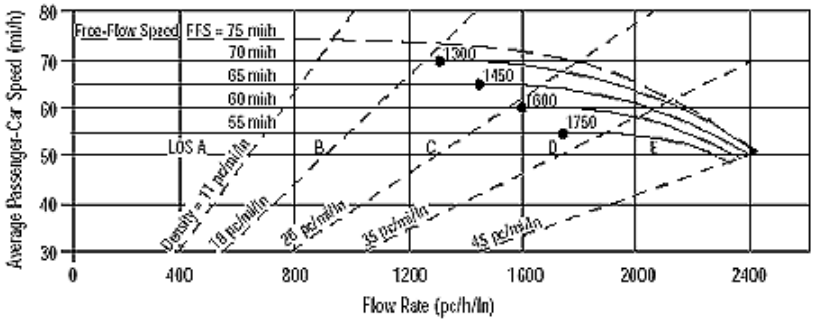
Mecklenburg and Union Counties

US 74 Corridor
I-485
Key Sheet

Appendix E

KeysheetUS74CorridorI485.ai

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	04/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 NB south of Interchange
From/To	
Jurisdiction	200
Analysis Year	2035 Build Toll Alternative 3A

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4155 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	67.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1724	pc/h/ln
S	66.1	mi/h
D = v_p / S	26.1	pc/mi/ln
LOS	D	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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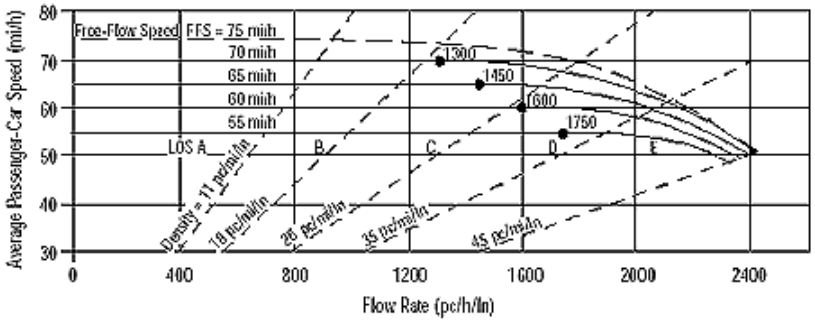
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	04/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 NB south of Interchange
From/To	
Jurisdiction	200
Analysis Year	2035 Build Toll Alternative 3A

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	5094 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	67.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	2113	pc/h/ln
S	60.5	mi/h
D = v_p / S	34.9	pc/mi/ln
LOS	D	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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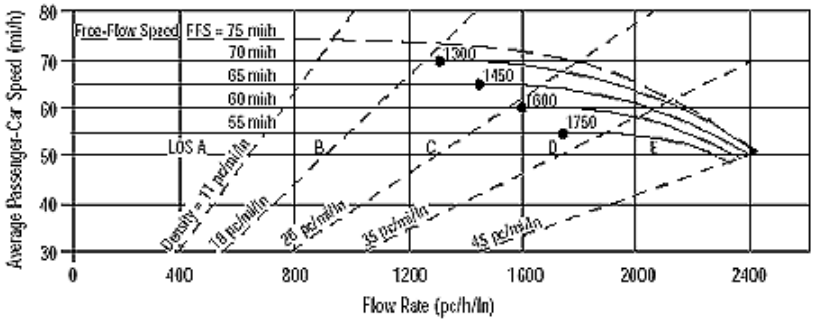
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	04/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 NB
From/To	
Jurisdiction	201
Analysis Year	2035 Build Toll Alternative 3A

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	2444 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	4.5	mi/h
FFS	65.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1521	pc/h/ln
S	65.5	mi/h
D = v_p / S	23.2	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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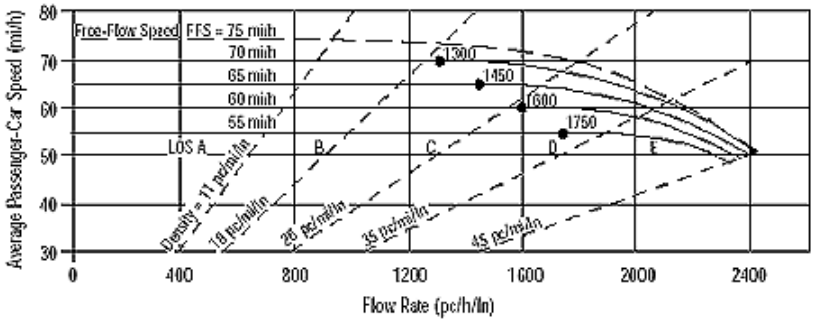
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	04/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 NB
From/To	
Jurisdiction	201
Analysis Year	2035 Build Toll Alternative 3A

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	3115 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	4.5	mi/h
FFS	65.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1938	pc/h/ln
S	62.8	mi/h
D = v_p / S	30.9	pc/mi/ln
LOS	D	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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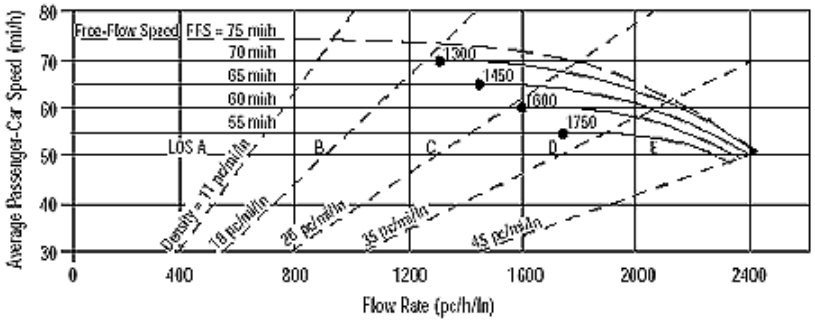
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 NB off ramp
From/To	
Jurisdiction	202
Analysis Year	2035 Build Toll Alternative 3A

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1711 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1065	pc/h/ln
S	55.0	mi/h
D = v_p / S	19.4	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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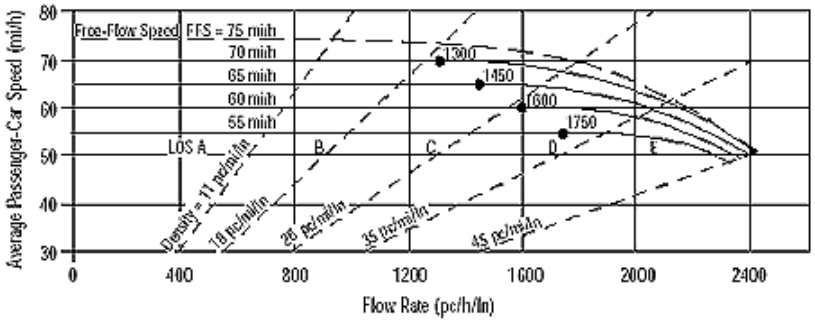
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 NB off ramp
From/To	
Jurisdiction	202
Analysis Year	2035 Build Toll Alternative 3A

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1979 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1231	pc/h/ln
S	55.0	mi/h
D = v_p / S	22.4	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	AM Peak

Site Information

Highway/Dir of Travel	I-485 NB On Ramp
From/To	
Jurisdiction	203
Analysis Year	2035 Build Toll Alternative 3A

Flow Inputs

Volume, V	1274 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	9%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.88106$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 1606.66$$

LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **29.4**

LOS: **D**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	PM Peak

Site Information

Highway/Dir of Travel	I-485 NB On Ramp
From/To	
Jurisdiction	203
Analysis Year	2035 Build Toll Alternative 3A

Flow Inputs

Volume, V	1416 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	9%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.88106$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 1785.73$$

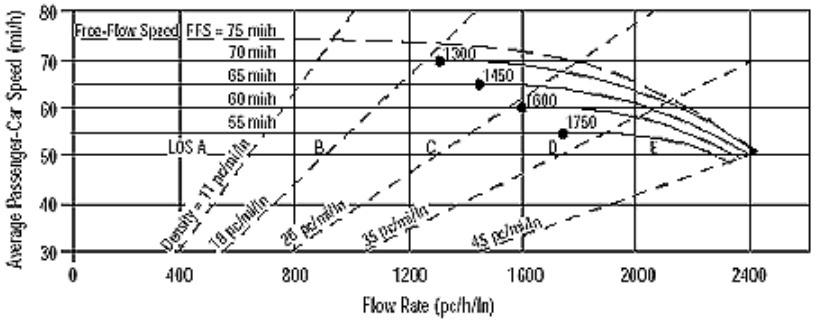
LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **32.6**

LOS: **D**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 NB
From/To	
Jurisdiction	204
Analysis Year	2035 Build Toll Alternative 3A

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	3718 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.930

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	67.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1480	pc/h/ln
S	67.0	mi/h
D = v_p / S	22.1	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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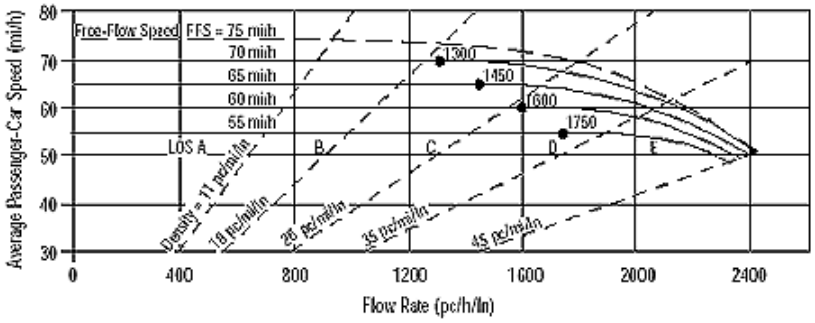
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 NB
From/To	
Jurisdiction	204
Analysis Year	2035 Build Toll Alternative 3A

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4531 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.930

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	67.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1804	pc/h/ln
S	65.5	mi/h
D = v_p / S	27.6	pc/mi/ln
LOS	D	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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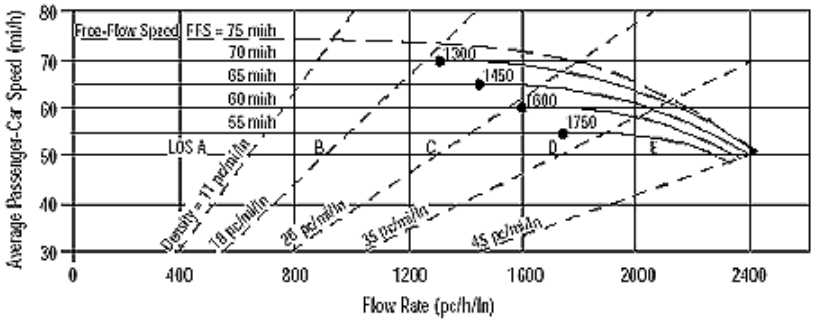

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 NB
From/To	
Jurisdiction	205
Analysis Year	2035 Build Toll Alternative 3A

Project Description Monroe Bypass / Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	3718 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.930

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	4.5	mi/h
FFS	65.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	2220	pc/h/ln
S	56.8	mi/h
D = v_p / S	39.1	pc/mi/ln
LOS	E	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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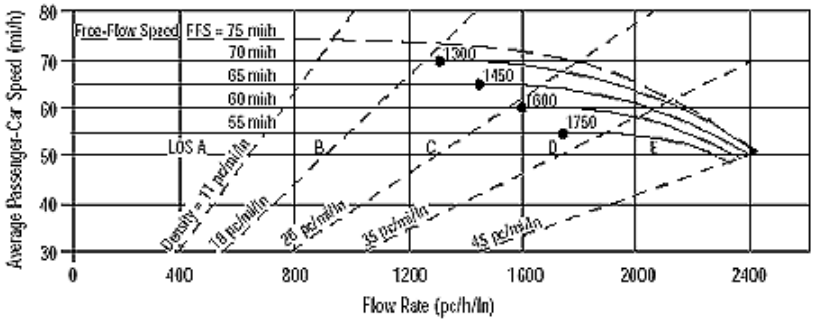

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 NB
From/To	
Jurisdiction	205
Analysis Year	2035 Build Toll Alternative 3A

Project Description Monroe Bypass / Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4531 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.930

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	4.5	mi/h
FFS	65.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	2706	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	F	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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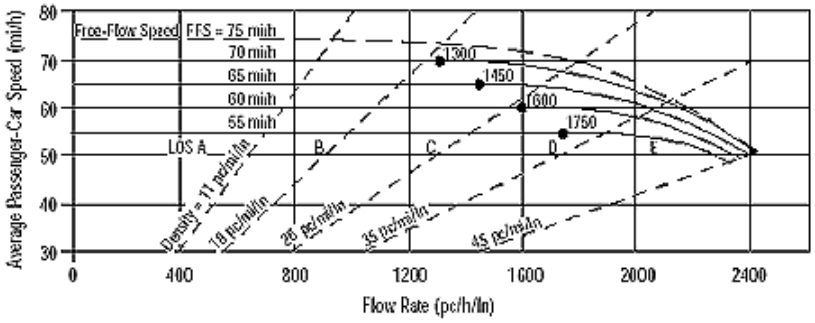

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 SB
From/To	
Jurisdiction	206
Analysis Year	2035 Build Toll Alternative 3A

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4531 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.930

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	4.5	mi/h
FFS	65.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	2706	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	F	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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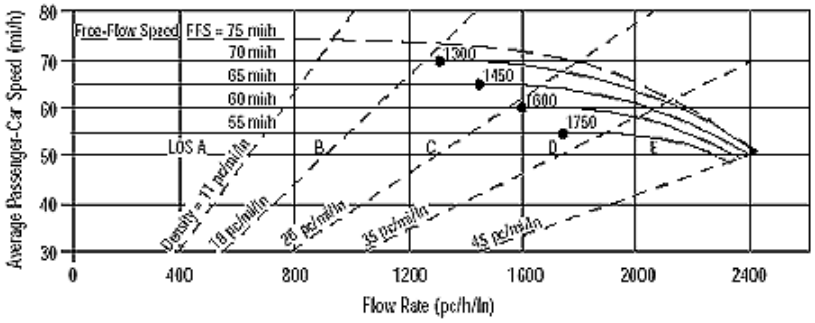

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 SB
From/To	
Jurisdiction	206
Analysis Year	2035 Build Toll Alternative 3A

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	3718 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.930

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	4.5	mi/h
FFS	65.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	2220	pc/h/ln
S	56.8	mi/h
D = v_p / S	39.1	pc/mi/ln
LOS	E	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/24/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-485 SB Off Ramp
Junction:	I-485 SB and US 74 WB
Jurisdiction:	207
Analysis Year:	2035 Build Toll Alternative 3A
Description:	Monroe Bypass/Connector

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4531	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	611	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent ramp		vph
Position of adjacent ramp		
Type of adjacent ramp		
Distance to adjacent ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4531	611		vph
Peak-hour factor, PHF	0.90	0.90		
Peak 15-min volume, v15	1259	170		v
Trucks and buses	5	5		%
Recreational vehicles	0	0		%
Terrain type:	Rolling	Rolling		
Grade	0.00 %	0.00 %		%
Length	0.00 mi	0.00 mi		mi
Trucks and buses PCE, ET	2.5	2.5		
Recreational vehicle PCE, ER	2.0	2.0		

Heavy vehicle adjustment, fHV	0.930	0.930	
Driver population factor, fP	1.00	1.00	
Flow rate, vp	5412	730	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 5412 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5412	4800	Yes
v_{12}	5412	4400	Yes
$v_{FO} = v_F - v_R$	4682	4800	No
v_R	730	2100	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 48.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable,	D_S = 0.364	
Space mean speed in ramp influence area,	S_R = 59.8	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 59.8	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/24/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-485 SB Off Ramp
Junction:	I-485 SB and US 74 WB
Jurisdiction:	207
Analysis Year:	2035 Build Toll Alternative 3A
Description:	Monroe Bypass/Connector

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3718	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	475	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent ramp		vph
Position of adjacent ramp		
Type of adjacent ramp		
Distance to adjacent ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3718	475		vph
Peak-hour factor, PHF	0.90	0.90		
Peak 15-min volume, v15	1033	132		v
Trucks and buses	5	5		%
Recreational vehicles	0	0		%
Terrain type:	Rolling	Rolling		
Grade	0.00 %	0.00 %		%
Length	0.00 mi	0.00 mi		mi
Trucks and buses PCE, ET	2.5	2.5		
Recreational vehicle PCE, ER	2.0	2.0		

Heavy vehicle adjustment, fHV	0.930	0.930	
Driver population factor, fP	1.00	1.00	
Flow rate, vp	4441	567	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 4441 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4441	4800	No
v_{12}	4441	4400	Yes
$v_{FO} = v_F - v_R$	3874	4800	No
v_R	567	2100	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 39.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable,	D_S = 0.349	
Space mean speed in ramp influence area,	S_R = 60.2	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 60.2	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/24/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-485 SB Off Ramp
Junction:	I-485 SB and US 74 EB
Jurisdiction:	208
Analysis Year:	2035 Build Toll Alternative 3A
Description:	Monroe Bypass/Connector

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3920	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	25.0	mph
Volume on ramp	805	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent ramp		vph
Position of adjacent ramp		
Type of adjacent ramp		
Distance to adjacent ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3920	805		vph
Peak-hour factor, PHF	0.90	0.90		
Peak 15-min volume, v15	1089	224		v
Trucks and buses	5	5		%
Recreational vehicles	0	0		%
Terrain type:	Rolling	Rolling		
Grade	0.00 %	0.00 %		%
Length	0.00 mi	0.00 mi		mi
Trucks and buses PCE, ET	2.5	2.5		
Recreational vehicle PCE, ER	2.0	2.0		

Heavy vehicle adjustment, fHV	0.930	0.930	
Driver population factor, fP	1.00	1.00	
Flow rate, vp	4682	962	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 4682 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4682	4800	No
v_{12}	4682	4400	Yes
$v_{FO} = v_F - v_R$	3720	4800	No
v_R	962	1900	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 40.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable,	D_S = 0.645	
Space mean speed in ramp influence area,	S_R = 52.0	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 52.0	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/24/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-485 SB Off Ramp
Junction:	I-485 SB and US 74 EB
Jurisdiction:	208
Analysis Year:	2035 Build Toll Alternative 3A
Description:	Monroe Bypass/Connector

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3243	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	25.0	mph
Volume on ramp	799	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent ramp		vph
Position of adjacent ramp		
Type of adjacent ramp		
Distance to adjacent ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3243	799		vph
Peak-hour factor, PHF	0.90	0.90		
Peak 15-min volume, v15	901	222		v
Trucks and buses	5	5		%
Recreational vehicles	0	0		%
Terrain type:	Rolling	Rolling		
Grade	0.00 %	0.00 %		%
Length	0.00 mi	0.00 mi		mi
Trucks and buses PCE, ET	2.5	2.5		
Recreational vehicle PCE, ER	2.0	2.0		

Heavy vehicle adjustment, fHV	0.930	0.930	
Driver population factor, fP	1.00	1.00	
Flow rate, vp	3874	954	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3874 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3874	4800	No
v_{12}	3874	4400	No
$v_{FO} = v_F - v_R$	2920	4800	No
v_R	954	1900	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 33.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable,	D_S = 0.644	
Space mean speed in ramp influence area,	S_R = 52.0	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 52.0	mph

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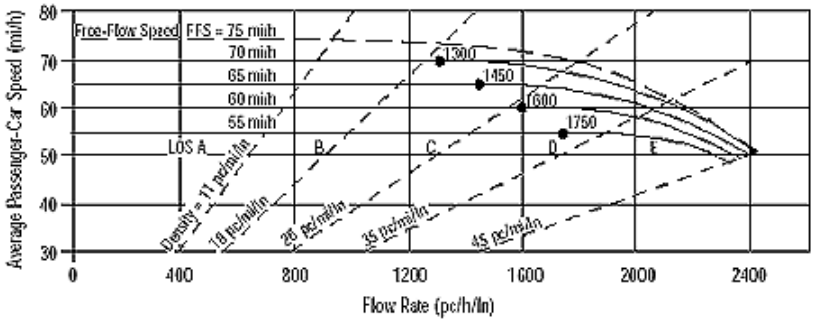

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 SB
From/To	
Jurisdiction	209
Analysis Year	2035 Build Toll Alternative 3A

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	3115 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	4.5	mi/h
FFS	65.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1938	pc/h/ln
S	62.8	mi/h
D = v_p / S	30.9	pc/mi/ln
LOS	D	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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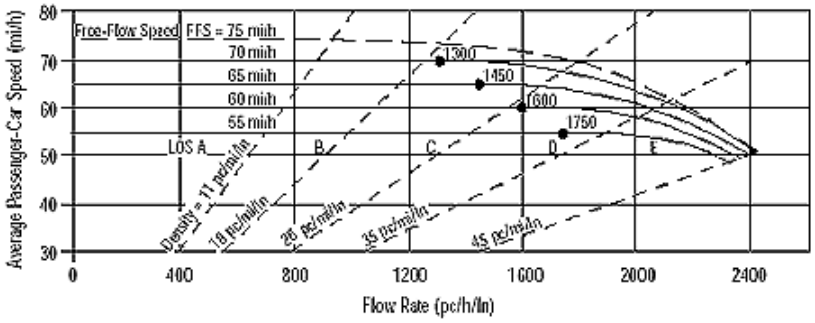

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 SB
From/To	
Jurisdiction	209
Analysis Year	2035 Build Toll Alternative 3A

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	2444 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	4.5	mi/h
FFS	65.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1521	pc/h/ln
S	65.5	mi/h
D = v_p / S	23.2	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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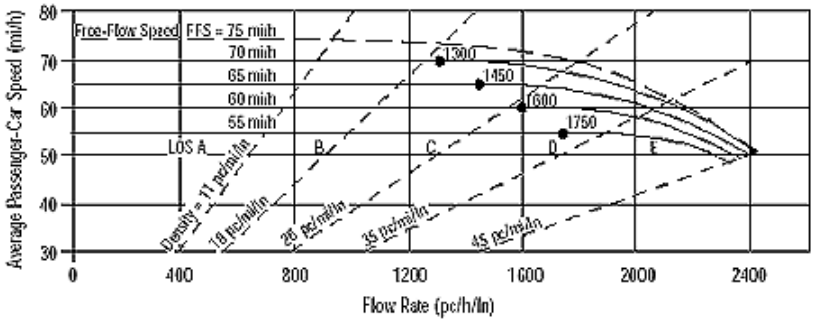

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 SB On Ramp
From/To	
Jurisdiction	210
Analysis Year	2035 Build Toll Alternative 3A

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1979 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1248	pc/h/ln
S	55.0	mi/h
D = v_p / S	22.7	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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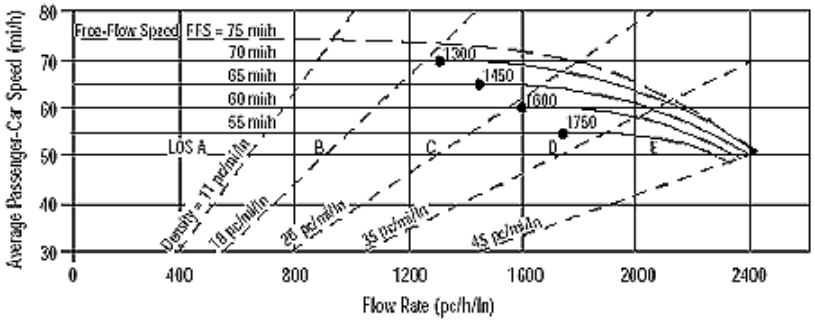

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 SB On Ramp
From/To	
Jurisdiction	210
Analysis Year	2035 Build Toll Alternative 3A

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1711 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1079	pc/h/ln
S	55.0	mi/h
D = v_p / S	19.6	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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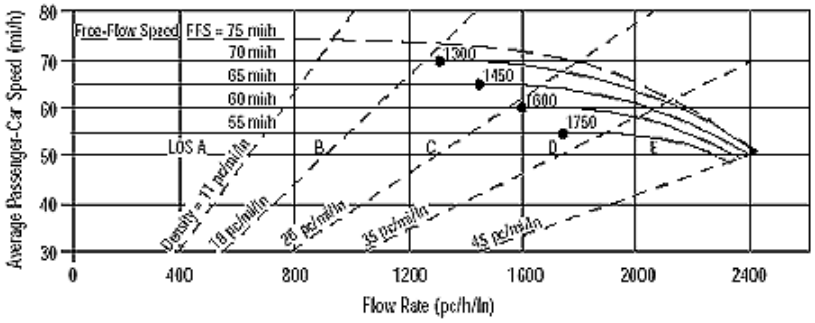

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 SB
From/To	
Jurisdiction	211
Analysis Year	2035 Build Toll Alternative 3A

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	5094 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	1.5	mi/h
FFS	68.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1585	pc/h/ln
S	68.2	mi/h
D = v_p / S	23.3	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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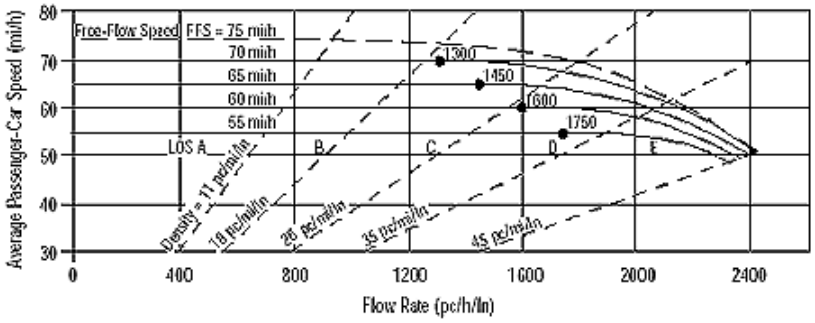

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 SB
From/To	
Jurisdiction	211
Analysis Year	2035 Build Toll Alternative 3A

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4155 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	1.5	mi/h
FFS	68.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1293	pc/h/ln
S	68.5	mi/h
D = v_p / S	18.9	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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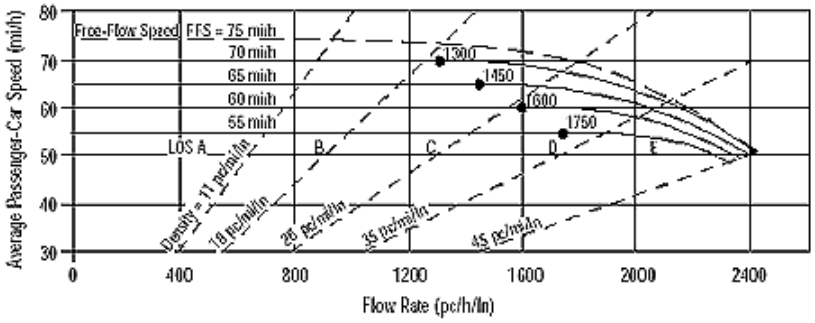
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 SB
From/To	
Jurisdiction	212
Analysis Year	2035 Build Toll Alternative 3A

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	5094 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	67.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	2113	pc/h/ln
S	60.5	mi/h
D = v_p / S	34.9	pc/mi/ln
LOS	D	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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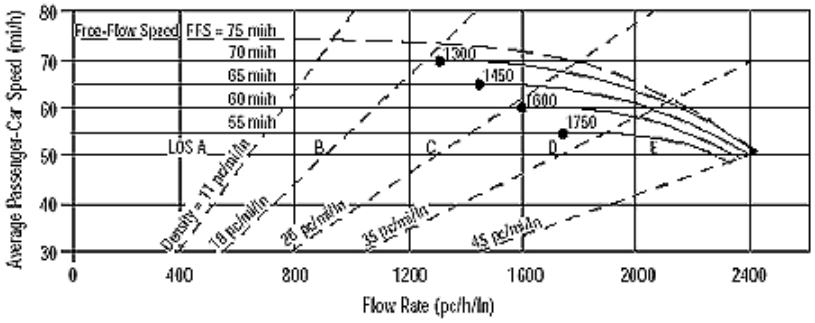
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 SB
From/To	
Jurisdiction	212
Analysis Year	2035 Build Toll Alternative 3A

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4155 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	67.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1724	pc/h/ln
S	66.1	mi/h
D = v_p / S	26.1	pc/mi/ln
LOS	D	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	AM Peak

Site Information

Highway/Dir of Travel	I-485 NB Off Ramp
From/To	
Jurisdiction	213
Analysis Year	2035 Build Toll Alternative 3A

Flow Inputs

Volume, V	678 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	8%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.89286$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 843.73$$

LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **15.3**

LOS: **B**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	PM Peak

Site Information

Highway/Dir of Travel	I-485 NB Off Ramp
From/To	
Jurisdiction	213
Analysis Year	2035 Build Toll Alternative 3A

Flow Inputs

Volume, V	672 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	8%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.89286$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 836.27$$

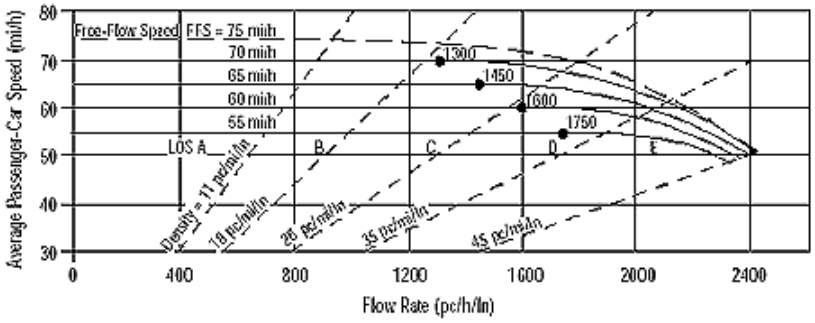
LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **15.2**

LOS: **B**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 NB Off Ramp
From/To	
Jurisdiction	214
Analysis Year	2035 Build Toll Alternative 3A

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1033 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	643	pc/h/ln
S	55.0	mi/h
D = v_p / S	11.7	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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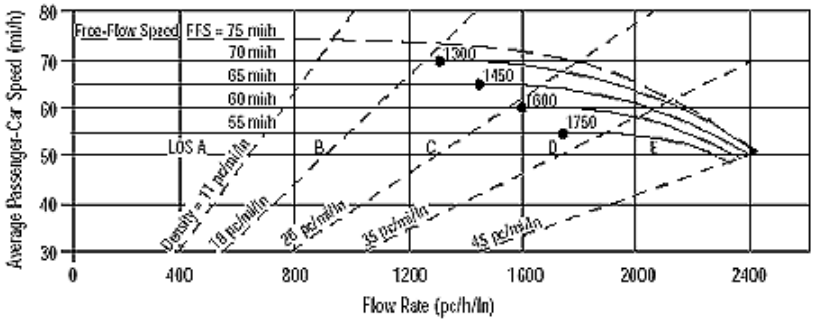
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 NB Off Ramp
From/To	
Jurisdiction	214
Analysis Year	2035 Build Toll Alternative 3A

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1307 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	813	pc/h/ln
S	55.0	mi/h
D = v_p / S	14.8	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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FREEWAY WEAVING WORKSHEET

General Information

Analyst	OSR
Agency/Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Freeway/Dir of Travel	I-485 NB
Weaving Seg Location	215
Jurisdiction	
Analysis Year	2035 Build Toll Alternative 3A

Inputs

Freeway free-flow speed, S_{FF} (mi/h)	45	Weaving type	A
Weaving number of lanes, N	2	Volume ratio, VR	1.00
Weaving seg length, L (ft)	700	Weaving ratio, R	0.42
Terrain	Rolling		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	0	0.90	0	0	2.5	2.0	1.000	1.00	0
Vo2	0	0.90	0	0	2.5	2.0	1.000	1.00	0
Vw1	678	0.90	8	0	2.5	2.0	0.893	1.00	843
Vw2	475	0.90	9	0	2.5	2.0	0.881	1.00	599
Vw				1442	Vnw				0
V									1442

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.00
b (Exhibit 24-6)			4.00	4.00
c (Exhibit 24-6)			0.97	1.30
d (Exhibit 24-6)			0.80	0.75
Weaving intensity factor, Wi			5.04	1.22
Weaving and non-weaving speeds, Si (mi/h)			20.79	30.76

Number of lanes required for unconstrained operation, Nw 1.64
Maximum number of lanes, Nw (max) 1.40

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	20.79
Weaving segment density, D (pc/mi/ln)	34.67
Level of service, LOS	D
Capacity of base condition, c_b (pc/h)	
Capacity as a 15-minute flow rate, c (veh/h)	
Capacity as a full-hour volume, c_h (veh/h)	

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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FREEWAY WEAVING WORKSHEET

General Information

Analyst	OSR
Agency/Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Freeway/Dir of Travel	I-485 NB
Weaving Seg Location	215
Jurisdiction	
Analysis Year	2035 Build Toll Alternative 3A

Inputs

Freeway free-flow speed, S_{FF} (mi/h)	45	Weaving type	A
Weaving number of lanes, N	2	Volume ratio, VR	1.00
Weaving seg length, L (ft)	700	Weaving ratio, R	0.48
Terrain	Rolling		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	0	0.90	0	0	2.5	2.0	1.000	1.00	0
Vo2	0	0.90	0	0	2.5	2.0	1.000	1.00	0
Vw1	672	0.90	8	0	2.5	2.0	0.893	1.00	836
Vw2	611	0.90	9	0	2.5	2.0	0.881	1.00	770
Vw				1606	Vnw				0
V									1606

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.00
b (Exhibit 24-6)			4.00	4.00
c (Exhibit 24-6)			0.97	1.30
d (Exhibit 24-6)			0.80	0.75
Weaving intensity factor, Wi			5.60	1.40
Weaving and non-weaving speeds, Si (mi/h)			20.31	29.56

Number of lanes required for unconstrained operation, Nw 1.67
Maximum number of lanes, Nw (max) 1.40

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	20.31
Weaving segment density, D (pc/mi/ln)	39.54
Level of service, LOS	E
Capacity of base condition, c_b (pc/h)	
Capacity as a 15-minute flow rate, c (veh/h)	
Capacity as a full-hour volume, c_h (veh/h)	

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	AM Peak

Site Information

Highway/Dir of Travel	I-485 NB On Ramp
From/To	
Jurisdiction	216
Analysis Year	2035 Build Toll Alternative 3A

Flow Inputs

Volume, V	475 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	8%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.89286$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 591.11$$

LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **10.7**

LOS: **A**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	PM Peak

Site Information

Highway/Dir of Travel	I-485 NB On Ramp
From/To	
Jurisdiction	216
Analysis Year	2035 Build Toll Alternative 3A

Flow Inputs

Volume, V	611 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	8%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.89286$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 760.36$$

LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **13.8**

LOS: **B**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	AM Peak

Site Information

Highway/Dir of Travel	I-485 NB On Ramp
From/To	
Jurisdiction	217
Analysis Year	2035 Build Toll Alternative 3A

Flow Inputs

Volume, V	799 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	9%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.88106$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 1007.63$$

LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **18.3**

LOS: **C**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	PM Peak

Site Information

Highway/Dir of Travel	I-485 NB On Ramp
From/To	
Jurisdiction	217
Analysis Year	2035 Build Toll Alternative 3A

Flow Inputs

Volume, V	805 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	9%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.88106$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 1015.19$$

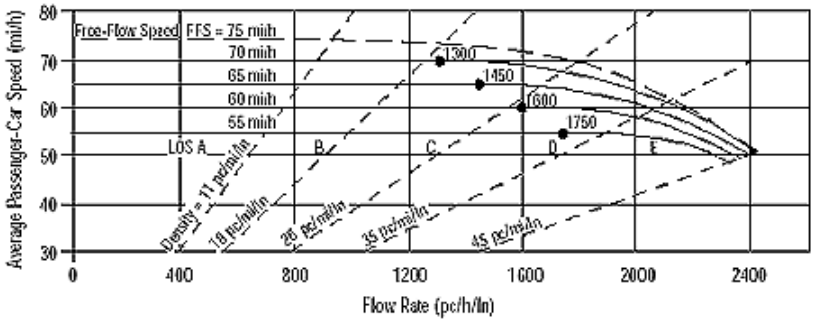
LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **18.5**

LOS: **C**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 NB On Ramp
From/To	
Jurisdiction	218
Analysis Year	2035 Build Toll Alternative 3A

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1274 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	803	pc/h/ln
S	55.0	mi/h
D = v_p / S	14.6	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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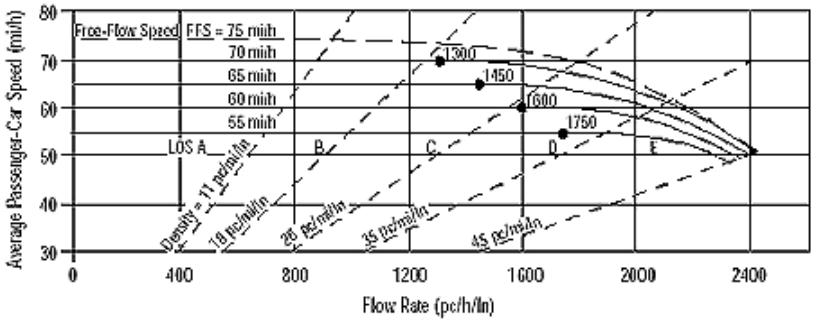
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 NB On Ramp
From/To	
Jurisdiction	218
Analysis Year	2035 Build Toll Alternative 3A

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1416 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	893	pc/h/ln
S	55.0	mi/h
D = v_p / S	16.2	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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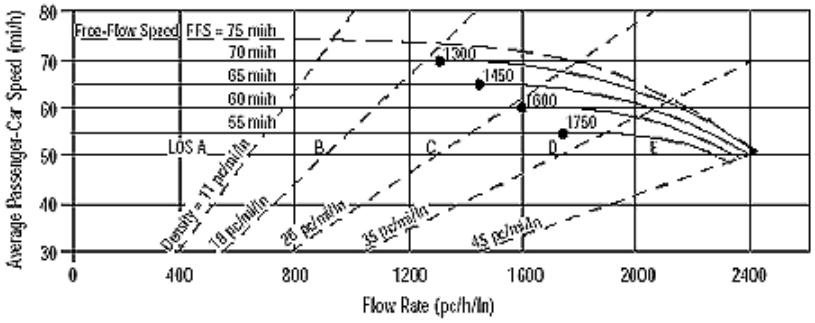
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	US 74 EB
From/To	
Jurisdiction	219
Analysis Year	2035 Build Toll Alternative 3A

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	3455 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	1.5	mi/h
FFS	58.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1089	pc/h/ln
S	58.5	mi/h
D = v_p / S	18.6	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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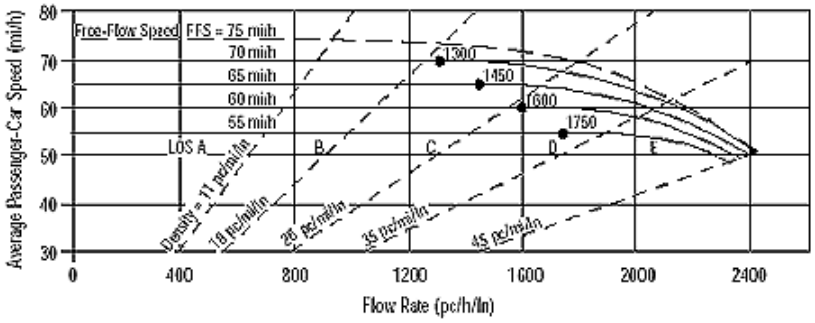
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	US 74 EB
From/To	
Jurisdiction	219
Analysis Year	2035 Build Toll Alternative 3A

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4235 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	1.5	mi/h
FFS	58.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1335	pc/h/ln
S	58.5	mi/h
D = v_p / S	22.8	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/24/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB Off Ramp
Junction:	US 74 EB and I-485 SB
Jurisdiction:	220
Analysis Year:	2035 Build Toll Alternative 3A
Description:	Monroe Bypass/Connector

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3455	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	672	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent ramp		vph
Position of adjacent ramp		
Type of adjacent ramp		
Distance to adjacent ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3455	672		vph
Peak-hour factor, PHF	0.90	0.90		
Peak 15-min volume, v15	960	187		v
Trucks and buses	9	9		%
Recreational vehicles	0	0		%
Terrain type:	Rolling	Rolling		
Grade	0.00 %	0.00 %		%
Length	0.00 mi	0.00 mi		mi
Trucks and buses PCE, ET	2.5	2.5		
Recreational vehicle PCE, ER	2.0	2.0		

Heavy vehicle adjustment, fHV	0.881	0.881	
Driver population factor, fP	1.00	1.00	
Flow rate, vp	4357	847	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2377 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4357	9200	No
v_{12}	2377	4400	No
$v_{FO} = v_F - v_R$	3510	9200	No
v_R	847	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 22.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.374	
Space mean speed in ramp influence area,	S_R = 53.3	mph
Space mean speed in outer lanes,	S_0 = 65.8	mph
Space mean speed for all vehicles,	S = 58.3	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/24/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB Off Ramp
Junction:	US 74 EB and I-485 SB
Jurisdiction:	220
Analysis Year:	2035 Build Toll Alternative 3A
Description:	Monroe Bypass/Connector

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	4235	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	678	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent ramp		vph
Position of adjacent ramp		
Type of adjacent ramp		
Distance to adjacent ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4235	678		vph
Peak-hour factor, PHF	0.90	0.90		
Peak 15-min volume, v15	1176	188		v
Trucks and buses	9	9		%
Recreational vehicles	0	0		%
Terrain type:	Rolling	Rolling		
Grade	0.00 %	0.00 %		%
Length	0.00 mi	0.00 mi		mi
Trucks and buses PCE, ET	2.5	2.5		
Recreational vehicle PCE, ER	2.0	2.0		

Heavy vehicle adjustment, fHV	0.881	0.881	
Driver population factor, fP	1.00	1.00	
Flow rate, vp	5341	855	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2811 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5341	9200	No
v_{12}	2811	4400	No
$v_{FO} = v_F - v_R$	4486	9200	No
v_R	855	2100	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 26.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.375	
Space mean speed in ramp influence area,	S_R = 53.3	mph
Space mean speed in outer lanes,	S_0 = 64.8	mph
Space mean speed for all vehicles,	S = 58.2	mph

FREEWAY WEAVING WORKSHEET

General Information

Analyst	OSR
Agency/Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Freeway/Dir of Travel	I-485 NB
Weaving Seg Location	221
Jurisdiction	
Analysis Year	2035 Build Toll Alternative 3A

Inputs

Freeway free-flow speed, S_{FF} (mi/h)	60	Weaving type	A
Weaving number of lanes, N	5	Volume ratio, VR	0.35
Weaving seg length, L (ft)	700	Weaving ratio, R	0.38
Terrain	Rolling		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	2308	0.90	9	0	2.5	2.0	0.881	1.00	2910
Vo2	0	0.90	0	0	2.5	2.0	1.000	1.00	0
Vw1	475	0.90	9	0	2.5	2.0	0.881	1.00	599
Vw2	805	0.90	5	0	2.5	2.0	0.930	1.00	961
Vw				1560	Vnw				2910
V									4470

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.00
b (Exhibit 24-6)			4.00	4.00
c (Exhibit 24-6)			0.97	1.30
d (Exhibit 24-6)			0.80	0.75
Weaving intensity factor, Wi			2.61	0.33
Weaving and non-weaving speeds, Si (mi/h)			28.85	52.48

Number of lanes required for unconstrained operation, Nw 1.90
Maximum number of lanes, Nw (max) 1.40

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	40.81
Weaving segment density, D (pc/mi/ln)	21.91
Level of service, LOS	C
Capacity of base condition, c_b (pc/h)	8580
Capacity as a 15-minute flow rate, c (veh/h)	7559
Capacity as a full-hour volume, c_h (veh/h)	6803

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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FREEWAY WEAVING WORKSHEET

General Information

Analyst	OSR
Agency/Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Freeway/Dir of Travel	I-485 NB
Weaving Seg Location	221
Jurisdiction	
Analysis Year	2035 Build Toll Alternative 3A

Inputs

Freeway free-flow speed, SFF (mi/h)	60	Weaving type	A
Weaving number of lanes, N	5	Volume ratio, VR	0.32
Weaving seg length, L (ft)	700	Weaving ratio, R	0.45
Terrain	Rolling		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	2946	0.90	9	0	2.5	2.0	0.881	1.00	3715
Vo2	0	0.90	0	0	2.5	2.0	1.000	1.00	0
Vw1	611	0.90	9	0	2.5	2.0	0.881	1.00	770
Vw2	799	0.90	5	0	2.5	2.0	0.930	1.00	954
Vw				1724	Vnw				3715
V									5439

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.00
b (Exhibit 24-6)			4.00	4.00
c (Exhibit 24-6)			0.97	1.30
d (Exhibit 24-6)			0.80	0.75
Weaving intensity factor, Wi			3.00	0.39
Weaving and non-weaving speeds, Si (mi/h)			27.51	50.93

Number of lanes required for unconstrained operation, Nw 1.83
Maximum number of lanes, Nw (max) 1.40

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	40.11
Weaving segment density, D (pc/mi/ln)	27.12
Level of service, LOS	C
Capacity of base condition, c_b (pc/h)	8580
Capacity as a 15-minute flow rate, c (veh/h)	7559
Capacity as a full-hour volume, c_h (veh/h)	6803

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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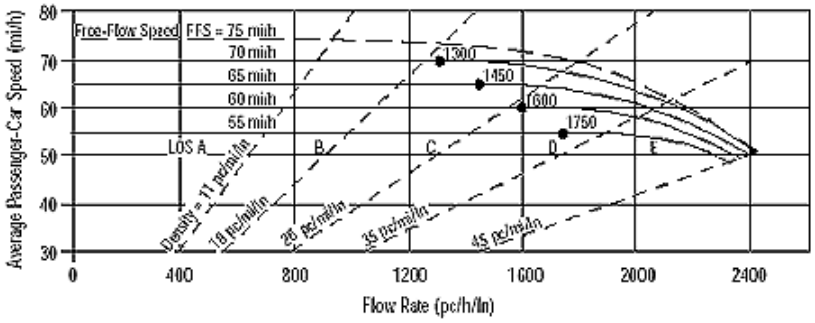
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	US 74 EB
From/To	
Jurisdiction	222
Analysis Year	2035 Build Toll Alternative 3A

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	5052 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	1.5	mi/h
FFS	58.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1593	pc/h/ln
S	58.5	mi/h
D = v_p / S	27.2	pc/mi/ln
LOS	D	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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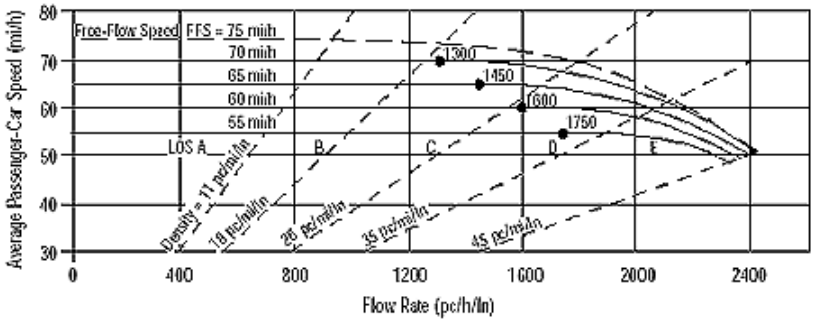
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	US 74 EB
From/To	
Jurisdiction	222
Analysis Year	2035 Build Toll Alternative 3A

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4146 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	1.5	mi/h
FFS	58.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1307	pc/h/ln
S	58.5	mi/h
D = v_p / S	22.3	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	AM Peak

Site Information

Highway/Dir of Travel	US 74 SB On Ramp
From/To	
Jurisdiction	223
Analysis Year	2035 Build Toll Alternative 3A

Flow Inputs

Volume, V	1033 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	8%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.89286$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 1285.51$$

LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **23.4**

LOS: **C**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	PM Peak

Site Information

Highway/Dir of Travel	US 74 SB On Ramp
From/To	
Jurisdiction	223
Analysis Year	2035 Build Toll Alternative 3A

Flow Inputs

Volume, V	1307 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	8%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.89286$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 1626.49$$

LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **29.7**

LOS: **D**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

FREEWAY WEAVING WORKSHEET

General Information

Analyst	OSR
Agency/Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Freeway/Dir of Travel	I-485 NB
Weaving Seg Location	224
Jurisdiction	
Analysis Year	2035 Build Toll Alternative 3A

Inputs

Freeway free-flow speed, S_{FF} (mi/h)	60	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.33
Weaving seg length, L (ft)	2100	Weaving ratio, R	0.39
Terrain	Rolling		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	2582	0.90	9	0	2.5	2.0	0.881	1.00	3256
Vo2	177	0.90	8	0	2.5	2.0	0.893	1.00	220
Vw1	531	0.90	9	0	2.5	2.0	0.881	1.00	669
Vw2	856	0.90	8	0	2.5	2.0	0.893	1.00	1065
Vw				1734	Vnw				3476
V									5210

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.00
b (Exhibit 24-6)			4.00	4.00
c (Exhibit 24-6)			0.97	1.30
d (Exhibit 24-6)			0.80	0.75
Weaving intensity factor, Wi			1.52	0.23
Weaving and non-weaving speeds, Si (mi/h)			34.83	55.72

Number of lanes required for unconstrained operation, Nw 1.78
Maximum number of lanes, Nw (max) 1.40

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	46.45
Weaving segment density, D (pc/mi/ln)	28.04
Level of service, LOS	D
Capacity of base condition, c_b (pc/h)	7304
Capacity as a 15-minute flow rate, c (veh/h)	6435
Capacity as a full-hour volume, c_h (veh/h)	5791

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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FREEWAY WEAVING WORKSHEET

General Information

Analyst	OSR
Agency/Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Freeway/Dir of Travel	I-485 NB
Weaving Seg Location	224
Jurisdiction	
Analysis Year	2035 Build Toll Alternative 3A

Inputs

Freeway free-flow speed, S_{FF} (mi/h)	60	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.34
Weaving seg length, L (ft)	2100	Weaving ratio, R	0.37
Terrain	Rolling		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	3123	0.90	9	0	2.5	2.0	0.881	1.00	3938
Vo2	219	0.90	8	0	2.5	2.0	0.893	1.00	272
Vw1	622	0.90	9	0	2.5	2.0	0.881	1.00	784
Vw2	1088	0.90	8	0	2.5	2.0	0.893	1.00	1353
Vw				2137	Vnw				4210
V									6347

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.00
b (Exhibit 24-6)			4.00	4.00
c (Exhibit 24-6)			0.97	1.30
d (Exhibit 24-6)			0.80	0.75
Weaving intensity factor, Wi			1.85	0.30
Weaving and non-weaving speeds, Si (mi/h)			32.52	53.52

Number of lanes required for unconstrained operation, Nw 1.84
Maximum number of lanes, Nw (max) 1.40

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	43.96
Weaving segment density, D (pc/mi/ln)	36.09
Level of service, LOS	E
Capacity of base condition, c_b (pc/h)	7279
Capacity as a 15-minute flow rate, c (veh/h)	6413
Capacity as a full-hour volume, c_h (veh/h)	5772

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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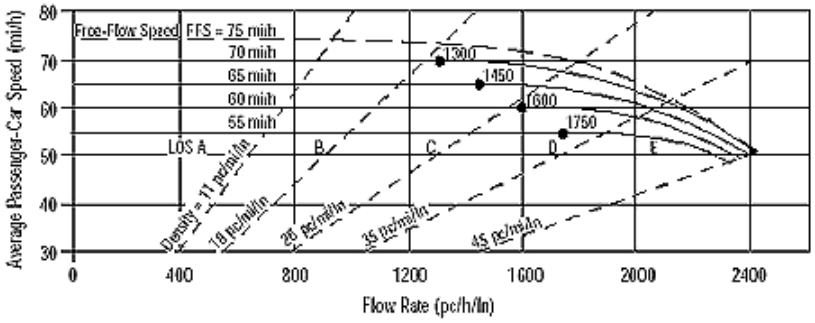
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	US 74 WB
From/To	
Jurisdiction	225
Analysis Year	2035 Build Toll Alternative 3A

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	5052 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	1.5	mi/h
FFS	58.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1593	pc/h/ln
S	58.5	mi/h
D = v_p / S	27.2	pc/mi/ln
LOS	D	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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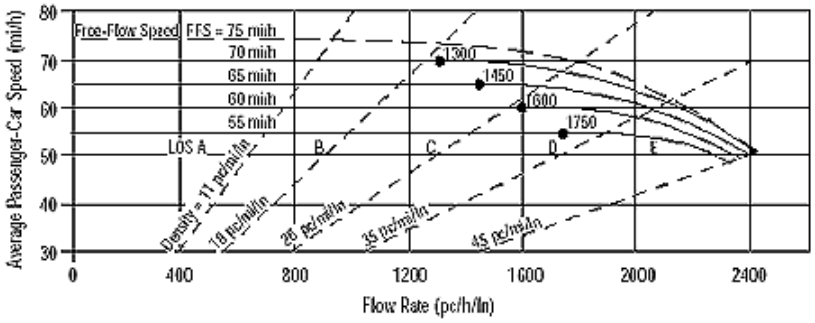
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	US 74 WB
From/To	
Jurisdiction	225
Analysis Year	2035 Build Toll Alternative 3A

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4146 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	1.5	mi/h
FFS	58.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1307	pc/h/ln
S	58.5	mi/h
D = v_p / S	22.3	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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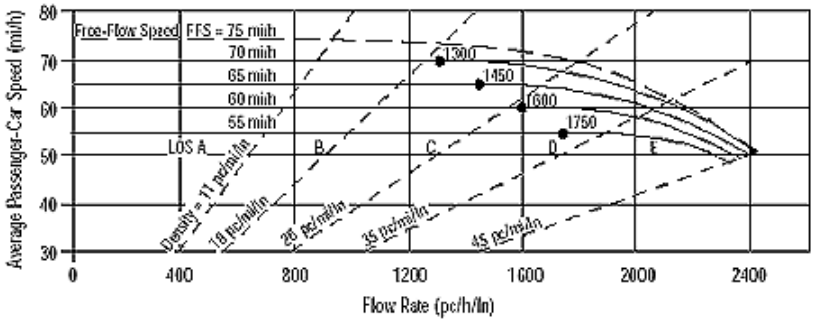
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	US 74 WB
From/To	
Jurisdiction	226
Analysis Year	2035 Build Toll Alternative 3A

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	2946 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	57.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1238	pc/h/ln
S	57.0	mi/h
D = v_p / S	21.7	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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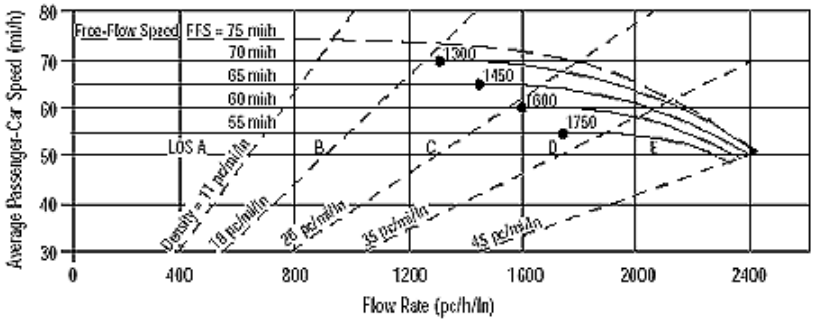
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	US 74 WB
From/To	
Jurisdiction	226
Analysis Year	2035 Build Toll Alternative 3A

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	2308 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	57.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	970	pc/h/ln
S	57.0	mi/h
D = v_p / S	17.0	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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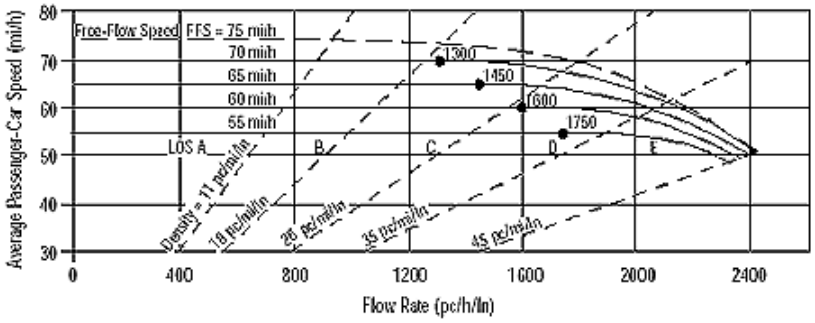
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	US 74 WB Off Ramp
From/To	
Jurisdiction	227
Analysis Year	2035 Build Toll Alternative 3A

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	2106 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1328	pc/h/ln
S	55.0	mi/h
D = v_p / S	24.1	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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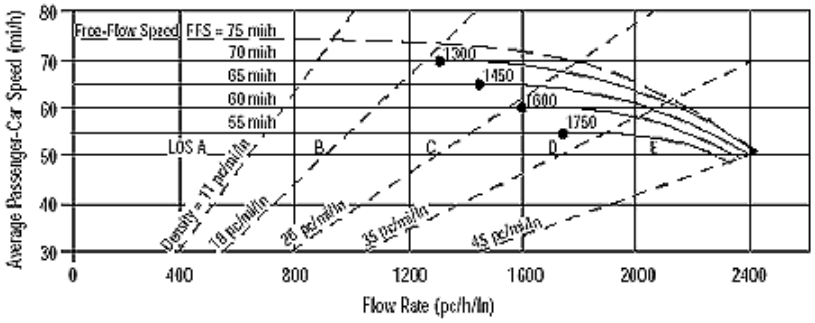
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	US 74 WB Off Ramp
From/To	
Jurisdiction	227
Analysis Year	2035 Build Toll Alternative 3A

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1838 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1159	pc/h/ln
S	55.0	mi/h
D = v_p / S	21.1	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/24/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB
Junction:	US 74 WB and I-485 NB
Jurisdiction:	228
Analysis Year:	2035 Build Toll Alternative 3A
Description:	Monroe Bypass/Connector

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2946	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	678	vph
Length of first accel/decel lane	700	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	611	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	2150	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2946	678	611	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	818	188	170	v
Trucks and buses	9	8	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.881	0.893	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3715	844	730	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.597 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 2218 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4559	6900	No
v_{R12}	3062	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 24.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.369	
Space mean speed in ramp influence area,	S_R = 53.4	mph
Space mean speed in outer lanes,	S_O = 56.4	mph
Space mean speed for all vehicles,	S = 54.3	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/24/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB
Junction:	US 74 WB and I-485 NB
Jurisdiction:	228
Analysis Year:	2035 Build Toll Alternative 3A
Description:	Monroe Bypass/Connector

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2308	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	672	vph
Length of first accel/decel lane	700	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	475	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	2150	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2308	672	475	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	641	187	132	v
Trucks and buses	9	8	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.881	0.893	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2911	836	567	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.597 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1738 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3747	6900	No
v_{R12}	2574	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 20.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.337	
Space mean speed in ramp influence area,	S_R = 53.9	mph
Space mean speed in outer lanes,	S_O = 57.6	mph
Space mean speed for all vehicles,	S = 55.0	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/24/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB
Junction:	US 74 WB and I-485 SB
Jurisdiction:	229
Analysis Year:	2035 Build Toll Alternative 3A
Description:	Monroe Bypass/Connector

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3624	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	611	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	678	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	2150	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3624	611	678	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	1007	170	188	v
Trucks and buses	9	5	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.881	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4570	730	844	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.591 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 2703 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	5300	6900	No
v_{R12}	3433	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 28.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable,	M_S = 0.397	
Space mean speed in ramp influence area,	S_R = 52.9	mph
Space mean speed in outer lanes,	S_O = 55.1	mph
Space mean speed for all vehicles,	S = 53.6	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/24/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB
Junction:	US 74 WB and I-485 SB
Jurisdiction:	229
Analysis Year:	2035 Build Toll Alternative 3A
Description:	Monroe Bypass/Connector

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2980	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	475	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	672	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	2150	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2980	475	672	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	828	132	187	v
Trucks and buses	9	5	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.881	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3758	567	836	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.591 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 2223 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4325	6900	No
v_{R12}	2790	4600	No

Level of Service Determination (if not F)

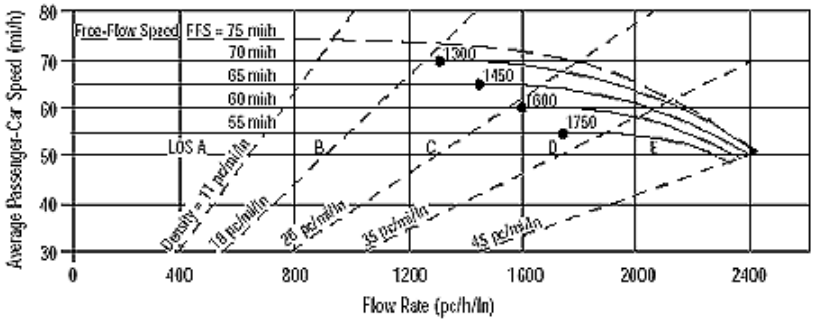
Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 23.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.339	
Space mean speed in ramp influence area,	S_R = 53.9	mph
Space mean speed in outer lanes,	S_O = 56.3	mph
Space mean speed for all vehicles,	S = 54.7	mph

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	US 74 WB Off Ramp
From/To	
Jurisdiction	230
Analysis Year	2035 Build Toll Alternative 3A

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4235 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	57.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1780	pc/h/ln
S	56.9	mi/h
D = v_p / S	31.3	pc/mi/ln
LOS	D	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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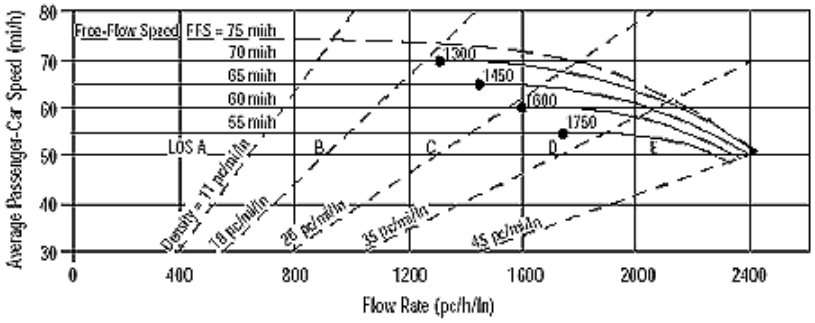

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	US 74 WB Off Ramp
From/To	
Jurisdiction	230
Analysis Year	2035 Build Toll Alternative 3A

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	3455 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	57.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1452	pc/h/ln
S	57.0	mi/h
D = v_p / S	25.5	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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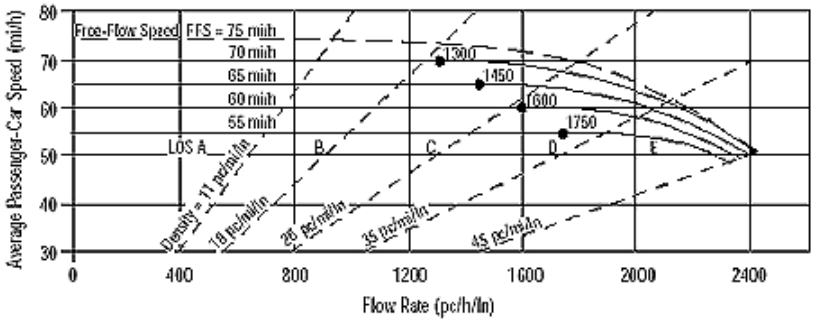

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	US 74 Flyover
From/To	
Jurisdiction	231
Analysis Year	2035 Build Toll Alternative 3A

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1307 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	824	pc/h/ln
S	55.0	mi/h
D = v_p / S	15.0	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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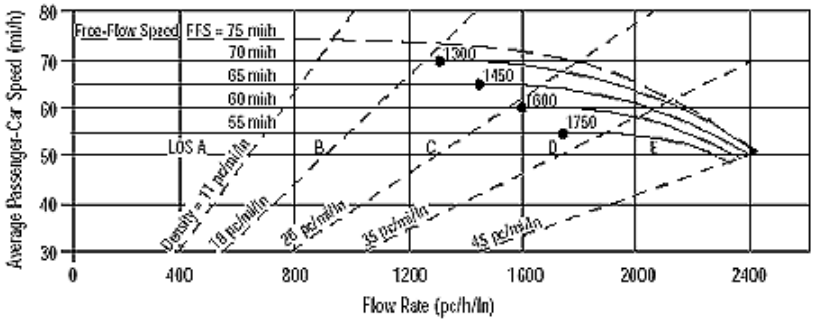

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	US 74 Flyover
From/To	
Jurisdiction	231
Analysis Year	2035 Build Toll Alternative 3A

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1033 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	651	pc/h/ln
S	55.0	mi/h
D = v_p / S	11.8	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	AM Peak

Site Information

Highway/Dir of Travel	US 74 SB Off Ramp
From/To	
Jurisdiction	232
Analysis Year	2035 Build Toll Alternative 3A

Flow Inputs

Volume, V	672 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	9%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.88106$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 847.47$$

LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **15.4**

LOS: **B**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	AM Peak

Site Information

Highway/Dir of Travel	US 74 SB Off Ramp
From/To	
Jurisdiction	232
Analysis Year	2035 Build Toll Alternative 3A

Flow Inputs

Volume, V	678 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	9%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.88106$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 855.03$$

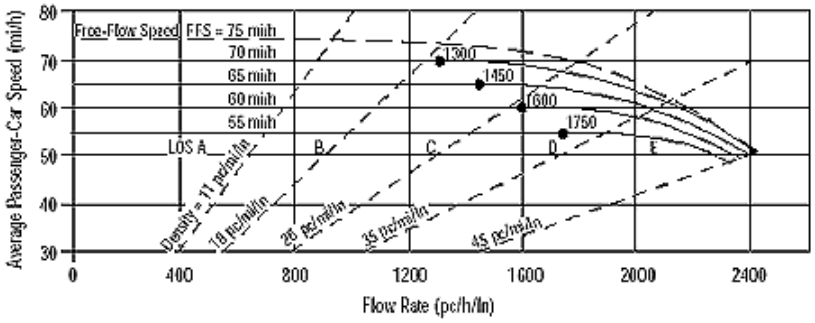
LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **15.5**

LOS: **B**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 NB On Ramp
From/To	
Jurisdiction	233
Analysis Year	2035 Build Toll Alternative 3A

Project Description Monroe Bypass / Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1979 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	832	pc/h/ln
S	55.0	mi/h
D = v_p / S	15.1	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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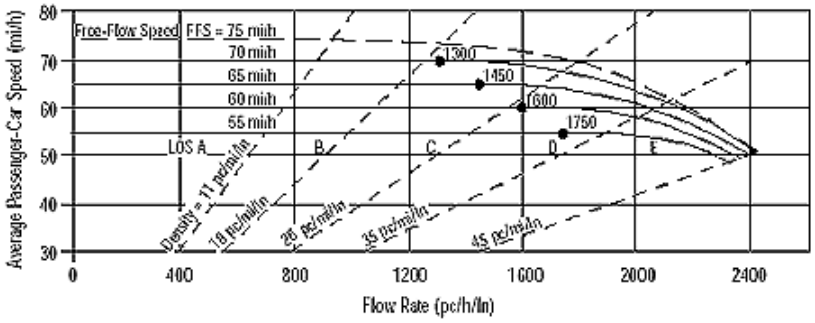
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 NB On Ramp
From/To	
Jurisdiction	233
Analysis Year	2035 Build Toll Alternative 3A

Project Description Monroe Bypass / Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1711 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	719	pc/h/ln
S	55.0	mi/h
D = v_p / S	13.1	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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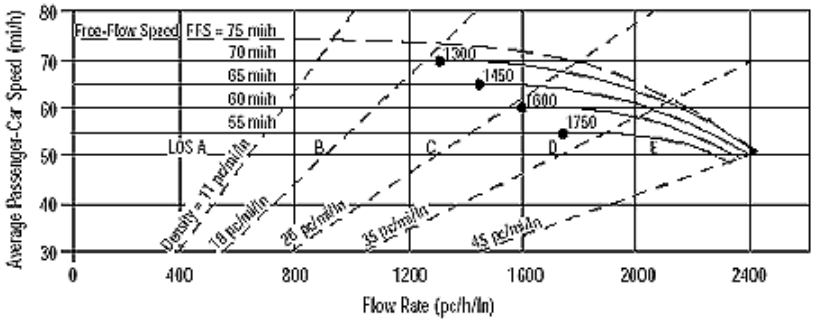
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	US 74 EB
From/To	
Jurisdiction	234
Analysis Year	2035 Build Toll Alternative 3A

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	3455 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	57.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1452	pc/h/ln
S	57.0	mi/h
D = v_p / S	25.5	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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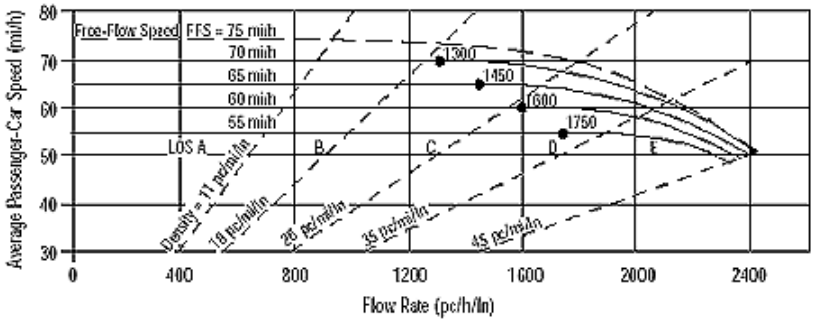
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	US 74 EB
From/To	
Jurisdiction	234
Analysis Year	2035 Build Toll Alternative 3A

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4235 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	57.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1780	pc/h/ln
S	56.9	mi/h
D = v_p / S	31.3	pc/mi/ln
LOS	D	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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E-9-2

Business US 74 Intersections

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*OSR*
Agency/Co.	*PBS&J*
Date Performed	*4/30/08*
Analysis Time Period	*AM Peak*

Site Information

Intersection	*US 74 and Bivens Road*
Jurisdiction	
Analysis Year	*2035 Build Toll Alternative 3A*

Project Description *Monroe Connector/Bypass*

East/West Street: *US 74* | North/South Street: *Bivens Road*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*120*	*1117*	*10*	*10*	*1377*	*135*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*133*	*1241*	*11*	*11*	*1530*	*150*
Proportion of heavy vehicles, P_{HV}	*5*	--	--	*5*	--	--
Median type	*Undivided*					
RT Channelized?			*0*			*1*
Lanes	*1*	*2*	*1*	*1*	*2*	*1*
Configuration	*L*	*T*	*R*	*L*	*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*10*	*10*	*10*	*101*	*10*	*111*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*11*	*11*	*11*	*112*	*11*	*123*
Proportion of heavy vehicles, P_{HV}	*2*	*2*	*2*	*2*	*2*	*2*
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
Volume, v (vph)	*133*	*11*		*33*			*246*	
Capacity, c_m (vph)	*417*	*535*		*0*			*0*	
v/c ratio	*0.32*	*0.02*						
Queue length (95%)	*1.35*	*0.06*						
Control Delay (s/veh)	*17.6*	*11.9*						
LOS	*C*	*B*		*F*			*F*	
Approach delay (s/veh)	--	--						
Approach LOS	--	--						

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*OSR*
Agency/Co.	*PBS&J*
Date Performed	*4/30/08*
Analysis Time Period	*PM Peak*

Site Information

Intersection	*US 74 and Bivens Road*
Jurisdiction	
Analysis Year	*2035 Build Toll Alternative 3A*

Project Description *Monroe Connector/Bypass*

East/West Street: *US 74* | North/South Street: *Bivens Road*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*111*	*1377*	*10*	*10*	*1117*	*101*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*123*	*1530*	*11*	*11*	*1241*	*112*
Proportion of heavy vehicles, P_{HV}	*5*	--	--	*5*	--	--
Median type	*Undivided*					
RT Channelized?			*0*			*1*
Lanes	*1*	*2*	*1*	*1*	*2*	*1*
Configuration	*L*	*T*	*R*	*L*	*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*10*	*10*	*10*	*135*	*10*	*120*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*11*	*11*	*11*	*150*	*11*	*133*
Proportion of heavy vehicles, P_{HV}	*2*	*2*	*2*	*2*	*2*	*2*
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
Volume, v (vph)	*123*	*11*		*33*			*294*	
Capacity, c_m (vph)	*541*	*413*		*0*			*0*	
v/c ratio	*0.23*	*0.03*						
Queue length (95%)	*0.87*	*0.08*						
Control Delay (s/veh)	*13.6*	*14.0*						
LOS	*B*	*B*		*F*			*F*	
Approach delay (s/veh)	--	--						
Approach LOS	--	--						

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*OSR*
Agency/Co.	*PBS&J*
Date Performed	*4/30/08*
Analysis Time Period	*AM Peak*

Site Information

Intersection	*US 74 and Seacrest Shortcut*
Jurisdiction	
Analysis Year	*2035 Build Toll Alternative 3A*

Project Description *Monroe Connector/Bypass*

East/West Street: *US 74* | North/South Street: *Seacrest Shortcut RIRO*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*0*	*899*	*306*	*0*	*1396*	*0*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*0*	*998*	*340*	*0*	*1551*	*0*
Proportion of heavy vehicles, P_{HV}		--	--		--	--
Median type	*Undivided*					
RT Channelized?			*0*			*1*
Lanes	*0*	*2*	*1*	*0*	*2*	*0*
Configuration		*T*	*R*		*T*	
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*428*	*0*	*0*	*0*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*0*	*0*	*475*	*0*	*0*	*0*
Proportion of heavy vehicles, P_{HV}			*4*			
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					*R*			
Volume, v (vph)					*475*			
Capacity, c_m (vph)					*512*			
v/c ratio					*0.93*			
Queue length (95%)					*11.23*			
Control Delay (s/veh)					*52.3*			
LOS					*F*			
Approach delay (s/veh)	--	--	*52.3*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*OSR*
Agency/Co.	*PBS&J*
Date Performed	*4/30/08*
Analysis Time Period	*PM Peak*

Site Information

Intersection	*US 74 and Seacrest Shortcut*
Jurisdiction	
Analysis Year	*2035 Build Toll Alternative 3A*

Project Description *Monroe Connector/Bypass*

East/West Street: *US 74* | North/South Street: *Seacrest Shortcut RIRO*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*0*	*1153*	*430*	*0*	*1143*	*0*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*0*	*1281*	*477*	*0*	*1270*	*0*
Proportion of heavy vehicles, P_{HV}		--	--		--	--
Median type	*Undivided*					
RT Channelized?			*0*			*1*
Lanes	*0*	*2*	*1*	*0*	*2*	*0*
Configuration		*T*	*R*		*T*	
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*304*	*0*	*0*	*0*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*0*	*0*	*337*	*0*	*0*	*0*
Proportion of heavy vehicles, P_{HV}			*4*			
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					*R*			
Volume, v (vph)					*337*			
Capacity, c_m (vph)					*413*			
v/c ratio					*0.82*			
Queue length (95%)					*7.45*			
Control Delay (s/veh)					*42.4*			
LOS					*E*			
Approach delay (s/veh)	--	--	*42.4*					
Approach LOS	--	--	*E*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*Stallings Rd & Union West Blvd*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*7/7/2008*	Analysis Year	*2035 Build Toll Alternative 3A*
Analysis Time Period	*AM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *Union West Blvd*	North/South Street: *Stallings Rd*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*348*	*75*	*50*	*533*	*0*
Peak-Hour Factor, PHF	*1.00*	*0.90*	*0.90*	*0.90*	*0.90*	*1.00*
Hourly Flow Rate, HFR	*0*	*386*	*83*	*55*	*592*	*0*
Percent Heavy Vehicles		--	--	*2*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*1*	*1*	*0*
Configuration		*T*	*R*	*L*	*T*	
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*126*	*0*	*55*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*140*	*0*	*61*	*0*	*0*	*0*
Percent Heavy Vehicles	*2*		*2*			
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*		*LR*				
v (vph)		*55*		*201*				
C (m) (vph)		*1093*		*284*				
v/c		*0.05*		*0.71*				
95% queue length		*0.16*		*4.93*				
Control Delay		*8.5*		*43.4*				
LOS		*A*		*E*				
Approach Delay	--	--	*43.4*					
Approach LOS	--	--	*E*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*Stallings Rd & Union West Blvd*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*7/7/2008*	Analysis Year	*2035 Build Toll Alternative 3A*
Analysis Time Period	*PM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *Union West Blvd*	North/South Street: *Stallings Rd*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*533*	*126*	*55*	*348*	*0*
Peak-Hour Factor, PHF	*1.00*	*0.90*	*0.90*	*0.90*	*0.90*	*1.00*
Hourly Flow Rate, HFR	*0*	*592*	*140*	*61*	*386*	*0*
Percent Heavy Vehicles		--	--	*2*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*1*	*1*	*0*
Configuration		*T*	*R*	*L*	*T*	
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*75*	*0*	*50*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*83*	*0*	*55*	*0*	*0*	*0*
Percent Heavy Vehicles	*2*		*2*			
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*		*LR*				
v (vph)		*61*		*138*				
C (m) (vph)		*873*		*283*				
v/c		*0.07*		*0.49*				
95% queue length		*0.22*		*2.51*				
Control Delay		*9.4*		*29.3*				
LOS		*A*		*D*				
Approach Delay	--	--	*29.3*					
Approach LOS	--	--	*D*					

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	475	35	227	324	66	138	80	3539	521	314	4448	237
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1687	3374	1509	1687	3374	1509
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	1687	3374	1509	1687	3374	1509
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			45			55			55	
Link Distance (ft)		1096			1168			1536			3465	
Travel Time (s)		21.4			17.7			19.0			43.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	7%	7%	7%	7%	7%	7%
Adj. Flow (vph)	528	39	252	360	73	153	89	3932	579	349	4942	263
Shared Lane Traffic (%)												
Lane Group Flow (vph)	528	39	252	360	73	153	89	3932	579	349	4942	263
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	1	6	7	5	2	3
Permitted Phases			4			8			6			2
Detector Phase	7	4	5	3	8	1	1	6	7	5	2	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	14.0	7.0	7.0	14.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0	14.0	14.0	21.0	14.0	14.0	21.0	14.0
Total Split (s)	19.0	14.0	22.0	19.0	14.0	14.0	14.0	85.0	19.0	22.0	93.0	19.0
Total Split (%)	13.6%	10.0%	15.7%	13.6%	10.0%	10.0%	10.0%	60.7%	13.6%	15.7%	66.4%	13.6%
Maximum Green (s)	12.0	7.0	15.0	12.0	7.0	7.0	7.0	78.0	12.0	15.0	86.0	12.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	14.0	9.0	31.0	14.0	9.0	21.2	10.0	80.0	99.0	19.8	89.8	108.8
Actuated g/C Ratio	0.10	0.06	0.22	0.10	0.06	0.15	0.07	0.57	0.71	0.14	0.64	0.78
v/c Ratio	1.54	0.17	0.72	1.05	0.32	0.64	0.74	2.04	0.54	1.46	2.28	0.22
Control Delay	297.1	63.9	63.2	121.4	66.6	68.1	97.8	491.8	12.1	269.8	598.1	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	297.1	63.9	63.2	121.4	66.6	68.1	97.8	491.8	12.1	269.8	598.1	5.0
LOS	F	E	E	F	E	E	F	F	B	F	F	A
Approach Delay		214.0			100.7			423.8			549.4	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 2.28			
Intersection Signal Delay: 452.9		Intersection LOS: F	
Intersection Capacity Utilization 161.5%		ICU Level of Service H	
Analysis Period (min) 15			

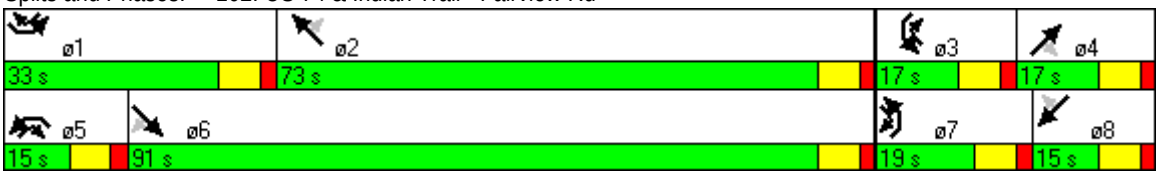
Splits and Phases: 101: Stallings Road & US 74

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	334	1672	403	103	2040	143	391	141	82	208	267	611
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3335	3438	1538	1719	3438	1538	3335	3438	1538	3335	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3438	1538	1719	3438	1538	3335	3438	1538	3335	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			35			35	
Link Distance (ft)		2103			2380			902			1112	
Travel Time (s)		26.1			29.5			17.6			21.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	371	1858	448	114	2267	159	434	157	91	231	297	679
Shared Lane Traffic (%)												
Lane Group Flow (vph)	371	1858	448	114	2267	159	434	157	91	231	297	679
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	7.0	14.0	7.0	7.0	14.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.5	21.0	14.0	14.0	21.0	14.0	14.0	14.0	14.0	14.0	14.0	14.5
Total Split (s)	33.0	91.0	19.0	15.0	73.0	17.0	19.0	17.0	15.0	17.0	15.0	33.0
Total Split (%)	23.6%	65.0%	13.6%	10.7%	52.1%	12.1%	13.6%	12.1%	10.7%	12.1%	10.7%	23.6%
Maximum Green (s)	26.0	84.0	12.0	8.0	66.0	10.0	12.0	10.0	8.0	10.0	8.0	26.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	28.0	86.0	105.0	10.0	68.0	85.0	14.0	12.0	27.0	12.0	10.0	43.0
Actuated g/C Ratio	0.20	0.61	0.75	0.07	0.49	0.61	0.10	0.09	0.19	0.09	0.07	0.31
v/c Ratio	0.56	0.88	0.39	0.93	1.36	0.17	1.30	0.53	0.31	0.81	1.21	1.44
Control Delay	54.1	28.9	7.3	127.1	196.0	12.6	202.9	68.4	51.8	84.1	177.9	245.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.1	28.9	7.3	127.1	196.0	12.6	202.9	68.4	51.8	84.1	177.9	245.3
LOS	D	C	A	F	F	B	F	E	D	F	F	F
Approach Delay		28.8			181.5			151.8			197.9	
Approach LOS		C			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.44			
Intersection Signal Delay: 123.9		Intersection LOS: F	
Intersection Capacity Utilization 117.9%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 102: US 74 & Indian Trail - Fairview Rd

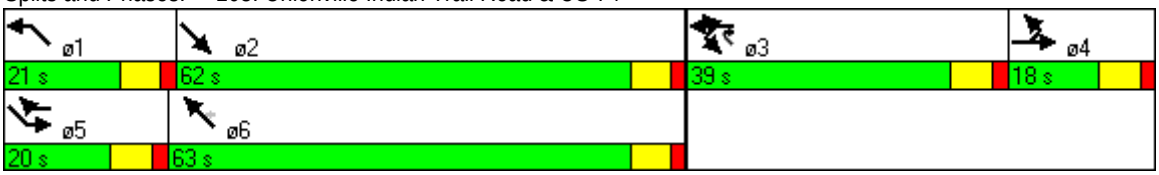


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	40	151	139	453	364	682	397	1329	56	238	1621	322
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Frt		0.937				0.850		0.994				0.850
Flt Protected		0.994		0.950	0.994		0.950			0.950		
Satd. Flow (prot)	0	3264	0	1665	1742	1568	3335	3417	0	1719	3438	1538
Flt Permitted		0.994		0.950	0.994		0.950			0.950		
Satd. Flow (perm)	0	3264	0	1665	1742	1568	3335	3417	0	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			45			55			55	
Link Distance (ft)		795			1304			1032			1062	
Travel Time (s)		15.5			19.8			12.8			13.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	44	168	154	503	404	758	441	1477	62	264	1801	358
Shared Lane Traffic (%)				12%								
Lane Group Flow (vph)	0	366	0	443	464	758	441	1539	0	264	1801	358
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	5	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	5	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pt+ov	Prot			Prot		pm+ov
Protected Phases	4	4		3	3	3 5	5	2		1	6	3
Permitted Phases												6
Detector Phase	4	4		3	3	3 5	5	2		1	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	14.0		7.0	14.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	21.0		14.0	21.0	14.0
Total Split (s)	18.0	18.0	0.0	39.0	39.0	59.0	20.0	62.0	0.0	21.0	63.0	39.0
Total Split (%)	12.9%	12.9%	0.0%	27.9%	27.9%	42.1%	14.3%	44.3%	0.0%	15.0%	45.0%	27.9%
Maximum Green (s)	11.0	11.0		32.0	32.0		13.0	55.0		14.0	56.0	32.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	None
Act Effct Green (s)		13.0		34.0	34.0	49.0	15.0	57.0		16.0	58.0	97.0
Actuated g/C Ratio		0.09		0.24	0.24	0.35	0.11	0.41		0.11	0.41	0.69
v/c Ratio		1.21		1.10	1.10	1.38	1.24	1.11		1.35	1.26	0.34
Control Delay		172.2		122.0	121.2	210.0	177.8	97.8		231.5	160.4	9.6
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay		172.2		122.0	121.2	210.0	177.8	97.8		231.5	160.4	9.6
LOS		F		F	F	F	F	F		F	F	A
Approach Delay		172.2			161.8			115.7			145.9	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 170			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.38			
Intersection Signal Delay: 142.2		Intersection LOS: F	
Intersection Capacity Utilization 109.3%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 103: Unionville Indian Trail Road & US 74

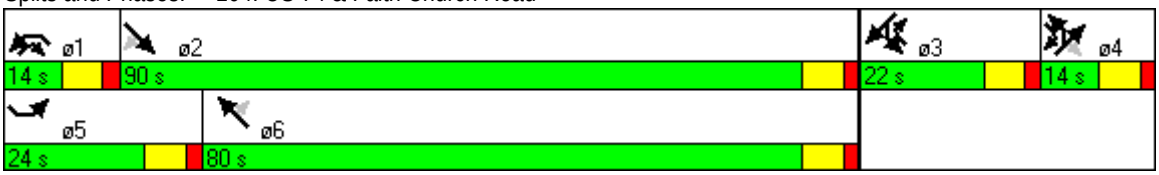


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	256	1602	24	39	1985	320	40	14	53	201	7	199
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.855	
Flt Protected	0.950			0.950				0.965		0.950		
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	0	1682	1482	1770	1593	0
Flt Permitted	0.950			0.950				0.965		0.950		
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	0	1682	1482	1770	1593	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			15			35	
Link Distance (ft)		1177			2588			625			368	
Travel Time (s)		14.6			32.1			28.4			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	9%	9%	9%	2%	2%	2%
Adj. Flow (vph)	284	1780	27	43	2206	356	44	16	59	223	8	221
Shared Lane Traffic (%)												
Lane Group Flow (vph)	284	1780	27	43	2206	356	0	60	59	223	229	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	0	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	0	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Split		pm+ov	Split		
Protected Phases	5	2	4	1	6	3	4	4	1	3	3	
Permitted Phases			2			6			4			
Detector Phase	5	2	4	1	6	3	4	4	1	3	3	
Switch Phase												
Minimum Initial (s)	7.0	14.0	7.0	7.0	14.0	7.0	7.0	7.0	7.0	7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	21.0	14.0	14.0	21.0	14.0	14.0	14.0	14.0	14.0	14.0	
Total Split (s)	24.0	90.0	14.0	14.0	80.0	22.0	14.0	14.0	14.0	22.0	22.0	0.0
Total Split (%)	17.1%	64.3%	10.0%	10.0%	57.1%	15.7%	10.0%	10.0%	10.0%	15.7%	15.7%	0.0%
Maximum Green (s)	17.0	83.0	7.0	7.0	73.0	15.0	7.0	7.0	7.0	15.0	15.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	
Act Effct Green (s)	21.8	90.6	97.8	9.0	75.0	97.0		9.0	20.2	17.0	17.0	
Actuated g/C Ratio	0.16	0.65	0.70	0.06	0.54	0.69		0.06	0.14	0.12	0.12	
v/c Ratio	1.06	0.80	0.03	0.39	1.20	0.33		0.56	0.28	1.04	1.19	
Control Delay	127.5	23.6	4.0	73.5	125.4	9.6		83.3	55.2	130.0	175.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	127.5	23.6	4.0	73.5	125.4	9.6		83.3	55.2	130.0	175.3	
LOS	F	C	A	E	F	A		F	E	F	F	
Approach Delay		37.5			108.7			69.4			152.9	
Approach LOS		D			F			E			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.20			
Intersection Signal Delay: 83.4		Intersection LOS: F	
Intersection Capacity Utilization 104.2%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 104: US 74 & Faith Church Road

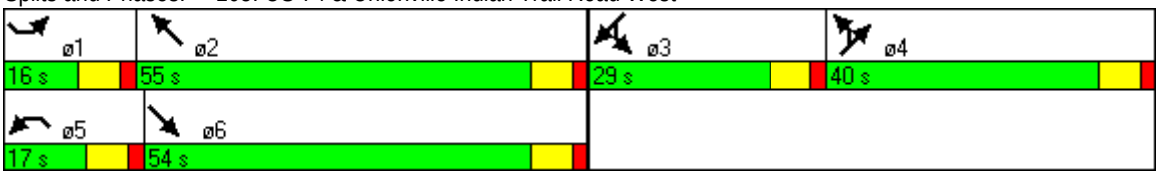


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	177	927	794	187	1256	248	735	95	128	312	174	301
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.931			0.975			0.914			0.905	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3201	0	1719	3352	0	1770	1703	0	1770	1686	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3201	0	1719	3352	0	1770	1703	0	1770	1686	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		606			973			698			813	
Travel Time (s)		7.5			12.1			10.6			12.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	197	1030	882	208	1396	276	817	106	142	347	193	334
Shared Lane Traffic (%)												
Lane Group Flow (vph)	197	1912	0	208	1672	0	817	248	0	347	527	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Split			Split		
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases												
Detector Phase	1	6		5	2		4	4		3	3	
Switch Phase												
Minimum Initial (s)	7.0	14.0		7.0	14.0		7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	21.0		14.0	21.0		14.0	14.0		14.0	14.0	
Total Split (s)	16.0	54.0	0.0	17.0	55.0	0.0	40.0	40.0	0.0	29.0	29.0	0.0
Total Split (%)	11.4%	38.6%	0.0%	12.1%	39.3%	0.0%	28.6%	28.6%	0.0%	20.7%	20.7%	0.0%
Maximum Green (s)	9.0	47.0		10.0	48.0		33.0	33.0		22.0	22.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	11.0	49.0		12.0	50.0		35.0	35.0		24.0	24.0	
Actuated g/C Ratio	0.08	0.35		0.09	0.36		0.25	0.25		0.17	0.17	
v/c Ratio	1.46	1.71		1.41	1.40		1.84	0.58		1.15	1.82	
Control Delay	285.8	352.2		266.1	219.0		418.9	52.5		147.5	416.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	285.8	352.2		266.1	219.0		418.9	52.5		147.5	416.2	
LOS	F	F		F	F		F	D		F	F	
Approach Delay		346.0			224.2			333.6			309.5	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.84			
Intersection Signal Delay: 299.8		Intersection LOS: F	
Intersection Capacity Utilization 146.5%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 105: US 74 & Unionville Indian Trail Road West

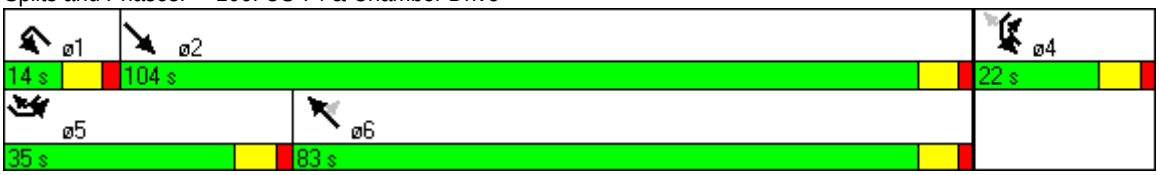


Lane Group	SEL	SET	NWU	NWT	NWR	SWL	SWR
Lane Configurations							
Volume (vph)	130	1181	10	1396	52	125	371
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Frt					0.850		0.850
Flt Protected	0.950		0.950			0.950	
Satd. Flow (prot)	1719	3438	1719	3438	1538	1770	1583
Flt Permitted	0.950		0.950			0.950	
Satd. Flow (perm)	1719	3438	1719	3438	1538	1770	1583
Right Turn on Red					No		No
Satd. Flow (RTOR)							
Link Speed (mph)		55		55		35	
Link Distance (ft)		2407		1378		1258	
Travel Time (s)		29.8		17.1		24.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	2%	2%
Adj. Flow (vph)	144	1312	11	1551	58	139	412
Shared Lane Traffic (%)							
Lane Group Flow (vph)	144	1312	11	1551	58	139	412
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Left	R NA	Left	Right	Left	Right
Median Width(ft)		12		12		12	
Link Offset(ft)		0		0		0	
Crosswalk Width(ft)		0		0		0	
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9		9	15	9
Number of Detectors	1	2	1	2	1	1	1
Detector Template	Left	Thru	Left	Thru	Right	Left	Right
Leading Detector (ft)	20	100	20	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94		94			
Detector 2 Size(ft)		6		6			
Detector 2 Type		Cl+Ex		Cl+Ex			
Detector 2 Channel							
Detector 2 Extend (s)		0.0		0.0			
Turn Type	Prot		Prot		pm+ov		pm+ov
Protected Phases	5	2	1	6	4	4	5
Permitted Phases					6		4
Detector Phase	5	2	1	6	4	4	5
Switch Phase							
Minimum Initial (s)	7.0	14.0	7.0	14.0	7.0	7.0	7.0

Lane Group	SEL	SET	NWU	NWT	NWR	SWL	SWR
Minimum Split (s)	14.0	21.0	14.0	21.0	14.0	14.0	14.0
Total Split (s)	35.0	104.0	14.0	83.0	22.0	22.0	35.0
Total Split (%)	25.0%	74.3%	10.0%	59.3%	15.7%	15.7%	25.0%
Maximum Green (s)	28.0	97.0	7.0	76.0	15.0	15.0	28.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag			Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	C-Max	None	None	None
Act Effct Green (s)	26.3	108.6	9.0	82.9	103.7	15.8	47.1
Actuated g/C Ratio	0.19	0.78	0.06	0.59	0.74	0.11	0.34
v/c Ratio	0.45	0.49	0.10	0.76	0.05	0.70	0.77
Control Delay	54.4	7.4	63.9	25.3	5.6	78.0	51.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.4	7.4	63.9	25.3	5.6	78.0	51.9
LOS	D	A	E	C	A	E	D
Approach Delay		12.0		24.8		58.5	
Approach LOS		B		C		E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 24.8		Intersection LOS: C	
Intersection Capacity Utilization 69.9%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 106: US 74 & Chamber Drive

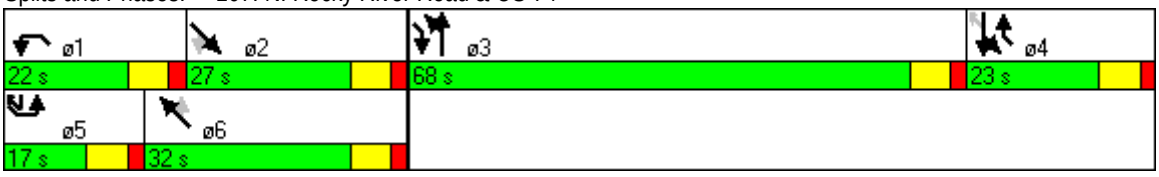


Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	717	125	389	222	110	279	183	537	412	285	685	186
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.957				0.850			0.850			0.850
Flt Protected		0.972			0.968		0.950			0.950		
Satd. Flow (prot)	0	1733	0	0	1803	1583	1719	3438	1538	1719	3438	1538
Flt Permitted		0.972			0.968		0.950			0.950		
Satd. Flow (perm)	0	1733	0	0	1803	1583	1719	3438	1538	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		1176			418			3021			3350	
Travel Time (s)		17.8			6.3			37.5			41.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	797	139	432	247	122	310	203	597	458	317	761	207
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1368	0	0	369	310	203	597	458	317	761	207
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	3	3		4	4	5	5	2	3	1	6	4
Permitted Phases						4			2			6
Detector Phase	3	3		4	4	5	5	2	3	1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	14.0	7.0	7.0	14.0	7.0

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0	14.0	14.0	21.0	14.0	14.0	21.0	14.0
Total Split (s)	68.0	68.0	0.0	23.0	23.0	17.0	17.0	27.0	68.0	22.0	32.0	23.0
Total Split (%)	48.6%	48.6%	0.0%	16.4%	16.4%	12.1%	12.1%	19.3%	48.6%	15.7%	22.9%	16.4%
Maximum Green (s)	61.0	61.0		16.0	16.0	10.0	10.0	20.0	61.0	15.0	25.0	16.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead		Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)		63.0			18.0	35.0	12.0	22.0	90.0	17.0	27.0	45.0
Actuated g/C Ratio		0.45			0.13	0.25	0.09	0.16	0.64	0.12	0.19	0.32
v/c Ratio		1.75			1.59	0.78	1.38	1.11	0.46	1.52	1.15	0.42
Control Delay		371.7			323.3	64.0	253.3	124.1	14.6	295.7	132.8	27.0
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		371.7			323.3	64.0	253.3	124.1	14.6	295.7	132.8	27.0
LOS		F			F	E	F	F	B	F	F	C
Approach Delay		371.7			204.9			105.1			155.9	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.75			
Intersection Signal Delay: 213.6		Intersection LOS: F	
Intersection Capacity Utilization 119.9%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 107: N. Rocky River Road & US 74



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	54	936	33	83	1169	138	29	66	58	173	120	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.984			0.949			0.970	
Flt Protected	0.950			0.950				0.991			0.978	
Satd. Flow (prot)	1719	3421	0	1719	3383	0	0	1752	0	0	1767	0
Flt Permitted	0.950			0.950				0.871			0.727	
Satd. Flow (perm)	1719	3421	0	1719	3383	0	0	1540	0	0	1314	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		2601			2354			277			1205	
Travel Time (s)		39.4			35.7			5.4			18.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	60	1040	37	92	1299	153	32	73	64	192	133	94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	60	1077	0	92	1452	0	0	169	0	0	419	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		
Detector Phase	1	6		5	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		21.0	21.0	
Total Split (s)	14.0	65.0	0.0	20.0	71.0	0.0	55.0	55.0	0.0	55.0	55.0	0.0
Total Split (%)	10.0%	46.4%	0.0%	14.3%	50.7%	0.0%	39.3%	39.3%	0.0%	39.3%	39.3%	0.0%
Maximum Green (s)	7.0	58.0		13.0	64.0		48.0	48.0		48.0	48.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	9.3	63.8		13.5	70.7			47.8			47.8	
Actuated g/C Ratio	0.07	0.46		0.10	0.50			0.34			0.34	
v/c Ratio	0.52	0.69		0.56	0.85			0.32			0.94	
Control Delay	80.0	34.1		73.2	37.5			35.5			73.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	80.0	34.1		73.2	37.5			35.5			73.5	
LOS	F	C		E	D			D			E	
Approach Delay		36.5			39.6			35.5			73.5	
Approach LOS		D			D			D			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 42.7		Intersection LOS: D	
Intersection Capacity Utilization 88.9%		ICU Level of Service E	
Analysis Period (min) 15			

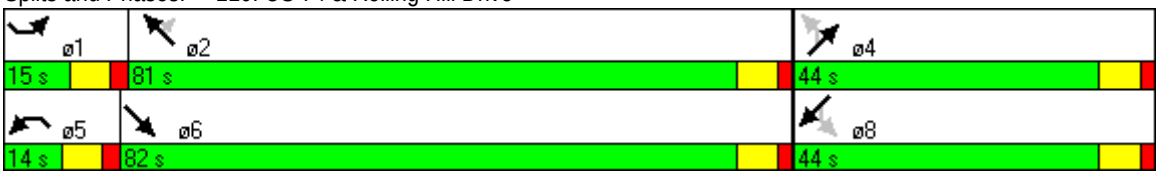
Splits and Phases: 108: US 74 & Fowler-Secrest Rd

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	47	1028	124	16	1251	7	157	11	16	9	13	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.984				0.850		0.988			0.896	
Flt Protected	0.950			0.950				0.959			0.995	
Satd. Flow (prot)	1719	3383	0	1719	3438	1538	0	1765	0	0	1661	0
Flt Permitted	0.950			0.950				0.626			0.966	
Satd. Flow (perm)	1719	3383	0	1719	3438	1538	0	1152	0	0	1612	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		309			978			474			425	
Travel Time (s)		4.7			14.8			12.9			11.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	52	1142	138	18	1390	8	174	12	18	10	14	82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	52	1280	0	18	1390	8	0	204	0	0	106	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot		Perm	Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases						2	4			8		
Detector Phase	1	6		5	2	2	4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	12.0	7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0		14.0	19.0	19.0	14.0	14.0		14.0	14.0	
Total Split (s)	15.0	82.0	0.0	14.0	81.0	81.0	44.0	44.0	0.0	44.0	44.0	0.0
Total Split (%)	10.7%	58.6%	0.0%	10.0%	57.9%	57.9%	31.4%	31.4%	0.0%	31.4%	31.4%	0.0%
Maximum Green (s)	8.0	75.0		7.0	74.0	74.0	37.0	37.0		37.0	37.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		None	None	
Act Effct Green (s)	10.8	93.8		9.2	86.6	86.6		30.5			30.5	
Actuated g/C Ratio	0.08	0.67		0.07	0.62	0.62		0.22			0.22	
v/c Ratio	0.39	0.56		0.16	0.65	0.01		0.81			0.30	
Control Delay	70.4	15.8		65.2	21.2	14.3		75.5			46.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	
Total Delay	70.4	15.8		65.2	21.2	14.3		75.5			46.3	
LOS	E	B		E	C	B		E			D	
Approach Delay		18.0			21.7			75.5			46.3	
Approach LOS		B			C			E			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 24.5		Intersection LOS: C	
Intersection Capacity Utilization 64.3%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 110: US 74 & Rolling Hill Drive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	125	10	113	72	10	79	84	847	133	150	1056	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.862			0.934			0.980				0.850
Flt Protected	0.950				0.978		0.950			0.950		
Satd. Flow (prot)	1770	1606	0	0	1702	0	1719	3369	0	1719	3438	1538
Flt Permitted	0.588				0.729		0.950			0.950		
Satd. Flow (perm)	1095	1606	0	0	1268	0	1719	3369	0	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		510			371			748			991	
Travel Time (s)		13.9			10.1			11.3			15.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	139	11	126	80	11	88	93	941	148	167	1173	106
Shared Lane Traffic (%)												
Lane Group Flow (vph)	139	137	0	0	179	0	93	1089	0	167	1173	106
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm			Perm			Prot			Prot		Perm
Protected Phases		3			8		1	6		5	2	
Permitted Phases	3			8								2
Detector Phase	3	3		8	8		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	12.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0		14.0	19.0	19.0
Total Split (s)	40.0	40.0	0.0	40.0	40.0	0.0	21.0	71.0	0.0	29.0	79.0	79.0
Total Split (%)	28.6%	28.6%	0.0%	28.6%	28.6%	0.0%	15.0%	50.7%	0.0%	20.7%	56.4%	56.4%
Maximum Green (s)	33.0	33.0		33.0	33.0		14.0	64.0		22.0	72.0	72.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?								Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	Max		None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	35.0	35.0			35.0		13.9	69.9		20.1	76.1	76.1
Actuated g/C Ratio	0.25	0.25			0.25		0.10	0.50		0.14	0.54	0.54
v/c Ratio	0.51	0.34			0.56		0.55	0.65		0.68	0.63	0.13
Control Delay	52.7	46.0			53.9		71.8	28.8		70.4	24.4	16.7
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	52.7	46.0			53.9		71.8	28.8		70.4	24.4	16.7
LOS	D	D			D		E	C		E	C	B
Approach Delay		49.4			53.9			32.2			29.1	
Approach LOS		D			D			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay: 33.5		Intersection LOS: C	
Intersection Capacity Utilization 69.5%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 111: Roland Drive & US 74

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	87	921	43	211	1117	98	29	38	117	121	84	131
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993				0.850		0.887				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3414	0	1719	3438	1538	1770	1652	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3414	0	1719	3438	1538	1770	1652	0	1770	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		822			734			281			279	
Travel Time (s)		12.5			11.1			5.5			7.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	97	1023	48	234	1241	109	32	42	130	134	93	146
Shared Lane Traffic (%)												
Lane Group Flow (vph)	97	1071	0	234	1241	109	32	172	0	134	93	146
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot		pm+ov	Split			Split		pm+ov
Protected Phases	1	6		5	2	8	4	4		8	8	1
Permitted Phases						2						8
Detector Phase	1	6		5	2	8	4	4		8	8	1
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	7.0	7.0	7.0		7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0		14.0	19.0	14.0	14.0	14.0		14.0	14.0	14.0
Total Split (s)	20.0	60.0	0.0	32.0	72.0	21.0	27.0	27.0	0.0	21.0	21.0	20.0
Total Split (%)	14.3%	42.9%	0.0%	22.9%	51.4%	15.0%	19.3%	19.3%	0.0%	15.0%	15.0%	14.3%
Maximum Green (s)	13.0	53.0		25.0	65.0	14.0	20.0	20.0		14.0	14.0	13.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	C-Max		None	C-Max	Max	None	None		Max	Max	Max
Act Effct Green (s)	15.0	57.7		24.3	67.0	85.2	19.8	19.8		18.2	18.2	38.2
Actuated g/C Ratio	0.11	0.41		0.17	0.48	0.61	0.14	0.14		0.13	0.13	0.27
v/c Ratio	0.53	0.76		0.79	0.75	0.12	0.13	0.74		0.58	0.38	0.34
Control Delay	70.3	40.1		73.8	33.5	6.4	52.6	75.9		69.4	62.2	44.4
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	70.3	40.1		73.8	33.5	6.4	52.6	75.9		69.4	62.2	44.4
LOS	E	D		E	C	A	D	E		E	E	D
Approach Delay		42.6			37.6			72.3			57.8	
Approach LOS		D			D			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 43.7		Intersection LOS: D	
Intersection Capacity Utilization 71.1%		ICU Level of Service C	
Analysis Period (min) 15			

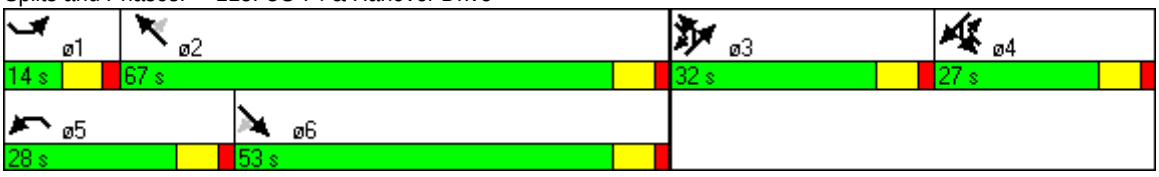
Splits and Phases: 112: US 74 & Williams Road

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	16	1050	110	257	1290	589	101	103	193	467	109	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850			0.850		0.902			0.982	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	1752	1664	0	3400	1811	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	1752	1664	0	3400	1811	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		338			529			376			313	
Travel Time (s)		5.1			8.0			7.3			8.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	18	1167	122	286	1433	654	112	114	214	519	121	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	18	1167	122	286	1433	654	112	328	0	519	138	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Split			Split		
Protected Phases	1	6	3	5	2	4	3	3		4	4	
Permitted Phases			6			2						
Detector Phase	1	6	3	5	2	4	3	3		4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0		14.0	14.0	
Total Split (s)	14.0	53.0	32.0	28.0	67.0	27.0	32.0	32.0	0.0	27.0	27.0	0.0
Total Split (%)	10.0%	37.9%	22.9%	20.0%	47.9%	19.3%	22.9%	22.9%	0.0%	19.3%	19.3%	0.0%
Maximum Green (s)	7.0	46.0	25.0	21.0	60.0	20.0	25.0	25.0		20.0	20.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Act Effct Green (s)	9.0	48.0	80.0	23.0	70.4	95.4	27.0	27.0		22.0	22.0	
Actuated g/C Ratio	0.06	0.34	0.57	0.16	0.50	0.68	0.19	0.19		0.16	0.16	
v/c Ratio	0.16	0.99	0.14	1.01	0.83	0.62	0.33	1.02		0.97	0.48	
Control Delay	65.6	69.5	14.5	114.3	35.9	14.8	52.0	110.8		90.8	60.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	65.6	69.5	14.5	114.3	35.9	14.8	52.0	110.8		90.8	60.3	
LOS	E	E	B	F	D	B	D	F		F	E	
Approach Delay		64.3			39.5			95.8			84.4	
Approach LOS		E			D			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.02			
Intersection Signal Delay: 57.7		Intersection LOS: E	
Intersection Capacity Utilization 90.5%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 113: US 74 & Hanover Drive

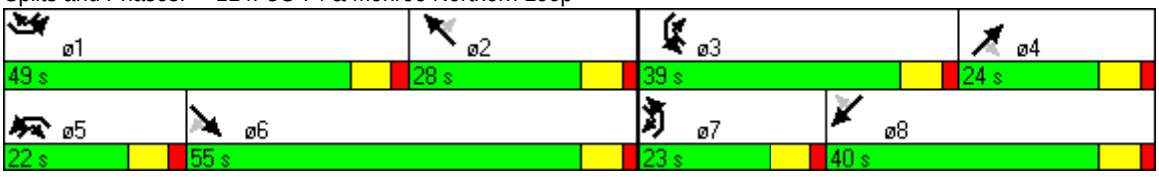


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	744	522	481	227	723	715	394	508	134	675	811	972
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3335	4940	1538	3335	4940	1538	3335	3438	1538	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	4940	1538	3335	4940	1538	3335	3438	1538	3433	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		858			915			405			209	
Travel Time (s)		13.0			13.9			7.9			3.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	2%	2%	2%
Adj. Flow (vph)	827	580	534	252	803	794	438	564	149	750	901	1080
Shared Lane Traffic (%)												
Lane Group Flow (vph)	827	580	534	252	803	794	438	564	149	750	901	1080
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	49.0	55.0	23.0	22.0	28.0	39.0	23.0	24.0	22.0	39.0	40.0	49.0
Total Split (%)	35.0%	39.3%	16.4%	15.7%	20.0%	27.9%	16.4%	17.1%	15.7%	27.9%	28.6%	35.0%
Maximum Green (s)	42.0	48.0	16.0	15.0	21.0	32.0	16.0	17.0	15.0	32.0	33.0	42.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	44.0	50.9	73.9	16.1	23.0	62.0	18.0	19.0	40.1	34.0	35.0	84.0
Actuated g/C Ratio	0.31	0.36	0.53	0.12	0.16	0.44	0.13	0.14	0.29	0.24	0.25	0.60
v/c Ratio	0.79	0.32	0.66	0.65	0.99	1.17	1.02	1.21	0.34	0.90	1.02	1.14
Control Delay	50.2	32.9	29.0	67.8	87.0	126.0	108.0	162.0	41.8	66.1	86.2	102.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.2	32.9	29.0	67.8	87.0	126.0	108.0	162.0	41.8	66.1	86.2	102.6
LOS	D	C	C	E	F	F	F	F	D	E	F	F
Approach Delay		39.2			101.1			125.9			87.2	
Approach LOS		D			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 140			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.21			
Intersection Signal Delay: 84.2		Intersection LOS: F	
Intersection Capacity Utilization 97.9%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 114: US 74 & Monroe Northern Loop

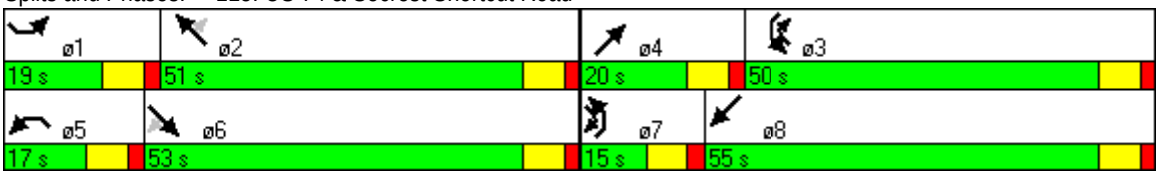


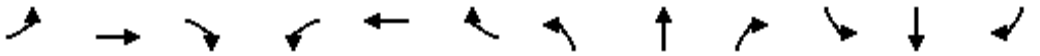
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	151	1111	57	157	1416	479	55	46	119	519	66	209
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.892			0.886	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	3335	4940	1538	1770	1662	0	1770	1650	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	3335	4940	1538	1770	1662	0	1770	1650	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		413			1354			238			233	
Travel Time (s)		6.3			20.5			6.5			4.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	168	1234	63	174	1573	532	61	51	132	577	73	232
Shared Lane Traffic (%)												
Lane Group Flow (vph)	168	1234	63	174	1573	532	61	183	0	577	305	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot			Prot		
Protected Phases	1	6	7	5	2	3	7	4		3	8	
Permitted Phases			6			2						
Detector Phase	1	6	7	5	2	3	7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0		14.0	14.0	
Total Split (s)	19.0	53.0	15.0	17.0	51.0	50.0	15.0	20.0	0.0	50.0	55.0	0.0
Total Split (%)	13.6%	37.9%	10.7%	12.1%	36.4%	35.7%	10.7%	14.3%	0.0%	35.7%	39.3%	0.0%
Maximum Green (s)	12.0	46.0	8.0	10.0	44.0	43.0	8.0	13.0		43.0	48.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Act Effct Green (s)	14.0	48.2	63.0	11.8	46.0	91.0	9.8	15.0		45.0	50.2	
Actuated g/C Ratio	0.10	0.34	0.45	0.08	0.33	0.65	0.07	0.11		0.32	0.36	
v/c Ratio	0.98	0.73	0.09	0.62	0.97	0.53	0.49	1.03		1.01	0.52	
Control Delay	124.8	43.2	22.6	72.0	62.3	8.8	76.7	134.9		88.0	39.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	124.8	43.2	22.6	72.0	62.3	8.8	76.7	134.9		88.0	39.2	
LOS	F	D	C	E	E	A	E	F		F	D	
Approach Delay		51.7			50.6			120.3			71.2	
Approach LOS		D			D			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.03			
Intersection Signal Delay: 58.1		Intersection LOS: E	
Intersection Capacity Utilization 90.9%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 115: US 74 & Secrest Shortcut Road





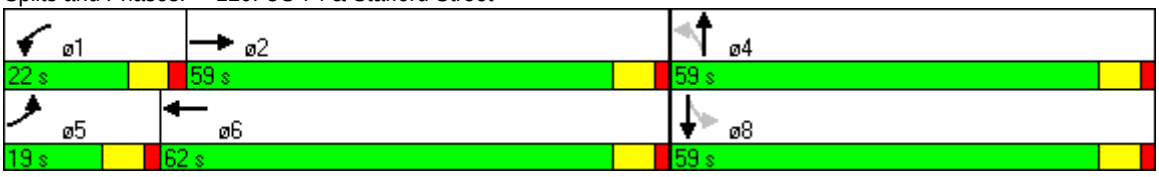
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	183	1667	150	213	2081	137	253	151	288	156	127	260
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.988			0.991			0.902			0.899	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4881	0	1719	4896	0	1770	1680	0	1770	1675	0
Flt Permitted	0.950			0.950			0.304			0.243		
Satd. Flow (perm)	1719	4881	0	1719	4896	0	566	1680	0	453	1675	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		443			590			549			636	
Travel Time (s)		6.7			8.9			15.0			12.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	203	1852	167	237	2312	152	281	168	320	173	141	289
Shared Lane Traffic (%)												
Lane Group Flow (vph)	203	2019	0	237	2464	0	281	488	0	173	430	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

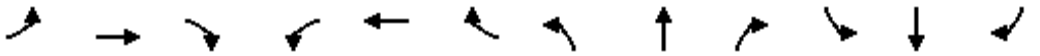
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	19.0	59.0	0.0	22.0	62.0	0.0	59.0	59.0	0.0	59.0	59.0	0.0
Total Split (%)	13.6%	42.1%	0.0%	15.7%	44.3%	0.0%	42.1%	42.1%	0.0%	42.1%	42.1%	0.0%
Maximum Green (s)	12.0	52.0		15.0	55.0		52.0	52.0		52.0	52.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	14.0	54.0		17.0	57.0		54.0	54.0		54.0	54.0	
Actuated g/C Ratio	0.10	0.39		0.12	0.41		0.39	0.39		0.39	0.39	
v/c Ratio	1.18	1.07		1.13	1.24		1.29	0.75		0.99	0.67	
Control Delay	178.0	84.3		156.6	147.3		196.2	46.0		108.5	41.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	178.0	84.3		156.6	147.3		196.2	46.0		108.5	41.6	
LOS	F	F		F	F		F	D		F	D	
Approach Delay		92.8			148.1			100.9			60.8	
Approach LOS		F			F			F			E	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.29
Intersection Signal Delay: 114.5 Intersection LOS: F
Intersection Capacity Utilization 106.7% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 120: US 74 & Stafford Street





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	78	1801	159	195	2204	53	117	10	117	107	10	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.988			0.996			0.862			0.857	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4881	0	1719	4920	0	1770	1606	0	1770	1596	0
Flt Permitted	0.950			0.950			0.372			0.561		
Satd. Flow (perm)	1719	4881	0	1719	4920	0	693	1606	0	1045	1596	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			20	
Link Distance (ft)		493			536			238			211	
Travel Time (s)		7.5			8.1			6.5			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	87	2001	177	217	2449	59	130	11	130	119	11	217
Shared Lane Traffic (%)												
Lane Group Flow (vph)	87	2178	0	217	2508	0	130	141	0	119	228	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	15.0	76.0	0.0	27.0	88.0	0.0	37.0	37.0	0.0	37.0	37.0	0.0
Total Split (%)	10.7%	54.3%	0.0%	19.3%	62.9%	0.0%	26.4%	26.4%	0.0%	26.4%	26.4%	0.0%
Maximum Green (s)	8.0	69.0		20.0	81.0		30.0	30.0		30.0	30.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	10.6	75.4		21.3	86.1		28.3	28.3		28.3	28.3	
Actuated g/C Ratio	0.08	0.54		0.15	0.62		0.20	0.20		0.20	0.20	
v/c Ratio	0.67	0.83		0.83	0.83		0.93	0.43		0.56	0.71	
Control Delay	87.4	31.5		82.9	25.0		112.7	52.2		60.1	63.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	87.4	31.5		82.9	25.0		112.7	52.2		60.1	63.7	
LOS	F	C		F	C		F	D		E	E	
Approach Delay		33.6			29.6			81.2			62.5	
Approach LOS		C			C			F			E	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 35.8 Intersection LOS: D
Intersection Capacity Utilization 85.3% ICU Level of Service E
Analysis Period (min) 15

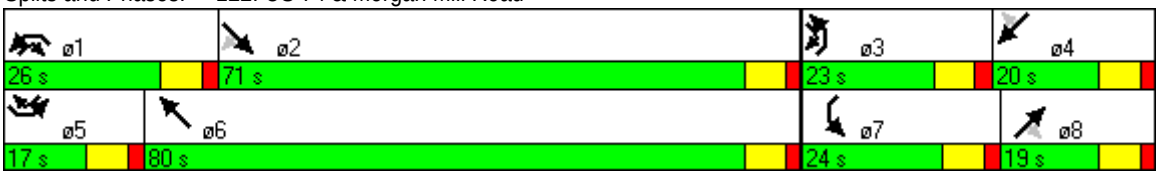
Splits and Phases: 121: US 74 & Boyte Street

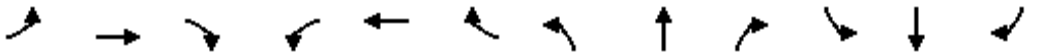
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	121	1703	177	139	2115	128	174	92	109	163	149	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.991				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	1719	4896	0	1687	1776	1509	1687	1776	1509
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	1719	4896	0	1687	1776	1509	1687	1776	1509
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		515			499			502			475	
Travel Time (s)		7.8			7.6			9.8			9.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	7%	7%	7%	7%	7%	7%
Adj. Flow (vph)	134	1892	197	154	2350	142	193	102	121	181	166	214
Shared Lane Traffic (%)												
Lane Group Flow (vph)	134	1892	197	154	2492	0	193	102	121	181	166	214
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot			Prot		pm+ov	Prot		pm+ov
Protected Phases	5	2	3	1	6		3	8	1	7	4	5
Permitted Phases			2						8			4
Detector Phase	5	2	3	1	6		3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0		7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0		14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	17.0	71.0	23.0	26.0	80.0	0.0	23.0	19.0	26.0	24.0	20.0	17.0
Total Split (%)	12.1%	50.7%	16.4%	18.6%	57.1%	0.0%	16.4%	13.6%	18.6%	17.1%	14.3%	12.1%
Maximum Green (s)	10.0	64.0	16.0	19.0	73.0		16.0	12.0	19.0	17.0	13.0	10.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max		None	None	None	None	None	None
Act Effct Green (s)	12.0	68.6	91.6	18.4	75.0		18.0	14.6	38.0	18.4	15.0	32.0
Actuated g/C Ratio	0.09	0.49	0.65	0.13	0.54		0.13	0.10	0.27	0.13	0.11	0.23
v/c Ratio	0.91	0.78	0.20	0.68	0.95		0.89	0.55	0.30	0.82	0.87	0.62
Control Delay	116.5	32.8	10.6	73.1	40.2		97.7	71.9	42.2	86.4	100.2	57.5
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	116.5	32.8	10.6	73.1	40.2		97.7	71.9	42.2	86.4	100.2	57.5
LOS	F	C	B	E	D		F	E	D	F	F	E
Approach Delay		35.9			42.2			75.2			79.5	
Approach LOS		D			D			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.95			
Intersection Signal Delay: 45.7		Intersection LOS: D	
Intersection Capacity Utilization 84.6%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 122: US 74 & Morgan Mill Road



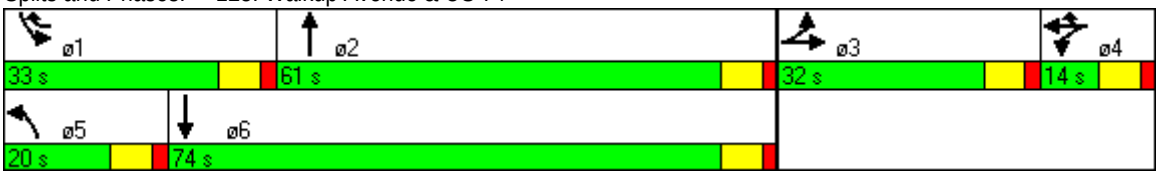


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	89	188	92	31	135	348	91	1935	43	382	1532	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.966				0.850		0.997			0.994	
Flt Protected		0.988		0.950			0.950			0.950		
Satd. Flow (prot)	0	1778	0	1770	1863	1583	1719	4925	0	1719	4910	0
Flt Permitted		0.988		0.950			0.950			0.950		
Satd. Flow (perm)	0	1778	0	1770	1863	1583	1719	4925	0	1719	4910	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		443			502			602			356	
Travel Time (s)		12.1			9.8			9.1			5.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	99	209	102	34	150	387	101	2150	48	424	1702	77
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	410	0	34	150	387	101	2198	0	424	1779	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pt+ov	Prot			Prot		
Protected Phases	3	3		4	4	4 1	5	2		1	6	
Permitted Phases												
Detector Phase	3	3		4	4	4 1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0		14.0	19.0	
Total Split (s)	32.0	32.0	0.0	14.0	14.0	47.0	20.0	61.0	0.0	33.0	74.0	0.0
Total Split (%)	22.9%	22.9%	0.0%	10.0%	10.0%	33.6%	14.3%	43.6%	0.0%	23.6%	52.9%	0.0%
Maximum Green (s)	25.0	25.0		7.0	7.0		13.0	54.0		26.0	67.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lead		Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)		27.0		9.0	9.0	42.0	13.7	56.0		28.0	70.3	
Actuated g/C Ratio		0.19		0.06	0.06	0.30	0.10	0.40		0.20	0.50	
v/c Ratio		1.20		0.30	1.25	0.81	0.60	1.12		1.23	0.72	
Control Delay		160.5		69.7	215.0	60.4	75.3	99.0		173.3	29.6	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		160.5		69.7	215.0	60.4	75.3	99.0		173.3	29.6	
LOS		F		E	F	E	E	F		F	C	
Approach Delay		160.5			101.6			98.0			57.2	
Approach LOS		F			F			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 170			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.25			
Intersection Signal Delay: 86.7		Intersection LOS: F	
Intersection Capacity Utilization 103.7%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 123: Walkup Avenue & US 74

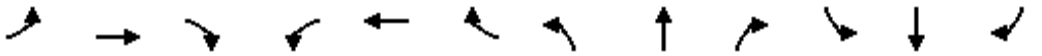


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	112	1362	239	68	1707	208	196	206	44	141	214	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.984			0.974			0.953	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	1719	4861	0	1752	1797	0	1752	1758	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	1719	4861	0	1752	1797	0	1752	1758	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		425			487			426			331	
Travel Time (s)		6.4			7.4			11.6			6.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	124	1513	266	76	1897	231	218	229	49	157	238	107
Shared Lane Traffic (%)												
Lane Group Flow (vph)	124	1513	266	76	2128	0	218	278	0	157	345	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot			Prot			Prot		
Protected Phases	1	6	7	5	2		7	4		3	8	
Permitted Phases			6									
Detector Phase	1	6	7	5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	16.0	67.0	23.0	17.0	68.0	0.0	23.0	35.0	0.0	21.0	33.0	0.0
Total Split (%)	11.4%	47.9%	16.4%	12.1%	48.6%	0.0%	16.4%	25.0%	0.0%	15.0%	23.6%	0.0%
Maximum Green (s)	9.0	60.0	16.0	10.0	61.0		16.0	28.0		14.0	26.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes			Yes			Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max		None	None		None	None	
Act Effct Green (s)	11.0	62.7	85.7	11.3	63.0		18.0	30.4		15.6	28.0	
Actuated g/C Ratio	0.08	0.45	0.61	0.08	0.45		0.13	0.22		0.11	0.20	
v/c Ratio	0.92	0.68	0.28	0.55	0.97		0.97	0.71		0.80	0.98	
Control Delay	121.4	32.9	13.9	76.7	51.5		112.5	62.3		89.1	98.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	121.4	32.9	13.9	76.7	51.5		112.5	62.3		89.1	98.6	
LOS	F	C	B	E	D		F	E		F	F	
Approach Delay		36.0			52.4			84.4			95.6	
Approach LOS		D			D			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.98			
Intersection Signal Delay: 53.7		Intersection LOS: D	
Intersection Capacity Utilization 88.5%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 124: US 74 & Sutherland Avenue



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	58	51	25	28	130	31	1802	32	134	1449	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.929			0.877				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1730	0	1770	1634	0	1719	4940	1538	1719	4940	1538
Flt Permitted	0.416			0.569			0.950			0.950		
Satd. Flow (perm)	775	1730	0	1060	1634	0	1719	4940	1538	1719	4940	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		163			218			356			257	
Travel Time (s)		5.6			4.2			5.4			3.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	4	64	57	28	31	144	34	2002	36	149	1610	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	121	0	28	175	0	34	2002	36	149	1610	2
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm			Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	12.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	19.0
Total Split (s)	32.0	32.0	0.0	32.0	32.0	0.0	14.0	80.0	80.0	28.0	94.0	94.0
Total Split (%)	22.9%	22.9%	0.0%	22.9%	22.9%	0.0%	10.0%	57.1%	57.1%	20.0%	67.1%	67.1%
Maximum Green (s)	25.0	25.0		25.0	25.0		7.0	73.0	73.0	21.0	87.0	87.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	21.7	21.7		21.7	21.7		9.6	84.5	84.5	18.8	99.3	99.3
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.07	0.60	0.60	0.13	0.71	0.71
v/c Ratio	0.03	0.45		0.17	0.69		0.29	0.67	0.04	0.65	0.46	0.00
Control Delay	47.8	58.2		51.7	69.7		68.5	21.2	13.9	70.0	10.7	9.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.8	58.2		51.7	69.7		68.5	21.2	13.9	70.0	10.7	9.0
LOS	D	E		D	E		E	C	B	E	B	A
Approach Delay		57.9			67.3			21.8			15.7	
Approach LOS		E			E			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 22.5		Intersection LOS: C	
Intersection Capacity Utilization 64.2%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 125: Dove Street & US 74

Lane Group	NBU	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT
Lane Configurations												
Volume (vph)	22	985	1391	127	128	1058	255	355	84	1043	129	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.86	0.97	0.86	0.86	1.00	0.91	1.00	1.00	1.00	0.88	1.00	1.00
Frt			0.987				0.850			0.850		
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	3335	6144	0	1719	4940	1538	1752	1845	2760	1752	1845
Flt Permitted		0.950			0.950			0.950			0.950	
Satd. Flow (perm)	0	3335	6144	0	1719	4940	1538	1752	1845	2760	1752	1845
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			45			35			20
Link Distance (ft)			341			436			391			335
Travel Time (s)			5.2			6.6			7.6			11.4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%
Adj. Flow (vph)	24	1094	1546	141	142	1176	283	394	93	1159	143	89
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1118	1687	0	142	1176	283	394	93	1159	143	89
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			24			24			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1	1	2		1	2	1	1	2	1	1	2
Detector Template	Left	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru
Leading Detector (ft)	20	20	100		20	100	20	20	100	20	20	100
Trailing Detector (ft)	0	0	0		0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0		0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	6		20	6	20	20	6	20	20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94			94			94			94
Detector 2 Size(ft)			6			6			6			6
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			0.0
Turn Type	Prot	Prot			Prot		pm+ov	Split		Prot	Split	
Protected Phases	5	5	2		1	6	4	4	4	4	3	3
Permitted Phases							6					
Detector Phase	5	5	2		1	6	4	4	4	4	3	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	12.0		7.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0

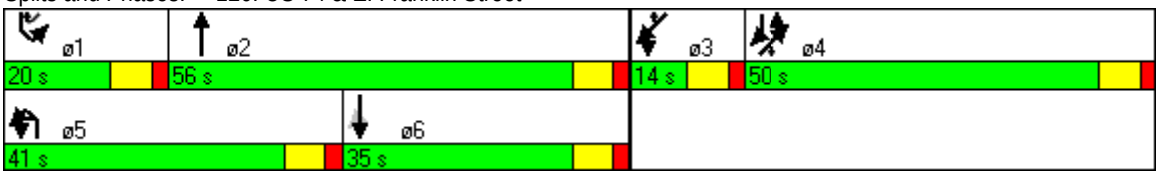
Lane Group	SWR
Lane Configurations	
Volume (vph)	170
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1568
Flt Permitted	
Satd. Flow (perm)	1568
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	3%
Adj. Flow (vph)	189
Shared Lane Traffic (%)	
Lane Group Flow (vph)	189
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	pt+ov
Protected Phases	3 1
Permitted Phases	
Detector Phase	3 1
Switch Phase	
Minimum Initial (s)	

Lane Group	NBU	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT
Minimum Split (s)	14.0	14.0	19.0		14.0	19.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	41.0	41.0	56.0	0.0	20.0	35.0	50.0	50.0	50.0	50.0	14.0	14.0
Total Split (%)	29.3%	29.3%	40.0%	0.0%	14.3%	25.0%	35.7%	35.7%	35.7%	35.7%	10.0%	10.0%
Maximum Green (s)	34.0	34.0	49.0		13.0	28.0	43.0	43.0	43.0	43.0	7.0	7.0
Yellow Time (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag		Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max		None	C-Max	None	None	None	None	None	None
Act Effct Green (s)		36.0	51.3		14.7	30.0	75.0	45.0	45.0	45.0	9.0	9.0
Actuated g/C Ratio		0.26	0.37		0.10	0.21	0.54	0.32	0.32	0.32	0.06	0.06
v/c Ratio		1.30	0.75		0.79	1.11	0.34	0.70	0.16	1.31	1.27	0.75
Control Delay		186.2	41.3		90.0	113.0	12.2	49.4	34.9	184.7	222.6	98.8
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		186.2	41.3		90.0	113.0	12.2	49.4	34.9	184.7	222.6	98.8
LOS		F	D		F	F	B	D	C	F	F	F
Approach Delay			99.1			93.1			143.9			117.3
Approach LOS			F			F			F			F

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 160
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.31
Intersection Signal Delay: 110.2 Intersection LOS: F
Intersection Capacity Utilization 109.5% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 126: US 74 & E. Franklin Street



Lane Group	SWR
Minimum Split (s)	
Total Split (s)	34.0
Total Split (%)	24.3%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Act Effct Green (s)	23.7
Actuated g/C Ratio	0.17
v/c Ratio	0.71
Control Delay	46.4
Queue Delay	0.0
Total Delay	46.4
LOS	D
Approach Delay	
Approach LOS	

Intersection Summary

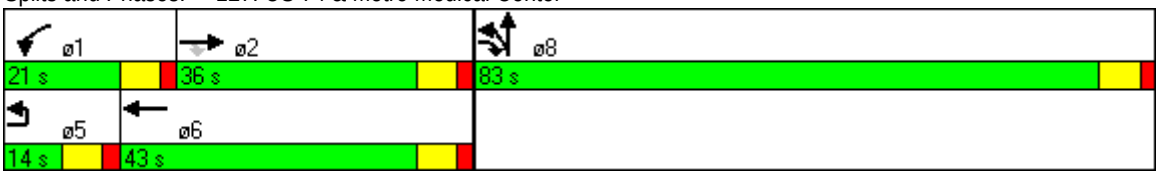
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	10	0	1111	930	219	1282	25	1536	0	322	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.91	0.91	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.997			0.947			
Flt Protected	0.950				0.950			0.950	0.969			
Satd. Flow (prot)	1719	0	4940	1538	1736	4973	0	1504	1453	0	0	0
Flt Permitted	0.950				0.950			0.950	0.969			
Satd. Flow (perm)	1719	0	4940	1538	1736	4973	0	1504	1453	0	0	0
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			55			45			25
Link Distance (ft)			239			375			459			142
Travel Time (s)			3.6			4.6			7.0			3.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	4%	4%	4%	14%	14%	14%	2%	2%
Adj. Flow (vph)	11	0	1234	1033	243	1424	28	1707	0	358	0	0
Shared Lane Traffic (%)								38%				
Lane Group Flow (vph)	11	0	1234	1033	243	1452	0	1058	1007	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			12			12			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1		2	1	1	2		1	2			
Detector Template	Left		Thru	Right	Left	Thru		Left	Thru			
Leading Detector (ft)	20		100	20	20	100		20	100			
Trailing Detector (ft)	0		0	0	0	0		0	0			
Detector 1 Position(ft)	0		0	0	0	0		0	0			
Detector 1 Size(ft)	20		6	20	20	6		20	6			
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 2 Position(ft)			94			94			94			
Detector 2 Size(ft)			6			6			6			
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			
Turn Type	Prot			pm+ov	Prot			Split				
Protected Phases	5		2	8	1	6		8	8			
Permitted Phases				2								
Detector Phase	5		2	8	1	6		8	8			
Switch Phase												
Minimum Initial (s)	7.0		12.0	12.0	7.0	14.0		12.0	12.0			

Lane Group	SBR
Lane Configurations	
Volume (vph)	39
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.865
Flt Protected	
Satd. Flow (prot)	1611
Flt Permitted	
Satd. Flow (perm)	1611
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	2%
Adj. Flow (vph)	43
Shared Lane Traffic (%)	
Lane Group Flow (vph)	43
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Detector Phase	
Switch Phase	
Minimum Initial (s)	

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Minimum Split (s)	14.0		19.0	19.0	14.0	21.0		19.0	19.0			
Total Split (s)	14.0	0.0	36.0	83.0	21.0	43.0	0.0	83.0	83.0	0.0	0.0	0.0
Total Split (%)	10.0%	0.0%	25.7%	59.3%	15.0%	30.7%	0.0%	59.3%	59.3%	0.0%	0.0%	0.0%
Maximum Green (s)	7.0		29.0	76.0	14.0	36.0		76.0	76.0			
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0		5.0	5.0			
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0		2.0	2.0			
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	2.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	2.0	2.0
Lead/Lag	Lead		Lag		Lead	Lag						
Lead-Lag Optimize?			Yes			Yes						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0		3.0	3.0			
Recall Mode	None		C-Max	None	None	C-Max		None	None			
Act Effct Green (s)	9.0		31.0	114.0	16.0	46.4		78.0	78.0			
Actuated g/C Ratio	0.06		0.22	0.81	0.11	0.33		0.56	0.56			
v/c Ratio	0.10		1.13	0.83	1.23	0.88		1.26	1.24			
Control Delay	63.9		118.3	14.7	188.4	51.6		157.0	149.3			
Queue Delay	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Total Delay	63.9		118.3	14.7	188.4	51.6		157.0	149.3			
LOS	E		F	B	F	D		F	F			
Approach Delay			71.1			71.2			153.3			
Approach LOS			E			E			F			

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 170			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.26			
Intersection Signal Delay: 98.5		Intersection LOS: F	
Intersection Capacity Utilization 98.5%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 127: US 74 & Metro Medical Center



Lane Group	SBR
Minimum Split (s)	
Total Split (s)	0.0
Total Split (%)	0.0%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	2.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Act Effct Green (s)	140.0
Actuated g/C Ratio	1.00
v/c Ratio	0.03
Control Delay	0.0
Queue Delay	0.0
Total Delay	0.0
LOS	A
Approach Delay	
Approach LOS	

Intersection Summary

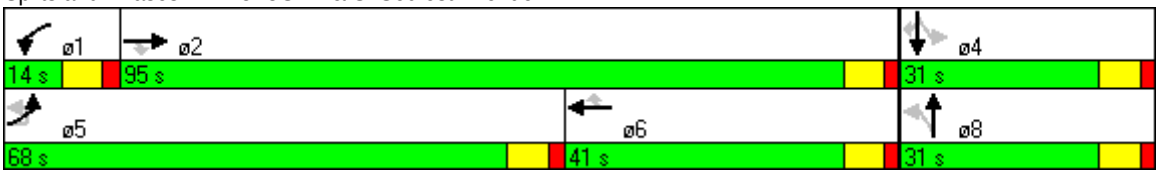
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	19	300	1051	36	9	1322	249	47	238	9	109	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850			0.850		0.996			
Flt Protected		0.950			0.950				0.992			0.974
Satd. Flow (prot)	0	1562	3124	1398	1562	3124	1398	0	1656	0	0	1633
Flt Permitted		0.063			0.950				0.538			0.353
Satd. Flow (perm)	0	104	3124	1398	1562	3124	1398	0	898	0	0	592
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			55			55			35			35
Link Distance (ft)			411			374			242			283
Travel Time (s)			5.1			4.6			4.7			5.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%
Adj. Flow (vph)	21	333	1168	40	10	1469	277	52	264	10	121	110
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	354	1168	40	10	1469	277	0	326	0	0	231
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			12			12			0			0
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1	1	2	1	1	2	1	1	2		1	2
Detector Template	Left	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru
Leading Detector (ft)	20	20	100	20	20	100	20	20	100		20	100
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0		0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0		0	0
Detector 1 Size(ft)	20	20	6	20	20	6	20	20	6		20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)			94			94			94			94
Detector 2 Size(ft)			6			6			6			6
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			0.0
Turn Type	custom	Prot		Perm	Prot		Perm	Perm			Perm	
Protected Phases		5	2		1	6			8			4
Permitted Phases	5			2			6	8			4	
Detector Phase	5	5	2	2	1	6	6	8	8		4	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	14.0	14.0	7.0	14.0	14.0	7.0	7.0		7.0	7.0

Lane Group	SBR
Lane Configurations	
Volume (vph)	165
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1425
Flt Permitted	
Satd. Flow (perm)	1425
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	2%
Adj. Flow (vph)	183
Shared Lane Traffic (%)	
Lane Group Flow (vph)	183
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.14
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Detector Phase	4
Switch Phase	
Minimum Initial (s)	7.0

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Minimum Split (s)	14.0	14.0	21.0	21.0	14.0	21.0	21.0	14.0	14.0		14.0	14.0
Total Split (s)	68.0	68.0	95.0	95.0	14.0	41.0	41.0	31.0	31.0	0.0	31.0	31.0
Total Split (%)	48.6%	48.6%	67.9%	67.9%	10.0%	29.3%	29.3%	22.1%	22.1%	0.0%	22.1%	22.1%
Maximum Green (s)	61.0	61.0	88.0	88.0	7.0	34.0	34.0	24.0	24.0		24.0	24.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Time Before Reduce (s)	0.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0	0.0		0.0	0.0
Time To Reduce (s)	0.0	0.0	50.0	50.0	0.0	50.0	50.0	0.0	0.0		0.0	0.0
Recall Mode	None	None	C-Min	C-Min	None	C-Min	C-Min	None	None		None	None
Act Effct Green (s)		63.0	101.2	101.2	9.0	36.0	36.0		26.0			26.0
Actuated g/C Ratio		0.45	0.72	0.72	0.06	0.26	0.26		0.19			0.19
v/c Ratio		7.53	0.52	0.04	0.10	1.83	0.77		1.95			2.10
Control Delay		2990.5	10.2	6.8	64.2	408.5	63.8		479.5			552.4
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0
Total Delay		2990.5	10.2	6.8	64.2	408.5	63.8		479.5			552.4
LOS		F	B	A	E	F	E		F			F
Approach Delay			685.5			352.2			479.5			338.2
Approach LOS			F			F			F			F

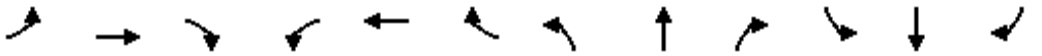
Intersection Summary			
Area Type:	CBD		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 7.53			
Intersection Signal Delay: 489.3		Intersection LOS: F	
Intersection Capacity Utilization 105.7%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 128: US 74 & S. Secrest Avenue



Lane Group	SBR
Minimum Split (s)	14.0
Total Split (s)	31.0
Total Split (%)	22.1%
Maximum Green (s)	24.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Minimum Gap (s)	3.0
Time Before Reduce (s)	0.0
Time To Reduce (s)	0.0
Recall Mode	None
Act Effct Green (s)	26.0
Actuated g/C Ratio	0.19
v/c Ratio	0.69
Control Delay	67.9
Queue Delay	0.0
Total Delay	67.9
LOS	E
Approach Delay	
Approach LOS	

Intersection Summary

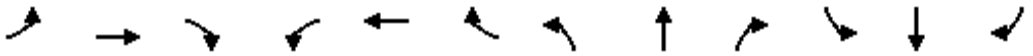


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	109	1109	32	6	1376	101	20	18	3	59	20	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.990			0.991				0.850
Flt Protected	0.950			0.950				0.976			0.964	
Satd. Flow (prot)	1736	3457	0	1736	3436	0	0	1802	0	0	1796	1583
Flt Permitted	0.950			0.950				0.767			0.790	
Satd. Flow (perm)	1736	3457	0	1736	3436	0	0	1416	0	0	1472	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			20			25	
Link Distance (ft)		245			259			179			276	
Travel Time (s)		4.8			5.0			6.1			7.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	121	1232	36	7	1529	112	22	20	3	66	22	88
Shared Lane Traffic (%)												
Lane Group Flow (vph)	121	1268	0	7	1641	0	0	45	0	0	88	88
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		pm+ov
Protected Phases	5	2		1	6			8			4	5
Permitted Phases							8			4		4
Detector Phase	5	2		1	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	17.0		14.0	17.0		14.0	14.0		14.0	14.0	14.0
Total Split (s)	24.0	106.0	0.0	14.0	96.0	0.0	20.0	20.0	0.0	20.0	20.0	24.0
Total Split (%)	17.1%	75.7%	0.0%	10.0%	68.6%	0.0%	14.3%	14.3%	0.0%	14.3%	14.3%	17.1%
Maximum Green (s)	17.0	99.0		7.0	89.0		13.0	13.0		13.0	13.0	17.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None
Act Effct Green (s)	16.3	112.8		9.0	94.3			14.4			14.4	35.7
Actuated g/C Ratio	0.12	0.81		0.06	0.67			0.10			0.10	0.26
v/c Ratio	0.60	0.46		0.06	0.71			0.31			0.58	0.22
Control Delay	71.0	5.4		63.0	17.2			63.2			75.1	41.2
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Delay	71.0	5.4		63.0	17.2			63.2			75.1	41.2
LOS	E	A		E	B			E			E	D
Approach Delay		11.1			17.4			63.2			58.2	
Approach LOS		B			B			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 17.6		Intersection LOS: B	
Intersection Capacity Utilization 68.7%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 129: US 74 & Bivens Street

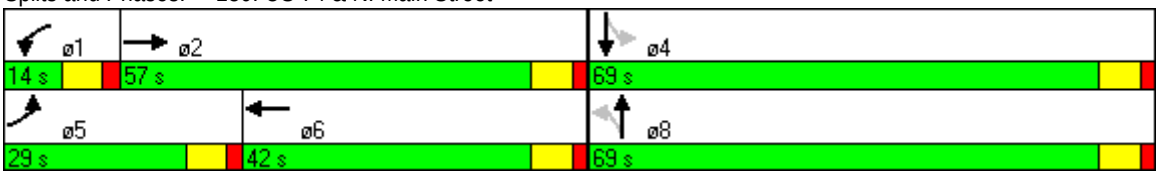


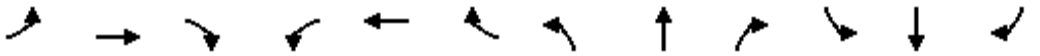
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	376	795	43	52	1016	102	54	369	51	77	280	361
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992			0.986			0.985			0.916	
Flt Protected	0.950			0.950				0.994		0.950		
Satd. Flow (prot)	1736	3443	0	1736	3423	0	0	1824	0	1770	1706	0
Flt Permitted	0.950			0.950				0.395		0.368		
Satd. Flow (perm)	1736	3443	0	1736	3423	0	0	725	0	685	1706	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		282			333			173			197	
Travel Time (s)		5.5			6.5			3.4			3.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	418	883	48	58	1129	113	60	410	57	86	311	401
Shared Lane Traffic (%)												
Lane Group Flow (vph)	418	931	0	58	1242	0	0	527	0	86	712	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	17.0		14.0	17.0		14.0	14.0		14.0	14.0	
Total Split (s)	29.0	57.0	0.0	14.0	42.0	0.0	69.0	69.0	0.0	69.0	69.0	0.0
Total Split (%)	20.7%	40.7%	0.0%	10.0%	30.0%	0.0%	49.3%	49.3%	0.0%	49.3%	49.3%	0.0%
Maximum Green (s)	22.0	50.0		7.0	35.0		62.0	62.0		62.0	62.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	None		None	None		None	None	
Act Effct Green (s)	24.0	54.8		9.0	37.0			64.0		64.0	64.0	
Actuated g/C Ratio	0.17	0.39		0.06	0.26			0.46		0.46	0.46	
v/c Ratio	1.40	0.69		0.52	1.37			1.59		0.27	0.91	
Control Delay	242.0	39.6		80.2	213.8			309.3		26.6	53.0	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	242.0	39.6		80.2	213.8			309.3		26.6	53.0	
LOS	F	D		F	F			F		C	D	
Approach Delay		102.3			207.9			309.3			50.1	
Approach LOS		F			F			F			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.59			
Intersection Signal Delay: 153.8		Intersection LOS: F	
Intersection Capacity Utilization 131.2%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 130: US 74 & N. Main Street



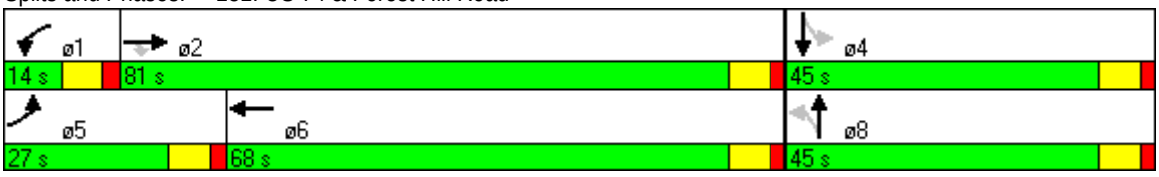


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	109	720	79	17	885	9	86	28	15	9	32	137
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.998			0.984			0.896	
Flt Protected	0.950			0.950				0.968			0.997	
Satd. Flow (prot)	1736	3471	1553	1736	3464	0	0	1691	0	0	1632	0
Flt Permitted	0.950			0.950				0.461			0.982	
Satd. Flow (perm)	1736	3471	1553	1736	3464	0	0	806	0	0	1607	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			35	
Link Distance (ft)		576			646			376			353	
Travel Time (s)		7.1			8.0			4.7			6.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	7%	7%	7%	4%	4%	4%
Adj. Flow (vph)	121	800	88	19	983	10	96	31	17	10	36	152
Shared Lane Traffic (%)												
Lane Group Flow (vph)	121	800	88	19	993	0	0	144	0	0	198	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		Perm	Prot			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8			4		
Detector Phase	5	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	14.0	14.0	7.0	14.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	21.0	21.0	14.0	21.0		14.0	14.0		14.0	14.0	
Total Split (s)	27.0	81.0	81.0	14.0	68.0	0.0	45.0	45.0	0.0	45.0	45.0	0.0
Total Split (%)	19.3%	57.9%	57.9%	10.0%	48.6%	0.0%	32.1%	32.1%	0.0%	32.1%	32.1%	0.0%
Maximum Green (s)	20.0	74.0	74.0	7.0	61.0		38.0	38.0		38.0	38.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	
Act Effct Green (s)	17.0	93.5	93.5	9.6	80.6			27.4			27.4	
Actuated g/C Ratio	0.12	0.67	0.67	0.07	0.58			0.20			0.20	
v/c Ratio	0.57	0.34	0.08	0.16	0.50			0.91			0.63	
Control Delay	68.2	12.7	11.6	64.1	20.7			105.3			59.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Delay	68.2	12.7	11.6	64.1	20.7			105.3			59.4	
LOS	E	B	B	E	C			F			E	
Approach Delay		19.2			21.5			105.3			59.4	
Approach LOS		B			C			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay: 28.8		Intersection LOS: C	
Intersection Capacity Utilization 65.2%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 131: US 74 & Forest Hill Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	521	66	314	237	35	80	138	4448	475	227	3539	324
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1719	3438	1538	1719	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	1719	3438	1538	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			45			55			55	
Link Distance (ft)		1096			1168			1536			3465	
Travel Time (s)		21.4			17.7			19.0			43.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	579	73	349	263	39	89	153	4942	528	252	3932	360
Shared Lane Traffic (%)												
Lane Group Flow (vph)	579	73	349	263	39	89	153	4942	528	252	3932	360
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	1	6	7	5	2	3
Permitted Phases			4			8			6			2
Detector Phase	7	4	5	3	8	1	1	6	7	5	2	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	14.0	7.0	7.0	14.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0	14.0	14.0	21.0	14.0	14.0	21.0	14.0
Total Split (s)	21.0	14.0	18.0	21.0	14.0	15.0	15.0	87.0	21.0	18.0	90.0	21.0
Total Split (%)	15.0%	10.0%	12.9%	15.0%	10.0%	10.7%	10.7%	62.1%	15.0%	12.9%	64.3%	15.0%
Maximum Green (s)	14.0	7.0	11.0	14.0	7.0	8.0	8.0	80.0	14.0	11.0	83.0	14.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	16.0	9.0	27.0	16.0	9.0	24.0	12.8	82.0	103.0	15.8	85.0	106.0
Actuated g/C Ratio	0.11	0.06	0.19	0.11	0.06	0.17	0.09	0.59	0.74	0.11	0.61	0.76
v/c Ratio	1.48	0.32	1.14	0.67	0.17	0.33	0.97	2.45	0.47	1.30	1.88	0.31
Control Delay	269.6	66.6	145.9	68.7	63.9	54.8	127.0	675.0	9.0	212.6	422.3	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	269.6	66.6	145.9	68.7	63.9	54.8	127.0	675.0	9.0	212.6	422.3	6.2
LOS	F	E	F	E	E	D	F	F	A	F	F	A
Approach Delay		211.7			65.0			597.6			377.7	
Approach LOS		F			E			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 2.45			
Intersection Signal Delay: 459.7		Intersection LOS: F	
Intersection Capacity Utilization 169.6%		ICU Level of Service H	
Analysis Period (min) 15			

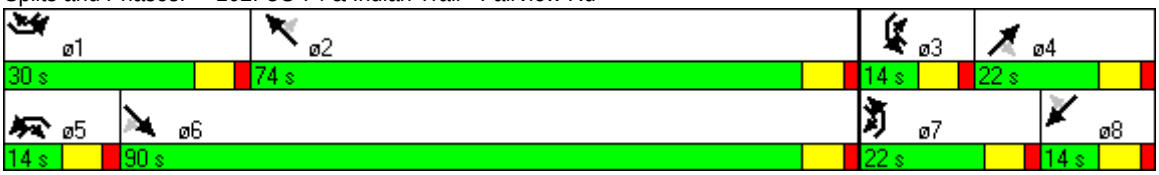
Splits and Phases: 101: Stallings Road & US 74

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	614	2040	391	82	1672	205	403	267	103	141	141	336
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3335	3438	1538	1719	3438	1538	3335	3438	1538	3335	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3438	1538	1719	3438	1538	3335	3438	1538	3335	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			35			35	
Link Distance (ft)		2103			2380			902			1112	
Travel Time (s)		26.1			29.5			17.6			21.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	682	2267	434	91	1858	228	448	297	114	157	157	373
Shared Lane Traffic (%)												
Lane Group Flow (vph)	682	2267	434	91	1858	228	448	297	114	157	157	373
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	7.0	14.0	7.0	7.0	14.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	21.0	14.0	14.0	21.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	30.0	90.0	22.0	14.0	74.0	14.0	22.0	22.0	14.0	14.0	14.0	30.0
Total Split (%)	21.4%	64.3%	15.7%	10.0%	52.9%	10.0%	15.7%	15.7%	10.0%	10.0%	10.0%	21.4%
Maximum Green (s)	23.0	83.0	15.0	7.0	67.0	7.0	15.0	15.0	7.0	7.0	7.0	23.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	25.0	85.0	107.0	9.0	69.0	83.0	17.0	17.0	31.0	9.0	9.0	39.0
Actuated g/C Ratio	0.18	0.61	0.76	0.06	0.49	0.59	0.12	0.12	0.22	0.06	0.06	0.28
v/c Ratio	1.14	1.09	0.37	0.82	1.10	0.25	1.11	0.71	0.33	0.73	0.71	0.87
Control Delay	133.9	75.3	6.4	111.1	87.6	14.5	131.8	69.5	49.1	84.3	82.0	69.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	133.9	75.3	6.4	111.1	87.6	14.5	131.8	69.5	49.1	84.3	82.0	69.6
LOS	F	E	A	F	F	B	F	E	D	F	F	E
Approach Delay		78.3			81.0			99.2			75.8	
Approach LOS		E			F			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 170			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.14			
Intersection Signal Delay: 81.4		Intersection LOS: F	
Intersection Capacity Utilization 97.7%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 102: US 74 & Indian Trail - Fairview Rd

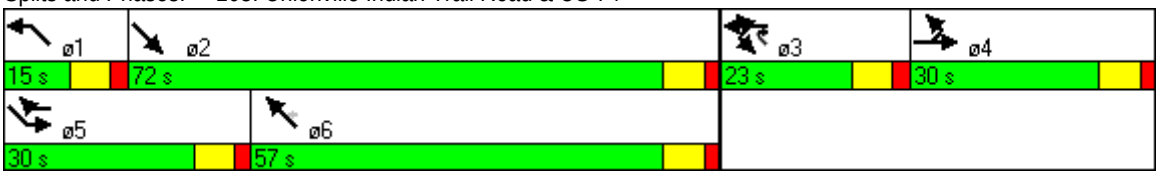


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	56	364	238	322	151	397	682	1621	40	139	1329	453
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Frt		0.946				0.850		0.996				0.850
Flt Protected		0.996		0.950	0.982		0.950			0.950		
Satd. Flow (prot)	0	3302	0	1665	1721	1568	3335	3424	0	1719	3438	1538
Flt Permitted		0.996		0.950	0.982		0.950			0.950		
Satd. Flow (perm)	0	3302	0	1665	1721	1568	3335	3424	0	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			45			55			55	
Link Distance (ft)		795			1304			1032			1062	
Travel Time (s)		15.5			19.8			12.8			13.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	62	404	264	358	168	441	758	1801	44	154	1477	503
Shared Lane Traffic (%)				28%								
Lane Group Flow (vph)	0	730	0	258	268	441	758	1845	0	154	1477	503
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pt+ov	Prot			Prot		pm+ov
Protected Phases	4	4		3	3	3 5	5	2		1	6	3
Permitted Phases												6
Detector Phase	4	4		3	3	3 5	5	2		1	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	14.0		7.0	14.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	21.0		14.0	21.0	14.0
Total Split (s)	30.0	30.0	0.0	23.0	23.0	53.0	30.0	72.0	0.0	15.0	57.0	23.0
Total Split (%)	21.4%	21.4%	0.0%	16.4%	16.4%	37.9%	21.4%	51.4%	0.0%	10.7%	40.7%	16.4%
Maximum Green (s)	23.0	23.0		16.0	16.0		23.0	65.0		8.0	50.0	16.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	None
Act Effct Green (s)		25.0		18.0	18.0	43.0	25.0	67.0		10.0	52.0	75.0
Actuated g/C Ratio		0.18		0.13	0.13	0.31	0.18	0.48		0.07	0.37	0.54
v/c Ratio		1.24		1.21	1.21	0.91	1.27	1.13		1.25	1.16	0.61
Control Delay		167.6		178.3	179.8	56.1	180.7	99.8		214.4	119.5	26.4
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay		167.6		178.3	179.8	56.1	180.7	99.8		214.4	119.5	26.4
LOS		F		F	F	E	F	F		F	F	C
Approach Delay		167.6			123.0			123.4			104.4	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 170			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.27			
Intersection Signal Delay: 122.1		Intersection LOS: F	
Intersection Capacity Utilization 105.1%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 103: Unionville Indian Trail Road & US 74



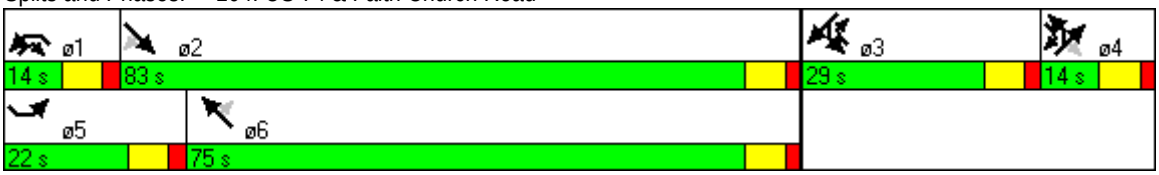
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	199	1985	40	53	1602	201	24	7	39	320	14	256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.858	
Flt Protected	0.950			0.950				0.963		0.950		
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	0	1679	1482	1770	1598	0
Flt Permitted	0.950			0.950				0.963		0.950		
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	0	1679	1482	1770	1598	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			15			35	
Link Distance (ft)		1177			2588			625			368	
Travel Time (s)		14.6			32.1			28.4			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	9%	9%	9%	2%	2%	2%
Adj. Flow (vph)	221	2206	44	59	1780	223	27	8	43	356	16	284
Shared Lane Traffic (%)												
Lane Group Flow (vph)	221	2206	44	59	1780	223	0	35	43	356	300	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Split		pm+ov	Split		
Protected Phases	5	2	4	1	6	3	4	4	1	3	3	
Permitted Phases			2			6			4			
Detector Phase	5	2	4	1	6	3	4	4	1	3	3	
Switch Phase												
Minimum Initial (s)	7.0	14.0	7.0	7.0	14.0	7.0	7.0	7.0	7.0	7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	21.0	14.0	14.0	21.0	14.0	14.0	14.0	14.0	14.0	14.0	
Total Split (s)	22.0	83.0	14.0	14.0	75.0	29.0	14.0	14.0	14.0	29.0	29.0	0.0
Total Split (%)	15.7%	59.3%	10.0%	10.0%	53.6%	20.7%	10.0%	10.0%	10.0%	20.7%	20.7%	0.0%
Maximum Green (s)	15.0	76.0	7.0	7.0	68.0	22.0	7.0	7.0	7.0	22.0	22.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	
Act Effct Green (s)	19.4	83.6	90.8	9.0	70.4	99.4		9.0	20.2	24.0	24.0	
Actuated g/C Ratio	0.14	0.60	0.65	0.06	0.50	0.71		0.06	0.14	0.17	0.17	
v/c Ratio	0.92	1.07	0.04	0.53	1.03	0.20		0.32	0.20	1.17	1.09	
Control Delay	101.4	72.3	5.7	81.2	64.1	7.5		71.1	53.2	157.2	134.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	101.4	72.3	5.7	81.2	64.1	7.5		71.1	53.2	157.2	134.8	
LOS	F	E	A	F	E	A		E	D	F	F	
Approach Delay		73.7			58.5			61.2			147.0	
Approach LOS		E			E			E			F	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green
Natural Cycle: 180
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.17
Intersection Signal Delay: 76.7 Intersection LOS: E
Intersection Capacity Utilization 97.6% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 104: US 74 & Faith Church Road



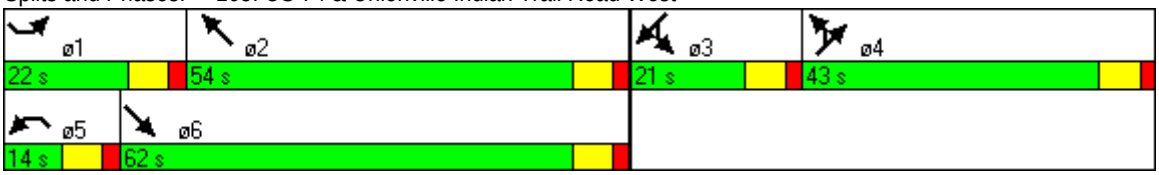
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	301	1256	735	128	927	312	794	174	187	248	95	177
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.945			0.962			0.922			0.902	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3249	0	1719	3307	0	1770	1717	0	1770	1680	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3249	0	1719	3307	0	1770	1717	0	1770	1680	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		606			973			698			813	
Travel Time (s)		7.5			12.1			10.6			12.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	334	1396	817	142	1030	347	882	193	208	276	106	197
Shared Lane Traffic (%)												
Lane Group Flow (vph)	334	2213	0	142	1377	0	882	401	0	276	303	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Split			Split		
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases												
Detector Phase	1	6		5	2		4	4		3	3	
Switch Phase												
Minimum Initial (s)	7.0	14.0		7.0	14.0		7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	21.0		14.0	21.0		14.0	14.0		14.0	14.0	
Total Split (s)	22.0	62.0	0.0	14.0	54.0	0.0	43.0	43.0	0.0	21.0	21.0	0.0
Total Split (%)	15.7%	44.3%	0.0%	10.0%	38.6%	0.0%	30.7%	30.7%	0.0%	15.0%	15.0%	0.0%
Maximum Green (s)	15.0	55.0		7.0	47.0		36.0	36.0		14.0	14.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	17.0	57.0		9.0	49.0		38.0	38.0		16.0	16.0	
Actuated g/C Ratio	0.12	0.41		0.06	0.35		0.27	0.27		0.11	0.11	
v/c Ratio	1.60	1.67		1.28	1.19		1.84	0.86		1.37	1.58	
Control Delay	328.6	335.3		227.9	134.5		414.9	67.4		238.0	322.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	328.6	335.3		227.9	134.5		414.9	67.4		238.0	322.4	
LOS	F	F		F	F		F	E		F	F	
Approach Delay		334.4			143.3			306.3			282.2	
Approach LOS		F			F			F			F	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 180
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.84
Intersection Signal Delay: 274.3 Intersection LOS: F
Intersection Capacity Utilization 141.9% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 105: US 74 & Unionville Indian Trail Road West



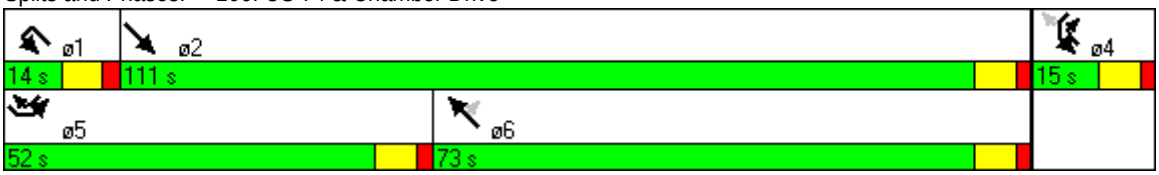
Lane Group	SEL	SET	NWU	NWT	NWR	SWL	SWR
Lane Configurations							
Volume (vph)	371	1396	10	1181	125	52	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Frt					0.850		0.850
Flt Protected	0.950		0.950			0.950	
Satd. Flow (prot)	1719	3438	1719	3438	1538	1770	1583
Flt Permitted	0.950		0.950			0.950	
Satd. Flow (perm)	1719	3438	1719	3438	1538	1770	1583
Right Turn on Red					No		No
Satd. Flow (RTOR)							
Link Speed (mph)		55		55		35	
Link Distance (ft)		2407		1378		1258	
Travel Time (s)		29.8		17.1		24.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	2%	2%
Adj. Flow (vph)	412	1551	11	1312	139	58	144
Shared Lane Traffic (%)							
Lane Group Flow (vph)	412	1551	11	1312	139	58	144
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Left	R NA	Left	Right	Left	Right
Median Width(ft)		12		12		12	
Link Offset(ft)		0		0		0	
Crosswalk Width(ft)		0		0		0	
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9		9	15	9
Number of Detectors	1	2	1	2	1	1	1
Detector Template	Left	Thru	Left	Thru	Right	Left	Right
Leading Detector (ft)	20	100	20	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94		94			
Detector 2 Size(ft)		6		6			
Detector 2 Type		Cl+Ex		Cl+Ex			
Detector 2 Channel							
Detector 2 Extend (s)		0.0		0.0			
Turn Type	Prot		Prot		pm+ov		pm+ov
Protected Phases	5	2	1	6	4	4	5
Permitted Phases					6		4
Detector Phase	5	2	1	6	4	4	5
Switch Phase							
Minimum Initial (s)	7.0	14.0	7.0	14.0	7.0	7.0	7.0

Lane Group	SEL	SET	NWU	NWT	NWR	SWL	SWR
Minimum Split (s)	14.0	21.0	14.0	21.0	14.0	14.0	14.0
Total Split (s)	52.0	111.0	14.0	73.0	15.0	15.0	52.0
Total Split (%)	37.1%	79.3%	10.0%	52.1%	10.7%	10.7%	37.1%
Maximum Green (s)	45.0	104.0	7.0	66.0	8.0	8.0	45.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag			Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	C-Max	None	None	None
Act Effct Green (s)	40.0	114.6	9.0	75.2	90.0	9.8	54.8
Actuated g/C Ratio	0.29	0.82	0.06	0.54	0.64	0.07	0.39
v/c Ratio	0.84	0.55	0.10	0.71	0.14	0.47	0.23
Control Delay	62.1	5.8	63.9	28.1	11.3	75.4	28.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.1	5.8	63.9	28.1	11.3	75.4	28.3
LOS	E	A	E	C	B	E	C
Approach Delay		17.6		26.8		41.8	
Approach LOS		B		C		D	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 22.7 Intersection LOS: C
Intersection Capacity Utilization 71.5% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 106: US 74 & Chamber Drive

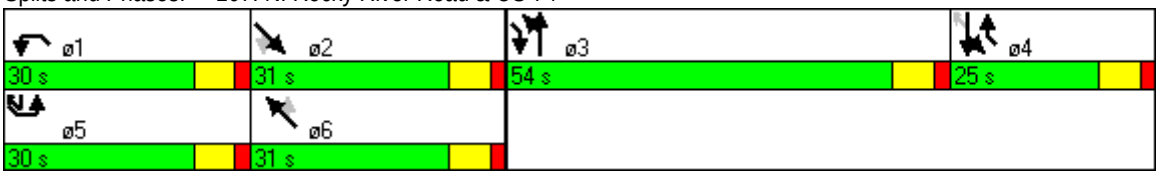


Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	412	110	285	186	125	183	279	685	717	389	537	222
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.952				0.850			0.850			0.850
Flt Protected		0.975			0.971		0.950			0.950		
Satd. Flow (prot)	0	1729	0	0	1809	1583	1719	3438	1538	1719	3438	1538
Flt Permitted		0.975			0.971		0.950			0.950		
Satd. Flow (perm)	0	1729	0	0	1809	1583	1719	3438	1538	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		1176			418			3021			3350	
Travel Time (s)		17.8			6.3			37.5			41.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	458	122	317	207	139	203	310	761	797	432	597	247
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	897	0	0	346	203	310	761	797	432	597	247
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	3	3		4	4	5	5	2	3	1	6	4
Permitted Phases						4			2			6
Detector Phase	3	3		4	4	5	5	2	3	1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	14.0	7.0	7.0	14.0	7.0

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0	14.0	14.0	21.0	14.0	14.0	21.0	14.0
Total Split (s)	54.0	54.0	0.0	25.0	25.0	30.0	30.0	31.0	54.0	30.0	31.0	25.0
Total Split (%)	38.6%	38.6%	0.0%	17.9%	17.9%	21.4%	21.4%	22.1%	38.6%	21.4%	22.1%	17.9%
Maximum Green (s)	47.0	47.0		18.0	18.0	23.0	23.0	24.0	47.0	23.0	24.0	18.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead		Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)		49.0			20.0	50.0	25.0	26.0	80.0	25.0	26.0	46.0
Actuated g/C Ratio		0.35			0.14	0.36	0.18	0.19	0.57	0.18	0.19	0.33
v/c Ratio		1.48			1.34	0.36	1.01	1.19	0.91	1.41	0.94	0.49
Control Delay		259.8			221.8	35.5	110.3	149.7	42.4	243.0	78.9	23.7
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		259.8			221.8	35.5	110.3	149.7	42.4	243.0	78.9	23.7
LOS		F			F	D	F	F	D	F	E	C
Approach Delay		259.8			152.9			97.4			123.8	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 160			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.48			
Intersection Signal Delay: 143.1		Intersection LOS: F	
Intersection Capacity Utilization 120.1%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 107: N. Rocky River Road & US 74



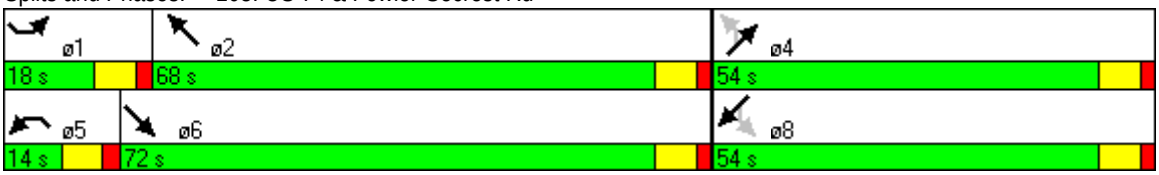
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	85	1169	29	58	936	173	33	120	83	138	66	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.977			0.953			0.972	
Flt Protected	0.950			0.950				0.993			0.974	
Satd. Flow (prot)	1719	3424	0	1719	3359	0	0	1763	0	0	1764	0
Flt Permitted	0.950			0.950				0.916			0.570	
Satd. Flow (perm)	1719	3424	0	1719	3359	0	0	1626	0	0	1032	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		2601			2354			277			1205	
Travel Time (s)		39.4			35.7			5.4			18.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	94	1299	32	64	1040	192	37	133	92	153	73	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	94	1331	0	64	1232	0	0	262	0	0	286	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		
Detector Phase	1	6		5	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	18.0	72.0	0.0	14.0	68.0	0.0	54.0	54.0	0.0	54.0	54.0	0.0
Total Split (%)	12.9%	51.4%	0.0%	10.0%	48.6%	0.0%	38.6%	38.6%	0.0%	38.6%	38.6%	0.0%
Maximum Green (s)	11.0	65.0		7.0	61.0		47.0	47.0		47.0	47.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	12.7	75.2		10.1	69.8			42.5			42.5	
Actuated g/C Ratio	0.09	0.54		0.07	0.50			0.30			0.30	
v/c Ratio	0.60	0.72		0.51	0.74			0.53			0.91	
Control Delay	77.4	29.7		77.7	32.6			43.7			79.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	77.4	29.7		77.7	32.6			43.7			79.4	
LOS	E	C		E	C			D			E	
Approach Delay		32.8			34.8			43.7			79.4	
Approach LOS		C			C			D			E	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 38.6 Intersection LOS: D
Intersection Capacity Utilization 83.3% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 108: US 74 & Fowler-Secrest Rd



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	74	1251	157	16	1028	9	124	13	15	7	10	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00											
Frt		0.983				0.850		0.986			0.901	
Flt Protected	0.950			0.950				0.961			0.994	
Satd. Flow (prot)	1719	3380	0	1719	3266	1538	0	1765	0	0	1668	0
Flt Permitted	0.950			0.950				0.701			0.965	
Satd. Flow (perm)	1717	3380	0	1719	3266	1538	0	1288	0	0	1620	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		309			978			474			425	
Travel Time (s)		4.7			14.8			12.9			11.6	
Confl. Peds. (#/hr)	1											
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Parking (#/hr)					0							
Adj. Flow (vph)	82	1390	174	18	1142	10	138	14	17	8	11	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	82	1564	0	18	1142	10	0	169	0	0	71	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.07	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot		Perm	Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases						2	4			8		

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector Phase	1	6		5	2	2	4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	12.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	19.0		14.0	19.0	19.0	14.0	14.0		14.0	14.0	
Total Split (s)	18.0	90.0	0.0	14.0	86.0	86.0	36.0	36.0	0.0	36.0	36.0	0.0
Total Split (%)	12.9%	64.3%	0.0%	10.0%	61.4%	61.4%	25.7%	25.7%	0.0%	25.7%	25.7%	0.0%
Maximum Green (s)	11.0	83.0		7.0	79.0	79.0	29.0	29.0		29.0	29.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		None	None	
Act Effct Green (s)	12.7	99.6		9.2	87.7	87.7		24.6			24.6	
Actuated g/C Ratio	0.09	0.71		0.07	0.63	0.63		0.18			0.18	
v/c Ratio	0.53	0.65		0.16	0.56	0.01		0.75			0.25	
Control Delay	72.8	14.7		65.2	17.4	12.2		74.0			50.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	
Total Delay	72.8	14.7		65.2	17.4	12.2		74.0			50.1	
LOS	E	B		E	B	B		E			D	
Approach Delay		17.6			18.0			74.0			50.1	
Approach LOS		B			B			E			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 21.6		Intersection LOS: C	
Intersection Capacity Utilization 73.0%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 110: US 74 & Rolling Hill Drive

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	133	10	150	95	10	84	79	1056	125	113	847	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.859			0.940			0.984				0.850
Flt Protected	0.950				0.975		0.950			0.950		
Satd. Flow (prot)	1770	1600	0	0	1707	0	1719	3383	0	1719	3438	1538
Flt Permitted	0.592				0.638		0.950			0.950		
Satd. Flow (perm)	1103	1600	0	0	1117	0	1719	3383	0	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		510			371			748			991	
Travel Time (s)		13.9			10.1			11.3			15.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	148	11	167	106	11	93	88	1173	139	126	941	80
Shared Lane Traffic (%)												
Lane Group Flow (vph)	148	178	0	0	210	0	88	1312	0	126	941	80
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm			Perm			Prot			Prot		Perm
Protected Phases		3			8		1	6		5	2	
Permitted Phases	3			8								2
Detector Phase	3	3		8	8		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	12.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0		14.0	19.0	19.0
Total Split (s)	45.0	45.0	0.0	45.0	45.0	0.0	19.0	72.0	0.0	23.0	76.0	76.0
Total Split (%)	32.1%	32.1%	0.0%	32.1%	32.1%	0.0%	13.6%	51.4%	0.0%	16.4%	54.3%	54.3%
Maximum Green (s)	38.0	38.0		38.0	38.0		12.0	65.0		16.0	69.0	69.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?								Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	Max		None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	40.0	40.0			40.0		12.8	68.9		16.1	72.2	72.2
Actuated g/C Ratio	0.29	0.29			0.29		0.09	0.49		0.12	0.52	0.52
v/c Ratio	0.47	0.39			0.66		0.56	0.79		0.64	0.53	0.10
Control Delay	47.2	43.3			55.3		74.5	34.1		73.9	24.2	18.2
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	47.2	43.3			55.3		74.5	34.1		73.9	24.2	18.2
LOS	D	D			E		E	C		E	C	B
Approach Delay		45.1			55.3			36.7			29.2	
Approach LOS		D			E			D			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 36.1		Intersection LOS: D	
Intersection Capacity Utilization 76.8%		ICU Level of Service D	
Analysis Period (min) 15			

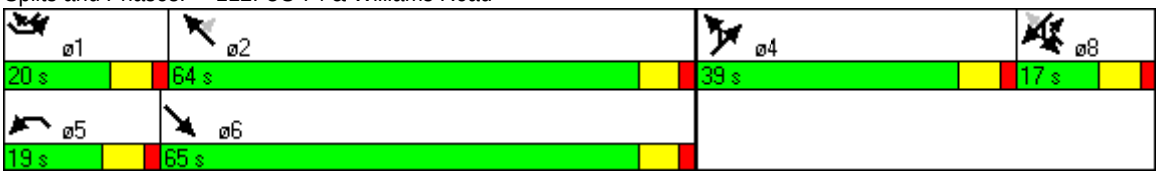
Splits and Phases: 111: Roland Drive & US 74

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	131	1117	29	117	921	121	43	84	211	98	38	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996				0.850		0.893				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3424	0	1719	3438	1538	1770	1663	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3424	0	1719	3438	1538	1770	1663	0	1770	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		822			734			281			279	
Travel Time (s)		12.5			11.1			5.5			7.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	146	1241	32	130	1023	134	48	93	234	109	42	97
Shared Lane Traffic (%)												
Lane Group Flow (vph)	146	1273	0	130	1023	134	48	327	0	109	42	97
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot		pm+ov	Split			Split		pm+ov
Protected Phases	1	6		5	2	8	4	4		8	8	1
Permitted Phases						2						8
Detector Phase	1	6		5	2	8	4	4		8	8	1
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	7.0	7.0	7.0		7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0		14.0	19.0	14.0	14.0	14.0		14.0	14.0	14.0
Total Split (s)	20.0	65.0	0.0	19.0	64.0	17.0	39.0	39.0	0.0	17.0	17.0	20.0
Total Split (%)	14.3%	46.4%	0.0%	13.6%	45.7%	12.1%	27.9%	27.9%	0.0%	12.1%	12.1%	14.3%
Maximum Green (s)	13.0	58.0		12.0	57.0	10.0	32.0	32.0		10.0	10.0	13.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	Max	C-Max		None	C-Max	Max	None	None		Max	Max	Max
Act Effct Green (s)	15.0	60.3		13.7	59.0	73.2	31.8	31.8		14.2	14.2	34.2
Actuated g/C Ratio	0.11	0.43		0.10	0.42	0.52	0.23	0.23		0.10	0.10	0.24
v/c Ratio	0.79	0.86		0.77	0.71	0.17	0.12	0.87		0.61	0.22	0.25
Control Delay	89.8	43.6		89.9	36.7	10.3	42.7	74.2		76.0	62.9	45.8
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	89.8	43.6		89.9	36.7	10.3	42.7	74.2		76.0	62.9	45.8
LOS	F	D		F	D	B	D	E		E	E	D
Approach Delay		48.4			39.3			70.2			62.0	
Approach LOS		D			D			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay: 48.3		Intersection LOS: D	
Intersection Capacity Utilization 78.2%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 112: US 74 & Williams Road



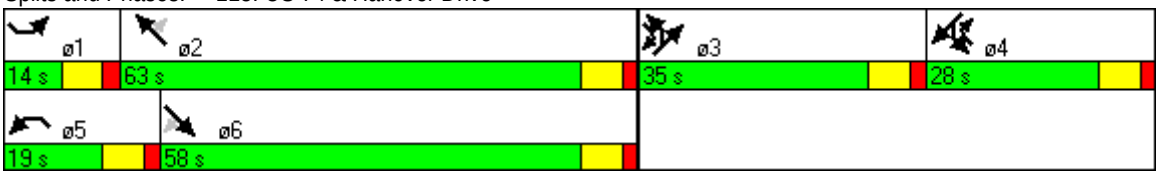
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	15	1290	101	193	1050	467	110	109	257	589	103	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850			0.850		0.895			0.980	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	1752	1651	0	3400	1808	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	1752	1651	0	3400	1808	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		338			529			376			313	
Travel Time (s)		5.1			8.0			7.3			8.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	17	1433	112	214	1167	519	122	121	286	654	114	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	1433	112	214	1167	519	122	407	0	654	132	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Split			Split		
Protected Phases	1	6	3	5	2	4	3	3		4	4	
Permitted Phases			6			2						
Detector Phase	1	6	3	5	2	4	3	3		4	4	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0		14.0	14.0	
Total Split (s)	14.0	58.0	35.0	19.0	63.0	28.0	35.0	35.0	0.0	28.0	28.0	0.0
Total Split (%)	10.0%	41.4%	25.0%	13.6%	45.0%	20.0%	25.0%	25.0%	0.0%	20.0%	20.0%	0.0%
Maximum Green (s)	7.0	51.0	28.0	12.0	56.0	21.0	28.0	28.0		21.0	21.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Act Effct Green (s)	9.0	53.0	88.0	14.0	66.4	92.4	30.0	30.0		23.0	23.0	
Actuated g/C Ratio	0.06	0.38	0.63	0.10	0.47	0.66	0.21	0.21		0.16	0.16	
v/c Ratio	0.15	1.10	0.12	1.24	0.72	0.51	0.33	1.15		1.17	0.44	
Control Delay	65.3	98.0	10.8	199.0	33.6	12.5	49.3	143.3		144.5	58.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	65.3	98.0	10.8	199.0	33.6	12.5	49.3	143.3		144.5	58.2	
LOS	E	F	B	F	C	B	D	F		F	E	
Approach Delay		91.4			46.5			121.6			130.0	
Approach LOS		F			D			F			F	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 160
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.24
Intersection Signal Delay: 83.2 Intersection LOS: F
Intersection Capacity Utilization 101.4% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 113: US 74 & Hanover Drive

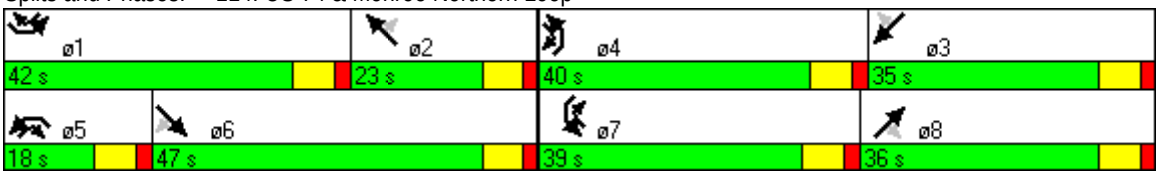


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	972	723	394	134	522	675	481	811	227	715	508	744
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3335	4940	1538	3335	4940	1538	3335	3438	1538	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	4940	1538	3335	4940	1538	3335	3438	1538	3433	3539	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		858			915			405			209	
Travel Time (s)		13.0			13.9			7.9			3.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	2%	2%	2%
Adj. Flow (vph)	1080	803	438	149	580	750	534	901	252	794	564	827
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1080	803	438	149	580	750	534	901	252	794	564	827
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	1	6	4	5	2	7	4	8	5	7	3	1
Permitted Phases			6			2			8			3
Detector Phase	1	6	4	5	2	7	4	8	5	7	3	1
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	42.0	47.0	40.0	18.0	23.0	39.0	40.0	36.0	18.0	39.0	35.0	42.0
Total Split (%)	30.0%	33.6%	28.6%	12.9%	16.4%	27.9%	28.6%	25.7%	12.9%	27.9%	25.0%	30.0%
Maximum Green (s)	35.0	40.0	33.0	11.0	16.0	32.0	33.0	29.0	11.0	32.0	28.0	35.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	37.0	42.7	77.7	12.3	18.0	57.0	30.1	31.0	48.3	34.0	34.9	76.9
Actuated g/C Ratio	0.26	0.30	0.56	0.09	0.13	0.41	0.22	0.22	0.34	0.24	0.25	0.55
v/c Ratio	1.23	0.53	0.51	0.51	0.91	1.20	0.75	1.18	0.47	0.95	0.64	0.95
Control Delay	155.0	42.1	21.5	67.1	79.9	141.1	58.0	142.6	39.4	73.6	51.6	51.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	155.0	42.1	21.5	67.1	79.9	141.1	58.0	142.6	39.4	73.6	51.6	51.5
LOS	F	D	C	E	E	F	E	F	D	E	D	D
Approach Delay		90.7			109.7			100.4			59.6	
Approach LOS		F			F			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.23			
Intersection Signal Delay: 87.6		Intersection LOS: F	
Intersection Capacity Utilization 104.4%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 114: US 74 & Monroe Northern Loop

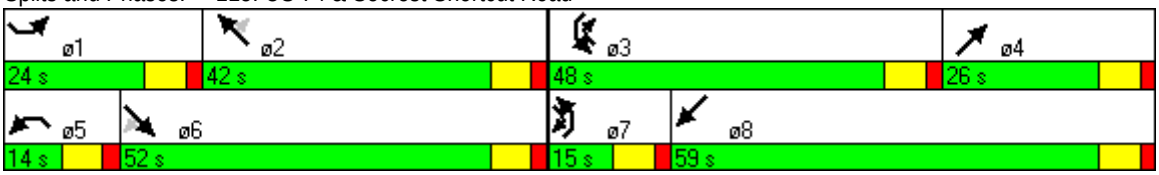


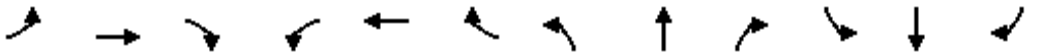
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	209	1416	55	119	1111	519	57	66	157	479	46	151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.894			0.885	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	3335	4940	1538	1770	1665	0	1770	1649	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	3335	4940	1538	1770	1665	0	1770	1649	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		413			1354			238			233	
Travel Time (s)		6.3			20.5			6.5			4.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	232	1573	61	132	1234	577	63	73	174	532	51	168
Shared Lane Traffic (%)												
Lane Group Flow (vph)	232	1573	61	132	1234	577	63	247	0	532	219	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot			Prot		
Protected Phases	1	6	7	5	2	3	7	4		3	8	
Permitted Phases			6			2						
Detector Phase	1	6	7	5	2	3	7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	7.0	7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	14.0	14.0	14.0		14.0	14.0	
Total Split (s)	24.0	52.0	15.0	14.0	42.0	48.0	15.0	26.0	0.0	48.0	59.0	0.0
Total Split (%)	17.1%	37.1%	10.7%	10.0%	30.0%	34.3%	10.7%	18.6%	0.0%	34.3%	42.1%	0.0%
Maximum Green (s)	17.0	45.0	8.0	7.0	35.0	41.0	8.0	19.0		41.0	52.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None		None	None	
Act Effct Green (s)	19.0	47.0	61.8	9.0	37.0	85.0	9.8	21.0		43.0	54.2	
Actuated g/C Ratio	0.14	0.34	0.44	0.06	0.26	0.61	0.07	0.15		0.31	0.39	
v/c Ratio	1.00	0.95	0.09	0.62	0.94	0.62	0.51	0.99		0.98	0.34	
Control Delay	117.6	58.2	23.2	76.8	65.3	20.9	77.6	112.7		81.4	32.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	117.6	58.2	23.2	76.8	65.3	20.9	77.6	112.7		81.4	32.3	
LOS	F	E	C	E	E	C	E	F		F	C	
Approach Delay		64.5			52.9			105.6			67.1	
Approach LOS		E			D			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 120			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.00			
Intersection Signal Delay: 62.9		Intersection LOS: E	
Intersection Capacity Utilization 89.5%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 115: US 74 & Secrest Shortcut Road



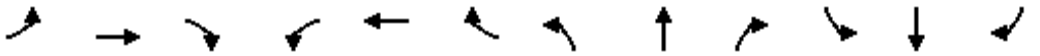


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	260	2081	253	288	1667	156	150	127	213	137	151	183
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00											
Frt		0.984			0.987			0.906			0.918	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4861	0	1719	4876	0	1770	1688	0	1770	1710	0
Flt Permitted	0.950			0.950			0.257			0.247		
Satd. Flow (perm)	1719	4861	0	1719	4876	0	479	1688	0	460	1710	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		443			590			549			636	
Travel Time (s)		6.7			8.9			15.0			12.4	
Confl. Peds. (#/hr)	1											
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	289	2312	281	320	1852	173	167	141	237	152	168	203
Shared Lane Traffic (%)												
Lane Group Flow (vph)	289	2593	0	320	2025	0	167	378	0	152	371	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Detector Phase	5	2		1	6		4	4		8	8	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	28.0	69.0	0.0	26.0	67.0	0.0	45.0	45.0	0.0	45.0	45.0	0.0
Total Split (%)	20.0%	49.3%	0.0%	18.6%	47.9%	0.0%	32.1%	32.1%	0.0%	32.1%	32.1%	0.0%
Maximum Green (s)	21.0	62.0		19.0	60.0		38.0	38.0		38.0	38.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	23.0	64.0		21.0	62.0		40.0	40.0		40.0	40.0	
Actuated g/C Ratio	0.16	0.46		0.15	0.44		0.29	0.29		0.29	0.29	
v/c Ratio	1.02	1.17		1.24	0.94		1.22	0.78		1.16	0.76	
Control Delay	116.6	115.7		184.5	46.8		189.9	58.8		172.3	57.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	116.6	115.7		184.5	46.8		189.9	58.8		172.3	57.0	
LOS	F	F		F	D		F	E		F	E	
Approach Delay		115.8			65.6			99.0			90.5	
Approach LOS		F			E			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 140			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.24			
Intersection Signal Delay: 93.5		Intersection LOS: F	
Intersection Capacity Utilization 105.9%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 120: US 74 & Stafford Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	195	2204	117	117	1801	107	159	10	195	53	10	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992			0.992			0.857			0.867	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4900	0	1719	4900	0	1770	1596	0	1770	1615	0
Flt Permitted	0.950			0.950			0.648			0.327		
Satd. Flow (perm)	1719	4900	0	1719	4900	0	1207	1596	0	609	1615	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			20	
Link Distance (ft)		493			536			238			211	
Travel Time (s)		7.5			8.1			6.5			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	217	2449	130	130	2001	119	177	11	217	59	11	87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	217	2579	0	130	2120	0	177	228	0	59	98	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			4			8	
Permitted Phases							4			8		
Detector Phase	5	2		1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	29.0	88.0	0.0	20.0	79.0	0.0	32.0	32.0	0.0	32.0	32.0	0.0
Total Split (%)	20.7%	62.9%	0.0%	14.3%	56.4%	0.0%	22.9%	22.9%	0.0%	22.9%	22.9%	0.0%
Maximum Green (s)	22.0	81.0		13.0	72.0		25.0	25.0		25.0	25.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	22.3	85.5		14.6	77.8		24.9	24.9		24.9	24.9	
Actuated g/C Ratio	0.16	0.61		0.10	0.56		0.18	0.18		0.18	0.18	
v/c Ratio	0.79	0.86		0.73	0.78		0.82	0.80		0.55	0.34	
Control Delay	77.1	26.9		83.3	27.7		84.1	76.1		71.4	53.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	77.1	26.9		83.3	27.7		84.1	76.1		71.4	53.2	
LOS	E	C		F	C		F	E		E	D	
Approach Delay		30.8			30.9			79.6			60.1	
Approach LOS		C			C			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 35.2		Intersection LOS: D	
Intersection Capacity Utilization 86.8%		ICU Level of Service E	
Analysis Period (min) 15			

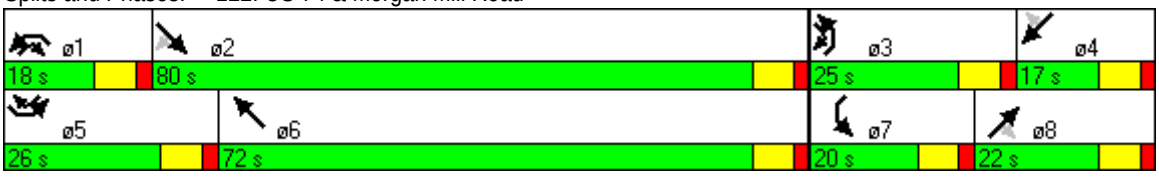
Splits and Phases: 121: US 74 & Boyte Street

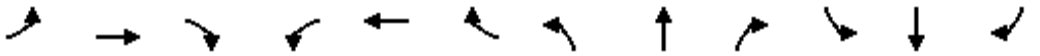
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	193	2115	174	109	1703	163	177	149	139	128	92	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.987				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	1719	4876	0	1687	1776	1509	1687	1776	1509
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	1719	4876	0	1687	1776	1509	1687	1776	1509
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		515			499			502			475	
Travel Time (s)		7.8			7.6			9.8			9.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	7%	7%	7%	7%	7%	7%
Adj. Flow (vph)	214	2350	193	121	1892	181	197	166	154	142	102	134
Shared Lane Traffic (%)												
Lane Group Flow (vph)	214	2350	193	121	2073	0	197	166	154	142	102	134
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot			Prot		pm+ov	Prot		pm+ov
Protected Phases	5	2	3	1	6		3	8	1	7	4	5
Permitted Phases			2						8			4
Detector Phase	5	2	3	1	6		3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0		7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0		14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	26.0	80.0	25.0	18.0	72.0	0.0	25.0	22.0	18.0	20.0	17.0	26.0
Total Split (%)	18.6%	57.1%	17.9%	12.9%	51.4%	0.0%	17.9%	15.7%	12.9%	14.3%	12.1%	18.6%
Maximum Green (s)	19.0	73.0	18.0	11.0	65.0		18.0	15.0	11.0	13.0	10.0	19.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max		None	None	None	None	None	None
Act Effct Green (s)	20.4	76.0	100.4	12.8	68.3		19.4	16.5	34.3	14.7	11.8	37.2
Actuated g/C Ratio	0.15	0.54	0.72	0.09	0.49		0.14	0.12	0.24	0.10	0.08	0.27
v/c Ratio	0.85	0.88	0.17	0.77	0.87		0.84	0.79	0.42	0.80	0.68	0.33
Control Delay	87.2	32.9	6.9	91.8	37.3		87.7	85.8	48.3	91.5	85.1	43.9
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	87.2	32.9	6.9	91.8	37.3		87.7	85.8	48.3	91.5	85.1	43.9
LOS	F	C	A	F	D		F	F	D	F	F	D
Approach Delay		35.3			40.3			75.4			72.9	
Approach LOS		D			D			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 43.2		Intersection LOS: D	
Intersection Capacity Utilization 79.5%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 122: US 74 & Morgan Mill Road



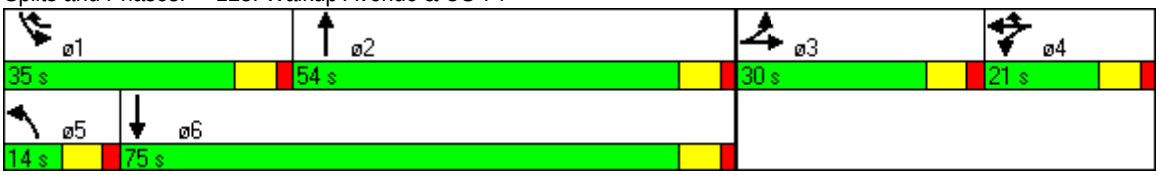


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	70	135	91	43	188	382	92	1532	31	348	1935	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.959				0.850		0.997			0.993	
Flt Protected		0.988		0.950			0.950			0.950		
Satd. Flow (prot)	0	1765	0	1770	1863	1583	1719	4925	0	1719	4905	0
Flt Permitted		0.988		0.950			0.950			0.950		
Satd. Flow (perm)	0	1765	0	1770	1863	1583	1719	4925	0	1719	4905	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			45			45	
Link Distance (ft)		443			502			602			356	
Travel Time (s)		12.1			9.8			9.1			5.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	78	150	101	48	209	424	102	1702	34	387	2150	99
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	329	0	48	209	424	102	1736	0	387	2249	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pt+ov	Prot			Prot		
Protected Phases	3	3		4	4	4 1	5	2		1	6	
Permitted Phases												
Detector Phase	3	3		4	4	4 1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0		14.0	19.0	
Total Split (s)	30.0	30.0	0.0	21.0	21.0	56.0	14.0	54.0	0.0	35.0	75.0	0.0
Total Split (%)	21.4%	21.4%	0.0%	15.0%	15.0%	40.0%	10.0%	38.6%	0.0%	25.0%	53.6%	0.0%
Maximum Green (s)	23.0	23.0		14.0	14.0		7.0	47.0		28.0	68.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lead		Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)		25.0		16.0	16.0	51.0	9.0	49.0		30.0	70.0	
Actuated g/C Ratio		0.18		0.11	0.11	0.36	0.06	0.35		0.21	0.50	
v/c Ratio		1.04		0.24	0.98	0.73	0.92	1.01		1.05	0.92	
Control Delay		117.4		59.8	118.1	47.6	129.9	68.4		113.2	39.5	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		117.4		59.8	118.1	47.6	129.9	68.4		113.2	39.5	
LOS		F		E	F	D	F	E		F	D	
Approach Delay		117.4			70.1			71.8			50.3	
Approach LOS		F			E			E			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.05			
Intersection Signal Delay: 64.0		Intersection LOS: E	
Intersection Capacity Utilization 92.7%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 123: Walkup Avenue & US 74



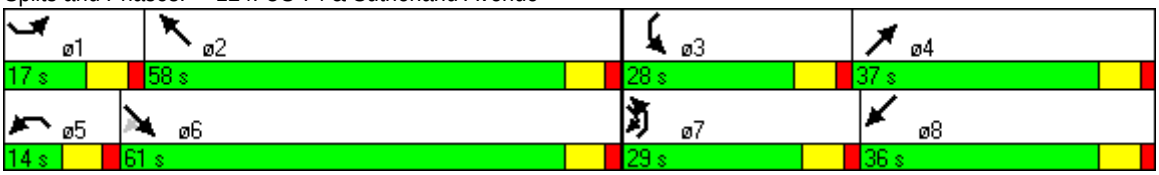
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	96	1707	196	44	1362	141	239	214	68	208	206	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.986			0.964			0.947	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4940	1538	1719	4871	0	1752	1778	0	1752	1747	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	4940	1538	1719	4871	0	1752	1778	0	1752	1747	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		425			487			426			331	
Travel Time (s)		6.4			7.4			11.6			6.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	107	1897	218	49	1513	157	266	238	76	231	229	124
Shared Lane Traffic (%)												
Lane Group Flow (vph)	107	1897	218	49	1670	0	266	314	0	231	353	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot			Prot			Prot		
Protected Phases	1	6	7	5	2		7	4		3	8	
Permitted Phases			6									
Detector Phase	1	6	7	5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0		7.0	7.0		7.0	7.0	

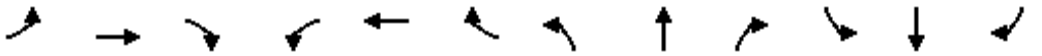
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0		14.0	14.0		14.0	14.0	
Total Split (s)	17.0	61.0	29.0	14.0	58.0	0.0	29.0	37.0	0.0	28.0	36.0	0.0
Total Split (%)	12.1%	43.6%	20.7%	10.0%	41.4%	0.0%	20.7%	26.4%	0.0%	20.0%	25.7%	0.0%
Maximum Green (s)	10.0	54.0	22.0	7.0	51.0		22.0	30.0		21.0	29.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes			Yes			Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max		None	None		None	None	
Act Effct Green (s)	11.8	59.7	88.3	9.0	54.1		23.6	32.0		22.1	30.5	
Actuated g/C Ratio	0.08	0.43	0.63	0.06	0.39		0.17	0.23		0.16	0.22	
v/c Ratio	0.74	0.90	0.22	0.44	0.89		0.90	0.77		0.83	0.93	
Control Delay	90.8	45.2	12.7	76.1	47.3		89.0	64.7		81.7	84.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	90.8	45.2	12.7	76.1	47.3		89.0	64.7		81.7	84.7	
LOS	F	D	B	E	D		F	E		F	F	
Approach Delay		44.2			48.1			75.8			83.5	
Approach LOS		D			D			E			F	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 53.6 Intersection LOS: D
Intersection Capacity Utilization 86.4% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 124: US 74 & Sutherland Avenue





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	2	28	31	31	58	135	51	1448	24	131	1803	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.922			0.895				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1717	0	1770	1667	0	1719	4940	1538	1719	4940	1538
Flt Permitted	0.362			0.715			0.950			0.950		
Satd. Flow (perm)	674	1717	0	1332	1667	0	1719	4940	1538	1719	4940	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		163			218			356			257	
Travel Time (s)		5.6			4.2			5.4			3.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	2	31	34	34	64	150	57	1609	27	146	2003	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	65	0	34	214	0	57	1609	27	146	2003	4
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm			Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Detector Phase	4	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	12.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	19.0
Total Split (s)	37.0	37.0	0.0	37.0	37.0	0.0	17.0	73.0	73.0	30.0	86.0	86.0
Total Split (%)	26.4%	26.4%	0.0%	26.4%	26.4%	0.0%	12.1%	52.1%	52.1%	21.4%	61.4%	61.4%
Maximum Green (s)	30.0	30.0		30.0	30.0		10.0	66.0	66.0	23.0	79.0	79.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	25.0	25.0		25.0	25.0		11.4	81.0	81.0	19.0	91.4	91.4
Actuated g/C Ratio	0.18	0.18		0.18	0.18		0.08	0.58	0.58	0.14	0.65	0.65
v/c Ratio	0.02	0.21		0.14	0.72		0.41	0.56	0.03	0.62	0.62	0.00
Control Delay	44.0	48.9		47.4	67.5		69.7	20.8	16.2	68.3	16.9	12.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.0	48.9		47.4	67.5		69.7	20.8	16.2	68.3	16.9	12.0
LOS	D	D		D	E		E	C	B	E	B	B
Approach Delay		48.8			64.7			22.4			20.4	
Approach LOS		D			E			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 24.3		Intersection LOS: C	
Intersection Capacity Utilization 64.5%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 125: Dove Street & US 74

Lane Group	NBU	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT
Lane Configurations												
Volume (vph)	16	1043	1058	129	170	1391	355	255	80	985	127	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.86	0.97	0.86	0.86	1.00	0.91	1.00	1.00	1.00	0.88	1.00	1.00
Frt			0.984				0.850			0.850		
Flt Protected		0.950			0.950			0.950			0.950	
Satd. Flow (prot)	0	3335	6125	0	1719	4940	1538	1752	1845	2760	1752	1845
Flt Permitted		0.950			0.950			0.950			0.950	
Satd. Flow (perm)	0	3335	6125	0	1719	4940	1538	1752	1845	2760	1752	1845
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			45			35			20
Link Distance (ft)			341			436			391			335
Travel Time (s)			5.2			6.6			7.6			11.4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%
Adj. Flow (vph)	18	1159	1176	143	189	1546	394	283	89	1094	141	93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1177	1319	0	189	1546	394	283	89	1094	141	93
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			24			24			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1	1	2		1	2	1	1	2	1	1	2
Detector Template	Left	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru
Leading Detector (ft)	20	20	100		20	100	20	20	100	20	20	100
Trailing Detector (ft)	0	0	0		0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0		0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	6		20	6	20	20	6	20	20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94			94			94			94
Detector 2 Size(ft)			6			6			6			6
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			0.0
Turn Type	Prot	Prot			Prot		pm+ov	Split		Prot	Split	
Protected Phases	5	5	2		1	6	4	4	4	4	3	3
Permitted Phases							6					
Detector Phase	5	5	2		1	6	4	4	4	4	3	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	12.0		7.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SWR
Lane Configurations	
Volume (vph)	128
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1568
Flt Permitted	
Satd. Flow (perm)	1568
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	3%
Adj. Flow (vph)	142
Shared Lane Traffic (%)	
Lane Group Flow (vph)	142
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	pt+ov
Protected Phases	3 1
Permitted Phases	
Detector Phase	3 1
Switch Phase	
Minimum Initial (s)	

Lane Group	NBU	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT
Minimum Split (s)	14.0	14.0	19.0		14.0	19.0	14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	40.0	40.0	52.0	0.0	30.0	42.0	44.0	44.0	44.0	44.0	14.0	14.0
Total Split (%)	28.6%	28.6%	37.1%	0.0%	21.4%	30.0%	31.4%	31.4%	31.4%	31.4%	10.0%	10.0%
Maximum Green (s)	33.0	33.0	45.0		23.0	35.0	37.0	37.0	37.0	37.0	7.0	7.0
Yellow Time (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag		Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max		None	C-Max	None	None	None	None	None	None
Act Effct Green (s)		35.0	50.5		21.5	37.0	76.0	39.0	39.0	39.0	9.0	9.0
Actuated g/C Ratio		0.25	0.36		0.15	0.26	0.54	0.28	0.28	0.28	0.06	0.06
v/c Ratio		1.41	0.60		0.72	1.18	0.47	0.58	0.17	1.42	1.25	0.78
Control Delay		231.0	38.4		71.2	135.4	13.6	49.1	39.4	235.2	216.7	103.2
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		231.0	38.4		71.2	135.4	13.6	49.1	39.4	235.2	216.7	103.2
LOS		F	D		E	F	B	D	D	F	F	F
Approach Delay			129.2			107.2			187.4			117.1
Approach LOS			F			F			F			F

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 170			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.42			
Intersection Signal Delay: 134.4		Intersection LOS: F	
Intersection Capacity Utilization 115.2%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 126: US 74 & E. Franklin Street

Lane Group	SWR
Minimum Split (s)	
Total Split (s)	44.0
Total Split (%)	31.4%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Act Effct Green (s)	30.5
Actuated g/C Ratio	0.22
v/c Ratio	0.42
Control Delay	27.4
Queue Delay	0.0
Total Delay	27.4
LOS	C
Approach Delay	
Approach LOS	

Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	10	0	1305	1546	312	1093	39	918	0	231	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.91	0.91	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.995			0.938			
Flt Protected	0.950				0.950			0.950	0.971			
Satd. Flow (prot)	1719	0	4940	1538	1736	4963	0	1504	1442	0	0	0
Flt Permitted	0.950				0.950			0.950	0.971			
Satd. Flow (perm)	1719	0	4940	1538	1736	4963	0	1504	1442	0	0	0
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			45			55			45			25
Link Distance (ft)			239			375			459			145
Travel Time (s)			3.6			4.6			7.0			4.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	4%	4%	4%	14%	14%	14%	2%	2%
Adj. Flow (vph)	11	0	1450	1718	347	1214	43	1020	0	257	0	0
Shared Lane Traffic (%)								36%				
Lane Group Flow (vph)	11	0	1450	1718	347	1257	0	653	624	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			12			12			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1		2	1	1	2		1	2			
Detector Template	Left		Thru	Right	Left	Thru		Left	Thru			
Leading Detector (ft)	20		100	20	20	100		20	100			
Trailing Detector (ft)	0		0	0	0	0		0	0			
Detector 1 Position(ft)	0		0	0	0	0		0	0			
Detector 1 Size(ft)	20		6	20	20	6		20	6			
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Detector 2 Position(ft)			94			94			94			
Detector 2 Size(ft)			6			6			6			
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			
Turn Type	Prot			pm+ov	Prot			Split				
Protected Phases	5		2	8	1	6		8	8			
Permitted Phases				2								
Detector Phase	5		2	8	1	6		8	8			
Switch Phase												
Minimum Initial (s)	7.0		12.0	12.0	7.0	14.0		12.0	12.0			

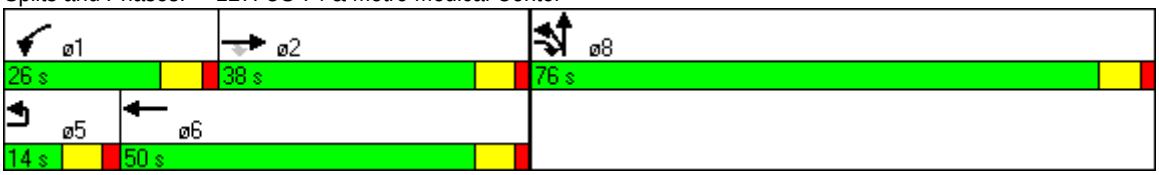
Lane Group	SBR
Lane Configurations	
Volume (vph)	25
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.865
Flt Protected	
Satd. Flow (prot)	1611
Flt Permitted	
Satd. Flow (perm)	1611
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	2%
Adj. Flow (vph)	28
Shared Lane Traffic (%)	
Lane Group Flow (vph)	28
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Detector Phase	
Switch Phase	
Minimum Initial (s)	

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Minimum Split (s)	14.0		19.0	19.0	14.0	21.0		19.0	19.0			
Total Split (s)	14.0	0.0	38.0	76.0	26.0	50.0	0.0	76.0	76.0	0.0	0.0	0.0
Total Split (%)	10.0%	0.0%	27.1%	54.3%	18.6%	35.7%	0.0%	54.3%	54.3%	0.0%	0.0%	0.0%
Maximum Green (s)	7.0		31.0	69.0	19.0	43.0		69.0	69.0			
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0		5.0	5.0			
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0		2.0	2.0			
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	2.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	2.0	2.0
Lead/Lag	Lead		Lag		Lead	Lag						
Lead-Lag Optimize?			Yes			Yes						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0		3.0	3.0			
Recall Mode	None		C-Max	None	None	C-Max		None	None			
Act Effct Green (s)	9.0		33.0	109.0	21.0	53.4		71.0	71.0			
Actuated g/C Ratio	0.06		0.24	0.78	0.15	0.38		0.51	0.51			
v/c Ratio	0.10		1.25	1.44	1.33	0.66		0.86	0.85			
Control Delay	63.9		161.9	220.9	218.9	39.0		42.9	43.1			
Queue Delay	0.0		0.0	0.0	0.0	0.0		0.0	0.0			
Total Delay	63.9		161.9	220.9	218.9	39.0		42.9	43.1			
LOS	E		F	F	F	D		D	D			
Approach Delay			193.4			77.9			43.0			
Approach LOS			F			E			D			

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.44
Intersection Signal Delay: 130.6 Intersection LOS: F
Intersection Capacity Utilization 121.3% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 127: US 74 & Metro Medical Center



Lane Group	SBR
Minimum Split (s)	
Total Split (s)	0.0
Total Split (%)	0.0%
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	2.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Act Effct Green (s)	140.0
Actuated g/C Ratio	1.00
v/c Ratio	0.02
Control Delay	0.0
Queue Delay	0.0
Total Delay	0.0
LOS	A
Approach Delay	
Approach LOS	

Intersection Summary

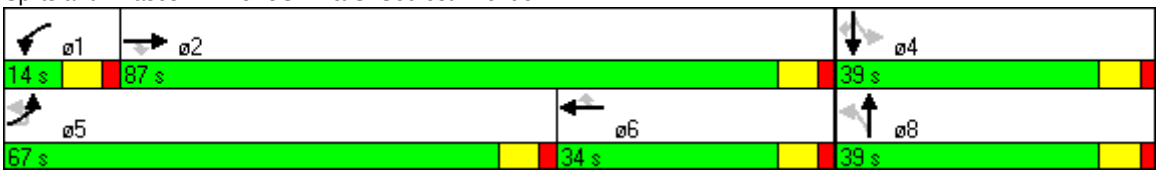
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	29	165	1322	47	9	1051	109	36	99	9	249	238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850			0.850		0.992			
Flt Protected		0.950			0.950				0.988			0.975
Satd. Flow (prot)	0	1736	3471	1553	1736	3471	1553	0	1826	0	0	1816
Flt Permitted		0.065			0.950				0.155			0.680
Satd. Flow (perm)	0	119	3471	1553	1736	3471	1553	0	286	0	0	1267
Right Turn on Red				No			No			No		
Satd. Flow (RTOR)												
Link Speed (mph)			55			55			35			35
Link Distance (ft)			411			374			242			283
Travel Time (s)			5.1			4.6			4.7			5.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%
Adj. Flow (vph)	32	183	1469	52	10	1168	121	40	110	10	277	264
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	215	1469	52	10	1168	121	0	160	0	0	541
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			12			12			0			0
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			0			0			0			0
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Number of Detectors	1	1	2	1	1	2	1	1	2		1	2
Detector Template	Left	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru
Leading Detector (ft)	20	20	100	20	20	100	20	20	100		20	100
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0		0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0		0	0
Detector 1 Size(ft)	20	20	6	20	20	6	20	20	6		20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)			94			94			94			94
Detector 2 Size(ft)			6			6			6			6
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			0.0
Turn Type	custom	Prot		Perm	Prot		Perm	Perm			Perm	
Protected Phases		5	2		1	6			8			4
Permitted Phases	5			2			6	8			4	
Detector Phase	5	5	2	2	1	6	6	8	8		4	4
Switch Phase												
Minimum Initial (s)	7.0	7.0	14.0	14.0	7.0	14.0	14.0	7.0	7.0		7.0	7.0

Lane Group	SBR
Lane Configurations	
Volume (vph)	300
Ideal Flow (vphpl)	1900
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	2%
Adj. Flow (vph)	333
Shared Lane Traffic (%)	
Lane Group Flow (vph)	333
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	1
Detector Template	Right
Leading Detector (ft)	20
Trailing Detector (ft)	0
Detector 1 Position(ft)	0
Detector 1 Size(ft)	20
Detector 1 Type	Cl+Ex
Detector 1 Channel	
Detector 1 Extend (s)	0.0
Detector 1 Queue (s)	0.0
Detector 1 Delay (s)	0.0
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Detector Phase	4
Switch Phase	
Minimum Initial (s)	7.0

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Minimum Split (s)	14.0	14.0	21.0	21.0	14.0	21.0	21.0	14.0	14.0		14.0	14.0
Total Split (s)	67.0	67.0	87.0	87.0	14.0	34.0	34.0	39.0	39.0	0.0	39.0	39.0
Total Split (%)	47.9%	47.9%	62.1%	62.1%	10.0%	24.3%	24.3%	27.9%	27.9%	0.0%	27.9%	27.9%
Maximum Green (s)	60.0	60.0	80.0	80.0	7.0	27.0	27.0	32.0	32.0		32.0	32.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Time Before Reduce (s)	0.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0	0.0		0.0	0.0
Time To Reduce (s)	0.0	0.0	50.0	50.0	0.0	50.0	50.0	0.0	0.0		0.0	0.0
Recall Mode	None	None	C-Min	C-Min	None	C-Min	C-Min	None	None		None	None
Act Effct Green (s)		62.0	93.2	93.2	9.0	29.0	29.0		34.0			34.0
Actuated g/C Ratio		0.44	0.67	0.67	0.06	0.21	0.21		0.24			0.24
v/c Ratio		4.06	0.64	0.05	0.09	1.62	0.38		2.32			1.76
Control Delay		1432.7	15.9	9.4	63.7	322.6	51.7		660.8			385.4
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0
Total Delay		1432.7	15.9	9.4	63.7	322.6	51.7		660.8			385.4
LOS		F	B	A	E	F	D		F			F
Approach Delay			191.2			295.4			660.8			266.6
Approach LOS			F			F			F			F

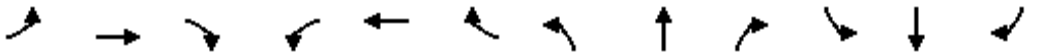
Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 4.06			
Intersection Signal Delay: 259.1		Intersection LOS: F	
Intersection Capacity Utilization 92.4%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 128: US 74 & S. Secrest Avenue



Lane Group	SBR
Minimum Split (s)	14.0
Total Split (s)	39.0
Total Split (%)	27.9%
Maximum Green (s)	32.0
Yellow Time (s)	5.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	-2.0
Total Lost Time (s)	5.0
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Minimum Gap (s)	3.0
Time Before Reduce (s)	0.0
Time To Reduce (s)	0.0
Recall Mode	None
Act Effct Green (s)	34.0
Actuated g/C Ratio	0.24
v/c Ratio	0.87
Control Delay	73.6
Queue Delay	0.0
Total Delay	73.6
LOS	E
Approach Delay	
Approach LOS	

Intersection Summary

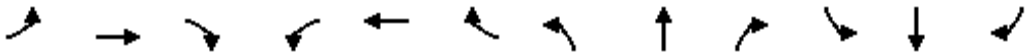


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	79	1376	20	3	1109	58	32	20	6	101	18	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.993			0.985				0.850
Flt Protected	0.950			0.950				0.973			0.959	
Satd. Flow (prot)	1736	3464	0	1736	3447	0	0	1785	0	0	1786	1583
Flt Permitted	0.950			0.950				0.669			0.722	
Satd. Flow (perm)	1736	3464	0	1736	3447	0	0	1227	0	0	1345	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			20			25	
Link Distance (ft)		242			246			170			270	
Travel Time (s)		4.7			4.8			5.8			7.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	88	1529	22	3	1232	64	36	22	7	112	20	122
Shared Lane Traffic (%)												
Lane Group Flow (vph)	88	1551	0	3	1296	0	0	65	0	0	132	122
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		pm+ov
Protected Phases	5	2		1	6			8			4	5
Permitted Phases							8			4		4
Detector Phase	5	2		1	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	17.0		14.0	17.0		14.0	14.0		14.0	14.0	14.0
Total Split (s)	20.0	95.0	0.0	14.0	89.0	0.0	31.0	31.0	0.0	31.0	31.0	20.0
Total Split (%)	14.3%	67.9%	0.0%	10.0%	63.6%	0.0%	22.1%	22.1%	0.0%	22.1%	22.1%	14.3%
Maximum Green (s)	13.0	88.0		7.0	82.0		24.0	24.0		24.0	24.0	13.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None
Act Effct Green (s)	13.9	106.3		9.0	90.2			20.9			20.9	39.8
Actuated g/C Ratio	0.10	0.76		0.06	0.64			0.15			0.15	0.28
v/c Ratio	0.51	0.59		0.03	0.58			0.36			0.66	0.27
Control Delay	69.9	10.1		62.0	16.7			57.1			70.7	38.5
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Delay	69.9	10.1		62.0	16.7			57.1			70.7	38.5
LOS	E	B		E	B			E			E	D
Approach Delay		13.3			16.8			57.1			55.3	
Approach LOS		B			B			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 18.8		Intersection LOS: B	
Intersection Capacity Utilization 66.9%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 129: US 74 & Bivens Street

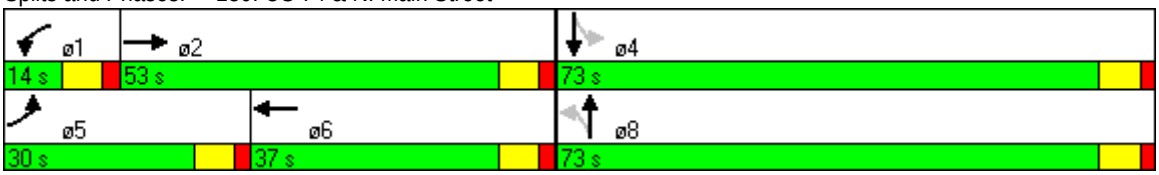


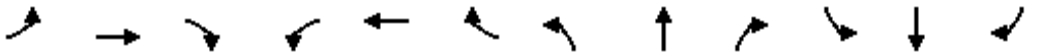
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	361	1016	54	51	795	77	43	280	52	102	369	376
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992			0.987			0.981			0.924	
Flt Protected	0.950			0.950				0.994		0.950		
Satd. Flow (prot)	1736	3443	0	1736	3426	0	0	1816	0	1770	1721	0
Flt Permitted	0.950			0.950				0.335		0.444		
Satd. Flow (perm)	1736	3443	0	1736	3426	0	0	612	0	827	1721	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		282			333			173			197	
Travel Time (s)		5.5			6.5			3.4			3.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	401	1129	60	57	883	86	48	311	58	113	410	418
Shared Lane Traffic (%)												
Lane Group Flow (vph)	401	1189	0	57	969	0	0	417	0	113	828	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	17.0		14.0	17.0		14.0	14.0		14.0	14.0	
Total Split (s)	30.0	53.0	0.0	14.0	37.0	0.0	73.0	73.0	0.0	73.0	73.0	0.0
Total Split (%)	21.4%	37.9%	0.0%	10.0%	26.4%	0.0%	52.1%	52.1%	0.0%	52.1%	52.1%	0.0%
Maximum Green (s)	23.0	46.0		7.0	30.0		66.0	66.0		66.0	66.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	None		None	None		None	None	
Act Effct Green (s)	25.0	50.8		9.0	32.0			68.0		68.0	68.0	
Actuated g/C Ratio	0.18	0.36		0.06	0.23			0.49		0.49	0.49	
v/c Ratio	1.29	0.95		0.51	1.24			1.40		0.28	0.99	
Control Delay	198.8	60.2		79.7	162.3			231.4		23.9	64.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	198.8	60.2		79.7	162.3			231.4		23.9	64.7	
LOS	F	E		E	F			F		C	E	
Approach Delay		95.2			157.7			231.4			59.8	
Approach LOS		F			F			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT, Start of Green			
Natural Cycle: 160			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.40			
Intersection Signal Delay: 117.2		Intersection LOS: F	
Intersection Capacity Utilization 111.6%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 130: US 74 & N. Main Street





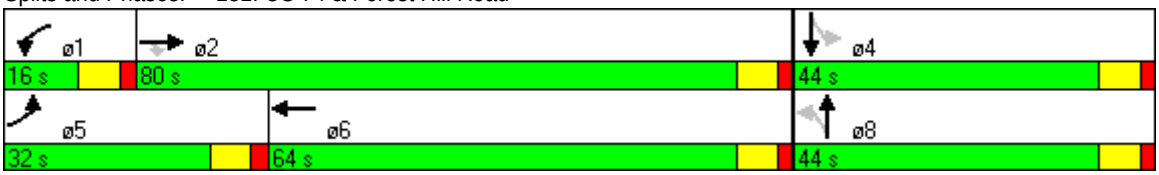
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	137	885	86	15	720	9	79	32	17	9	28	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.998			0.982			0.899	
Flt Protected	0.950			0.950				0.970			0.997	
Satd. Flow (prot)	1736	3471	1553	1736	3464	0	0	1691	0	0	1637	0
Flt Permitted	0.950			0.950				0.527			0.979	
Satd. Flow (perm)	1736	3471	1553	1736	3464	0	0	919	0	0	1608	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			35	
Link Distance (ft)		576			646			376			353	
Travel Time (s)		7.1			8.0			4.7			6.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	7%	7%	7%	4%	4%	4%
Adj. Flow (vph)	152	983	96	17	800	10	88	36	19	10	31	121
Shared Lane Traffic (%)												
Lane Group Flow (vph)	152	983	96	17	810	0	0	143	0	0	162	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		Perm	Prot			Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8			4		
Detector Phase	5	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	14.0	14.0	7.0	14.0		7.0	7.0		7.0	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	21.0	21.0	14.0	21.0		14.0	14.0		14.0	14.0	
Total Split (s)	32.0	80.0	80.0	16.0	64.0	0.0	44.0	44.0	0.0	44.0	44.0	0.0
Total Split (%)	22.9%	57.1%	57.1%	11.4%	45.7%	0.0%	31.4%	31.4%	0.0%	31.4%	31.4%	0.0%
Maximum Green (s)	25.0	73.0	73.0	9.0	57.0		37.0	37.0		37.0	37.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	
Act Effct Green (s)	19.5	98.9	98.9	9.5	80.5			25.0			25.0	
Actuated g/C Ratio	0.14	0.71	0.71	0.07	0.58			0.18			0.18	
v/c Ratio	0.63	0.40	0.09	0.14	0.41			0.87			0.56	
Control Delay	67.8	11.0	9.5	63.9	19.1			97.6			58.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Delay	67.8	11.0	9.5	63.9	19.1			97.6			58.9	
LOS	E	B	A	E	B			F			E	
Approach Delay		17.9			20.0			97.6			58.9	
Approach LOS		B			B			F			E	

Intersection Summary

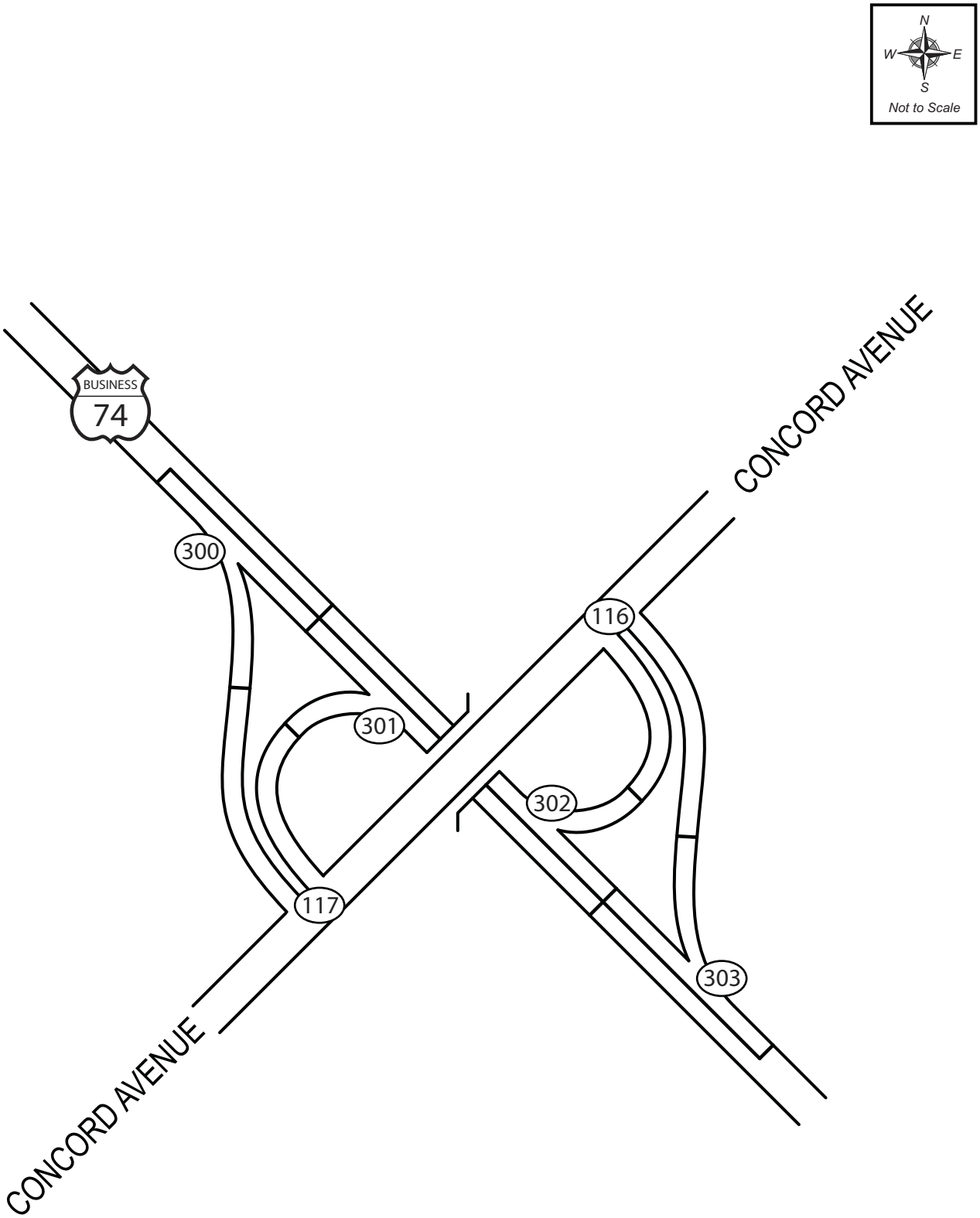
Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 26.3 Intersection LOS: C
Intersection Capacity Utilization 62.7% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 131: US 74 & Forest Hill Road



E-9-3

Business US 74 / Concord Ave I/C



NORTH CAROLINA Turnpike Authority

MONROE CONNECTOR / BYPASS

TIP Project Numbers R-3329 & R-2559

Mecklenburg and Union Counties

Business US 74 Corridor
Concord Avenue
Key Sheet

Appendix E

KeySheetUS74CorridorConcordAve.ai

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*WB US 74 Ramp at Concord Ave*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 3A*
Analysis Time Period	*AM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *WB US 74 Ramp*	North/South Street: *Concord Ave.*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*370*	*114*	*106*	*431*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*411*	*126*	*117*	*478*	*0*
Percent Heavy Vehicles		--	--	*4*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*183*	*0*	*67*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*203*	*0*	*74*	*0*	*0*	*0*
Percent Heavy Vehicles	*5*		*5*			
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (vph)		*117*		*277*				
C (m) (vph)		*1021*		*223*				
v/c		*0.11*		*1.24*				
95% queue length		*0.39*		*14.11*				
Control Delay		*9.0*		*185.1*				
LOS		*A*		*F*				
Approach Delay	--	--	*185.1*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*WB US 74 Ramp at Concord Ave*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 3A*
Analysis Time Period	*PM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *WB US 74 Ramp*	North/South Street: *Concord Ave.*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*469*	*116*	*86*	*352*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*521*	*128*	*95*	*391*	*0*
Percent Heavy Vehicles		--	--	*4*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*145*	*0*	*68*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*161*	*0*	*75*	*0*	*0*	*0*
Percent Heavy Vehicles	*5*		*5*			
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (vph)		*95*		*236*				
C (m) (vph)		*927*		*236*				
v/c		*0.10*		*1.00*				
95% queue length		*0.34*		*9.41*				
Control Delay		*9.3*		*103.1*				
LOS		*A*		*F*				
Approach Delay	--	--	*103.1*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*EB US 74 Ramp at Concord Ave*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 3A*
Analysis Time Period	*AM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *EB US 74 Ramp*	North/South Street: *Concord Ave.*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*145*	*399*			*546*	*68*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*161*	*443*	*0*	*0*	*606*	*75*
Percent Heavy Vehicles	*4*	--	--		--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume		*0*		*85*	*0*	*116*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*94*	*0*	*128*
Percent Heavy Vehicles				*5*		*5*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*161*						*222*	
C (m) (vph)	*902*						*214*	
v/c	*0.18*						*1.04*	
95% queue length	*0.65*						*9.64*	
Control Delay	*9.9*						*119.2*	
LOS	*A*						*F*	
Approach Delay	--	--				*119.2*		
Approach LOS	--	--				*F*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*EB US 74 Ramp at Concord Ave*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 3A*
Analysis Time Period	*PM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *EB US 74 Ramp*	North/South Street: *Concord Ave.*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*183*	*479*			*430*	*67*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*203*	*532*	*0*	*0*	*477*	*74*
Percent Heavy Vehicles	*4*	--	--		--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume		*0*		*106*	*0*	*114*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*117*	*0*	*126*
Percent Heavy Vehicles				*5*		*5*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*203*						*243*	
C (m) (vph)	*1009*						*192*	
v/c	*0.20*						*1.27*	
95% queue length	*0.75*						*13.25*	
Control Delay	*9.5*						*202.9*	
LOS	*A*						*F*	
Approach Delay	--	--				*202.9*		
Approach LOS	--	--				*F*		

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Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB off to Concord Ave.
Junction:	300
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3A
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1716	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	201	vph
Length of first accel/decel lane	680	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	213	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1716	201	213	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	477	56	59	v
Trucks and buses	5	5	4	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.943	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2050	240	251	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.698 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1503 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2050	6750	No
v_{12}	1503	4400	No
$v_{FO} = v_F - v_R$	1810	6750	No
v_R	240	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 11.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.385

Space mean speed in ramp influence area, S_R = 50.0 mph

Space mean speed in outer lanes, S_0 = 60.3 mph

Space mean speed for all vehicles, S = 52.4 mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB off to Concord Ave.
Junction:	300
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3A
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2090	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	220	vph
Length of first accel/decel lane	680	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	250	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2090	220	250	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	581	61	69	v
Trucks and buses	5	5	4	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.943	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2496	263	294	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.686 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1794 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2496	6750	No
v_{12}	1794	4400	No
$v_{FO} = v_F - v_R$	2233	6750	No
v_R	263	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 13.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.387	
Space mean speed in ramp influence area,	S_R = 50.0	mph
Space mean speed in outer lanes,	S_0 = 60.3	mph
Space mean speed for all vehicles,	S = 52.5	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB on from Concord Ave.
Junction:	301
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3A
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1515	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	213	vph
Length of first accel/decel lane	100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	201	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1515	213	201	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	421	59	56	v
Trucks and buses	5	4	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1810	251	240	pcph

Estimation of V12 Merge Areas

L_{EQ} = -609.55 (Equation 25-2 or 25-3)

P_{FM} = 0.580 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1050 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2061	6750	No
v_{R12}	1301	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 14.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.330	
Space mean speed in ramp influence area,	S_R = 50.7	mph
Space mean speed in outer lanes,	S_O = 54.1	mph
Space mean speed for all vehicles,	S = 51.9	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB on from Concord Ave.
Junction:	301
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3A
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1870	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	250	vph
Length of first accel/decel lane	100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	220	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1870	250	220	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	519	69	61	v
Trucks and buses	5	4	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2234	294	263	pcph

Estimation of V12 Merge Areas

L_{EQ} = -509.61 (Equation 25-2 or 25-3)

P_{FM} = 0.580 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1296 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2528	6750	No
v_{R12}	1590	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 17.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.335	
Space mean speed in ramp influence area,	S_R = 50.6	mph
Space mean speed in outer lanes,	S_O = 53.4	mph
Space mean speed for all vehicles,	S = 51.6	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB on from Concord Ave.
Junction:	302
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3A
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1870	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	220	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	250	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1870	220	250	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	519	61	69	v
Trucks and buses	5	4	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2234	259	299	pcph

Estimation of V12 Merge Areas

L_{EQ} = -428.30 (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1309 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2493	6750	No
v_{R12}	1568	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 15.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.325	
Space mean speed in ramp influence area,	S_R = 50.8	mph
Space mean speed in outer lanes,	S_O = 53.5	mph
Space mean speed for all vehicles,	S = 51.7	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB on from Concord Ave.
Junction:	302
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3A
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1515	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	202	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	213	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1515	202	213	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	421	56	59	v
Trucks and buses	5	4	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.943	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1810	238	254	pcph

Estimation of V12 Merge Areas

L_{EQ} = -523.53 (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1060 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2048	6750	No
v_{R12}	1298	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 13.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.320

Space mean speed in ramp influence area, S_R = 50.8 mph

Space mean speed in outer lanes, S_O = 54.1 mph

Space mean speed for all vehicles, S = 52.0 mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB off to Concord Ave.
Junction:	303
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3A
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2120	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	250	vph
Length of first accel/decel lane	680	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	220	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2120	250	220	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	589	69	61	v
Trucks and buses	5	5	4	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.943	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2532	299	259	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.683 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1824 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2532	6750	No
v_{12}	1824	4400	No
$v_{FO} = v_F - v_R$	2233	6750	No
v_R	299	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 13.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.390	
Space mean speed in ramp influence area,	S_R = 49.9	mph
Space mean speed in outer lanes,	S_O = 60.3	mph
Space mean speed for all vehicles,	S = 52.5	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB off to Concord Ave.
Junction:	303
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3A
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1728	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	213	vph
Length of first accel/decel lane	680	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	202	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1728	213	202	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	480	59	56	v
Trucks and buses	5	5	4	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.943	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2064	254	238	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.697 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1515 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2064	6750	No
v_{12}	1515	4400	No
$v_{FO} = v_F - v_R$	1810	6750	No
v_R	254	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 11.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.386

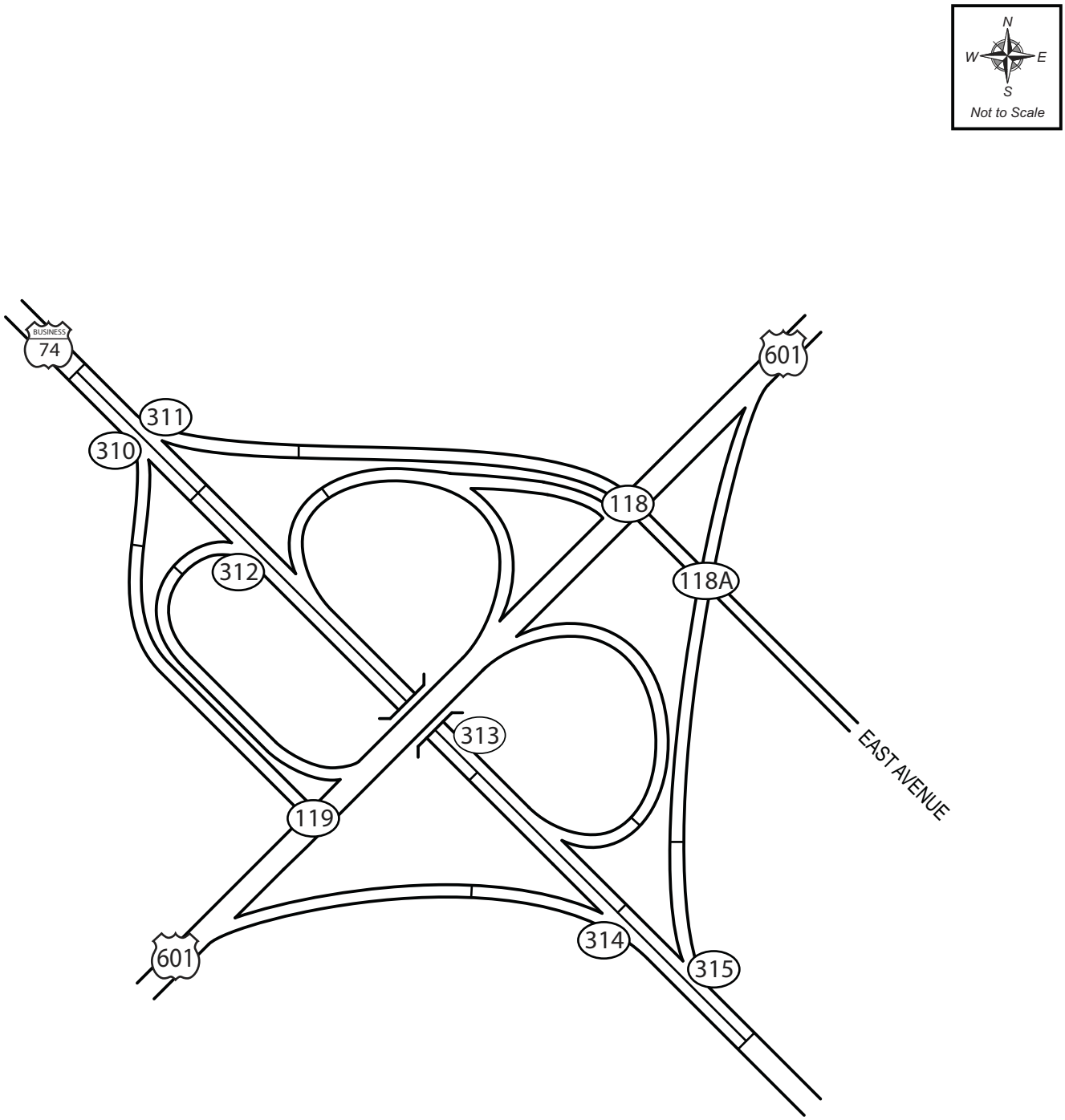
Space mean speed in ramp influence area, S_R = 50.0 mph

Space mean speed in outer lanes, S_0 = 60.3 mph

Space mean speed for all vehicles, S = 52.4 mph

E-9-4

Business US 74 / US 601I/C



NORTH CAROLINA Turnpike Authority

MONROE CONNECTOR / BYPASS

TIP Project Numbers R-3329 & R-2559

Mecklenburg and Union Counties

Business US 74 Corridor
US 601
Key Sheet

Appendix E

KeySheetUS74CorridorUS601.ai

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*East Ave. at US 74 Off Ramp*
Agency/Co.	*PBS&J*	Jurisdiction	*118A*
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 3A*
Analysis Time Period	*AM Peak Hour*		
Project Description	*Monroe Connector/Bypass*		
East/West Street:	*East Ave.*	North/South Street:	*US 74 Off Ramp*
Intersection Orientation:	*North-South*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*10*	*490*	*10*			
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*11*	*544*	*11*	*0*	*0*	*0*
Percent Heavy Vehicles	*5*	--	--		--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration	*LTR*					
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume		*120*	*150*	*10*	*270*	
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*133*	*166*	*11*	*300*	*0*
Percent Heavy Vehicles		*5*	*5*	*8*	*8*	
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*				*TR*	*LT*		
v (vph)	*11*				*299*	*311*		
C (m) (vph)	*1604*				*475*	*395*		
v/c	*0.01*				*0.63*	*0.79*		
95% queue length	*0.02*				*4.27*	*6.76*		
Control Delay	*7.3*				*24.6*	*40.6*		
LOS	*A*				*C*	*E*		
Approach Delay	--	--	*24.6*			*40.6*		
Approach LOS	--	--	*C*			*E*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*East Ave. at US 74 Off Ramp*
Agency/Co.	*PBS&J*	Jurisdiction	*118A*
Date Performed	*4/30/08*	Analysis Year	*2035 Build Alternative 3A*
Analysis Time Period	*PM Peak Hour*		
Project Description	*Monroe Connector/Bypass*		
East/West Street:	*East Ave.*	North/South Street:	*US 74 Off Ramp*
Intersection Orientation:	*North-South*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*10*	*375*	*10*			
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*11*	*416*	*11*	*0*	*0*	*0*
Percent Heavy Vehicles	*5*	--	--		--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration	*LTR*					
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume		*150*	*150*	*10*	*290*	
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*166*	*166*	*11*	*322*	*0*
Percent Heavy Vehicles		*5*	*5*	*8*	*8*	
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*				*TR*	*LT*		
v (vph)	*11*				*332*	*333*		
C (m) (vph)	*1604*				*555*	*471*		
v/c	*0.01*				*0.60*	*0.71*		
95% queue length	*0.02*				*3.92*	*5.49*		
Control Delay	*7.3*				*20.7*	*29.0*		
LOS	*A*				*C*	*D*		
Approach Delay	--	--	*20.7*			*29.0*		
Approach LOS	--	--	*C*			*D*		

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Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	10	10	10	120	10	0	10	689	150	120	639	319
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.955							0.850			0.850
Flt Protected		0.984		0.950			0.950			0.950		
Satd. Flow (prot)	0	1700	0	1719	1810	0	1671	3343	1495	1671	3343	1495
Flt Permitted		0.984		0.950			0.950			0.950		
Satd. Flow (perm)	0	1700	0	1719	1810	0	1671	3343	1495	1671	3343	1495
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		412			451			446			441	
Travel Time (s)		8.0			8.8			6.8			6.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	8%	8%	8%	8%	8%	8%
Adj. Flow (vph)	11	11	11	133	11	0	11	766	167	133	710	354
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	33	0	133	11	0	11	766	167	133	710	354
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split			Prot		Perm	Prot		pm+ov
Protected Phases	4	4		8	8		5	2		1	6	4
Permitted Phases									2			6
Detector Phase	4	4		8	8		5	2	2	1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	14.0
Total Split (s)	20.0	20.0	0.0	22.0	22.0	0.0	14.0	46.0	46.0	22.0	54.0	20.0
Total Split (%)	18.2%	18.2%	0.0%	20.0%	20.0%	0.0%	12.7%	41.8%	41.8%	20.0%	49.1%	18.2%
Maximum Green (s)	13.0	13.0		15.0	15.0		7.0	39.0	39.0	15.0	47.0	13.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	None	None
Act Effct Green (s)		10.2		15.3	15.3		9.0	49.6	49.6	14.8	66.7	81.9
Actuated g/C Ratio		0.09		0.14	0.14		0.08	0.45	0.45	0.13	0.61	0.74
v/c Ratio		0.21		0.56	0.04		0.08	0.51	0.25	0.59	0.35	0.32
Control Delay		48.7		52.7	39.3		48.2	24.4	21.9	55.4	13.1	6.9
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		48.7		52.7	39.3		48.2	24.4	21.9	55.4	13.1	6.9
LOS		D		D	D		D	C	C	E	B	A
Approach Delay		48.7			51.6			24.2			16.0	
Approach LOS		D			D			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 2:NET, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 22.0		Intersection LOS: C	
Intersection Capacity Utilization 51.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 118: US 74 Ramps & US 601

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (vph)	325	147	0	713	677	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	3335	1538	0	3343	3343	0
Flt Permitted	0.950					
Satd. Flow (perm)	3335	1538	0	3343	3343	0
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	35			45	45	
Link Distance (ft)	529			486	575	
Travel Time (s)	10.3			7.4	8.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	8%	8%	8%	8%
Adj. Flow (vph)	361	163	0	792	752	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	361	163	0	792	752	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (ft)	20	20		100	100	
Trailing Detector (ft)	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	
Detector 1 Size(ft)	20	20		6	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type		Perm				
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						
Minimum Initial (s)	7.0	7.0		12.0	12.0	

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Minimum Split (s)	14.0	14.0		19.0	19.0	
Total Split (s)	42.0	42.0	0.0	68.0	68.0	0.0
Total Split (%)	38.2%	38.2%	0.0%	61.8%	61.8%	0.0%
Maximum Green (s)	35.0	35.0		61.0	61.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		C-Max	C-Max	
Act Effct Green (s)	37.0	37.0		63.0	63.0	
Actuated g/C Ratio	0.34	0.34		0.57	0.57	
v/c Ratio	0.32	0.32		0.41	0.39	
Control Delay	28.2	29.2		14.0	13.7	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	28.2	29.2		14.0	13.7	
LOS	C	C		B	B	
Approach Delay	28.5			14.0	13.7	
Approach LOS	C			B	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 2:NET and 6:SWT, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.41			
Intersection Signal Delay: 17.6		Intersection LOS: B	
Intersection Capacity Utilization 37.3%		ICU Level of Service A	
Analysis Period (min) 15			

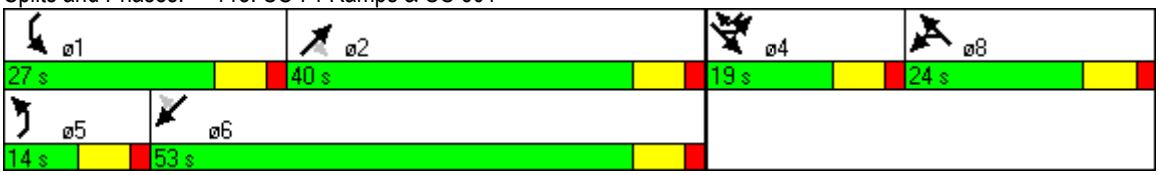
Splits and Phases: 119: EB US 74 Off Ramp & US 601

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	10	10	10	150	10	0	10	583	120	170	854	325
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.955							0.850			0.850
Flt Protected		0.984		0.950			0.950			0.950		
Satd. Flow (prot)	0	1700	0	1719	1810	0	1671	3343	1495	1671	3343	1495
Flt Permitted		0.984		0.950			0.950			0.950		
Satd. Flow (perm)	0	1700	0	1719	1810	0	1671	3343	1495	1671	3343	1495
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		412			451			446			441	
Travel Time (s)		8.0			8.8			6.8			6.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	8%	8%	8%	8%	8%	8%
Adj. Flow (vph)	11	11	11	167	11	0	11	648	133	189	949	361
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	33	0	167	11	0	11	648	133	189	949	361
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split			Prot		Perm	Prot		pm+ov
Protected Phases	4	4		8	8		5	2		1	6	4
Permitted Phases									2			6
Detector Phase	4	4		8	8		5	2	2	1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0	12.0	7.0	12.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0	19.0	14.0	19.0	14.0
Total Split (s)	19.0	19.0	0.0	24.0	24.0	0.0	14.0	40.0	40.0	27.0	53.0	19.0
Total Split (%)	17.3%	17.3%	0.0%	21.8%	21.8%	0.0%	12.7%	36.4%	36.4%	24.5%	48.2%	17.3%
Maximum Green (s)	12.0	12.0		17.0	17.0		7.0	33.0	33.0	20.0	46.0	12.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		Max	Max		None	C-Max	C-Max	None	None	None
Act Effct Green (s)		10.2		22.8	22.8		9.0	38.3	38.3	18.7	59.2	74.4
Actuated g/C Ratio		0.09		0.21	0.21		0.08	0.35	0.35	0.17	0.54	0.68
v/c Ratio		0.21		0.47	0.03		0.08	0.56	0.26	0.66	0.53	0.36
Control Delay		48.7		44.0	36.4		48.2	32.0	28.5	53.9	18.6	9.4
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		48.7		44.0	36.4		48.2	32.0	28.5	53.9	18.6	9.4
LOS		D		D	D		D	C	C	D	B	A
Approach Delay		48.7			43.5			31.6			20.8	
Approach LOS		D			D			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 2:NET, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 26.2		Intersection LOS: C	
Intersection Capacity Utilization 56.9%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 118: US 74 Ramps & US 601



Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (vph)	319	199	0	531	801	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	3335	1538	0	3343	3343	0
Flt Permitted	0.950					
Satd. Flow (perm)	3335	1538	0	3343	3343	0
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	35			45	45	
Link Distance (ft)	529			486	575	
Travel Time (s)	10.3			7.4	8.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	8%	8%	8%	8%
Adj. Flow (vph)	354	221	0	590	890	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	354	221	0	590	890	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (ft)	20	20		100	100	
Trailing Detector (ft)	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	
Detector 1 Size(ft)	20	20		6	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type		Perm				
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						
Minimum Initial (s)	7.0	7.0		12.0	12.0	

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Minimum Split (s)	14.0	14.0		19.0	19.0	
Total Split (s)	45.0	45.0	0.0	65.0	65.0	0.0
Total Split (%)	40.9%	40.9%	0.0%	59.1%	59.1%	0.0%
Maximum Green (s)	38.0	38.0		58.0	58.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		None	None	
Act Effct Green (s)	40.2	40.2		29.7	29.7	
Actuated g/C Ratio	0.50	0.50		0.37	0.37	
v/c Ratio	0.21	0.29		0.48	0.72	
Control Delay	12.4	14.1		20.3	24.9	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	12.4	14.1		20.3	24.9	
LOS	B	B		C	C	
Approach Delay	13.1			20.3	24.9	
Approach LOS	B			C	C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 79.9			
Natural Cycle: 40			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 20.3		Intersection LOS: C	
Intersection Capacity Utilization 42.8%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 119: EB US 74 Off Ramp & US 601

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB off to US 601
Junction:	310
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3A
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1726	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	472	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	375	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	700	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1726	472	375	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	479	131	104	v
Trucks and buses	5	5	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2062	564	467	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.683 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1586 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2062	6750	No
v_{12}	1586	4400	No
$v_{FO} = v_F - v_R$	1498	6750	No
v_R	564	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 16.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.414	
Space mean speed in ramp influence area,	S_R = 49.6	mph
Space mean speed in outer lanes,	S_0 = 60.3	mph
Space mean speed for all vehicles,	S = 51.7	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB off to US 601
Junction:	310
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3A
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2124	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	518	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	490	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	700	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2124	518	490	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	590	144	136	v
Trucks and buses	5	5	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2537	619	610	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.668 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1900 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2537	6750	No
v_{12}	1900	4400	No
$v_{FO} = v_F - v_R$	1918	6750	No
v_R	619	2100	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 18.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.419	
Space mean speed in ramp influence area,	S_R = 49.6	mph
Space mean speed in outer lanes,	S_0 = 60.3	mph
Space mean speed for all vehicles,	S = 51.9	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB on from US 601
Junction:	311
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3A
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1805	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	40.0	mph
Volume on ramp	329	vph
Length of first accel/decel lane	250	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	413	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1805	329	413	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	501	91	115	v
Trucks and buses	5	8	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2156	409	493	pcph

Estimation of V12 Merge Areas

L_{EQ} = 349.71 (Equation 25-2 or 25-3)

P_{FM} = 0.585 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1260 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2565	6750	No
v_{R12}	1669	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 16.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.322	
Space mean speed in ramp influence area,	S_R = 50.8	mph
Space mean speed in outer lanes,	S_O = 53.6	mph
Space mean speed for all vehicles,	S = 51.7	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB on from US 601
Junction:	311
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3A
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1401	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	40.0	mph
Volume on ramp	335	vph
Length of first accel/decel lane	250	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	437	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1401	335	437	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	389	93	121	v
Trucks and buses	5	8	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1673	417	522	pcph

Estimation of V12 Merge Areas

L_{EQ} = 248.06 (Equation 25-2 or 25-3)

P_{FM} = 0.585 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 978 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2090	6750	No
v_{R12}	1395	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 14.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.317

Space mean speed in ramp influence area, S_R = 50.9 mph

Space mean speed in outer lanes, S_O = 54.3 mph

Space mean speed for all vehicles, S = 52.0 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB on from US 601 SB
Junction:	312
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3A
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1254	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	375	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	472	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	700	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1254	375	472	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	348	104	131	v
Trucks and buses	5	8	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1498	467	564	pcph

Estimation of V12 Merge Areas

L_{EQ} = -541.29 (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 878 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	1965	6750	No
v_{R12}	1345	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 13.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.321	
Space mean speed in ramp influence area,	S_R = 50.8	mph
Space mean speed in outer lanes,	S_O = 54.6	mph
Space mean speed for all vehicles,	S = 52.0	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB on from US 601 SB
Junction:	312
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3A
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1606	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	490	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	518	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	700	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1606	490	518	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	446	136	144	v
Trucks and buses	5	8	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1918	610	619	pcph

Estimation of V12 Merge Areas

L_{EQ} = -420.81 (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1124 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2528	6750	No
v_{R12}	1734	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 16.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.328

Space mean speed in ramp influence area, S_R = 50.7 mph

Space mean speed in outer lanes, S_O = 53.9 mph

Space mean speed for all vehicles, S = 51.7 mph

FREEWAY WEAVING WORKSHEET

General Information

Analyst	OSR
Agency/Company	PBSJ
Date Performed	4/30/08
Analysis Time Period	AM Peak

Site Information

Freeway/Dir of Travel	US 74 WB
Weaving Seg Location	313
Jurisdiction	
Analysis Year	2035 Build Alternative 3A

Inputs

Freeway free-flow speed, SFF (mi/h)	55	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.28
Weaving seg length, L (ft)	550	Weaving ratio, R	0.33
Terrain	Rolling		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	1606	0.90	5	0	2.5	2.0	0.930	1.00	1918
Vo2	0	0.90	0	0	2.5	2.0	1.000	1.00	0
Vw1	413	0.90	5	0	2.5	2.0	0.930	1.00	493
Vw2	199	0.90	8	0	2.5	2.0	0.893	1.00	247
Vw				740	Vnw				1918
V									2658

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.15	0.00		
b (Exhibit 24-6)	2.20	4.00		
c (Exhibit 24-6)	0.97	1.30		
d (Exhibit 24-6)	0.80	0.75		
Weaving intensity factor, Wi	0.90	0.38		
Weaving and non-weaving speeds, Si (mi/h)	38.63	47.51		

Number of lanes required for unconstrained operation, Nw 1.26
Maximum number of lanes, Nw (max) 1.40

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	44.65
Weaving segment density, D (pc/mi/ln)	14.88
Level of service, LOS	B
Capacity of base condition, c_b (pc/h)	5886
Capacity as a 15-minute flow rate, c (veh/h)	5475
Capacity as a full-hour volume, c_h (veh/h)	4927

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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FREEWAY WEAVING WORKSHEET

General Information

Analyst	OSR
Agency/Company	PBSJ
Date Performed	4/30/08
Analysis Time Period	PM Peak

Site Information

Freeway/Dir of Travel	US 74 WB
Weaving Seg Location	313
Jurisdiction	
Analysis Year	2035 Build Alternative 3A

Inputs

Freeway free-flow speed, S_{FF} (mi/h)	55	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.32
Weaving seg length, L (ft)	550	Weaving ratio, R	0.26
Terrain	Rolling		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	1254	0.90	5	0	2.5	2.0	0.930	1.00	1497
Vo2	0	0.90	0	0	2.5	2.0	1.000	1.00	0
Vw1	437	0.90	5	0	2.5	2.0	0.930	1.00	521
Vw2	147	0.90	8	0	2.5	2.0	0.893	1.00	182
Vw				703	Vnw				1497
V									2200

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.15	0.00		
b (Exhibit 24-6)	2.20	4.00		
c (Exhibit 24-6)	0.97	1.30		
d (Exhibit 24-6)	0.80	0.75		
Weaving intensity factor, Wi	0.81	0.34		
Weaving and non-weaving speeds, Si (mi/h)	39.90	48.55		

Number of lanes required for unconstrained operation, Nw 1.34
Maximum number of lanes, Nw (max) 1.40

☑ If Nw < Nw(max) unconstrained operation ☐ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	45.41
Weaving segment density, D (pc/mi/ln)	12.11
Level of service, LOS	B
Capacity of base condition, c_b (pc/h)	5671
Capacity as a 15-minute flow rate, c (veh/h)	5275
Capacity as a full-hour volume, c_h (veh/h)	4747

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB on from US 601 NB
Junction:	314
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3A
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	1629	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	40.0	mph
Volume on ramp	437	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	375	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1629	437	375	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	453	121	104	v
Trucks and buses	5	8	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1946	544	467	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1140 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2490	6750	No
v_{R12}	1684	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 16.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.318

Space mean speed in ramp influence area, S_R = 50.9 mph

Space mean speed in outer lanes, S_O = 53.9 mph

Space mean speed for all vehicles, S = 51.8 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB on from US 601 NB
Junction:	314
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3A
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2096	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	40.0	mph
Volume on ramp	413	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	490	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2096	413	490	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	582	115	136	v
Trucks and buses	5	8	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.893	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2504	514	610	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.586 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1467 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3018	6750	No
v_{R12}	1981	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 18.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.325	
Space mean speed in ramp influence area,	S_R = 50.8	mph
Space mean speed in outer lanes,	S_O = 53.1	mph
Space mean speed for all vehicles,	S = 51.5	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB off to US 601
Junction:	315
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3A
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2509	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	490	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	199	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	400	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2509	490	199	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	697	136	55	v
Trucks and buses	5	5	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2997	585	248	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.658 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2172 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2997	6750	No
v_{12}	2172	4400	No
$v_{FO} = v_F - v_R$	2412	6750	No
v_R	585	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 20.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.416	
Space mean speed in ramp influence area,	S_R = 49.6	mph
Space mean speed in outer lanes,	S_O = 60.3	mph
Space mean speed for all vehicles,	S = 52.2	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/30/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB off to US 601
Junction:	315
Jurisdiction:	
Analysis Year:	2035 Build Alternative 3A
Description:	Monroe Connector/Bypass

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	55.0	mph
Volume on freeway	2066	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	40.0	mph
Volume on ramp	375	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	147	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	400	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2066	375	147	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	574	104	41	v
Trucks and buses	5	5	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.930	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2468	448	183	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.678 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1817 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2468	6750	No
v_{12}	1817	4400	No
$v_{FO} = v_F - v_R$	2020	6750	No
v_R	448	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 17.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

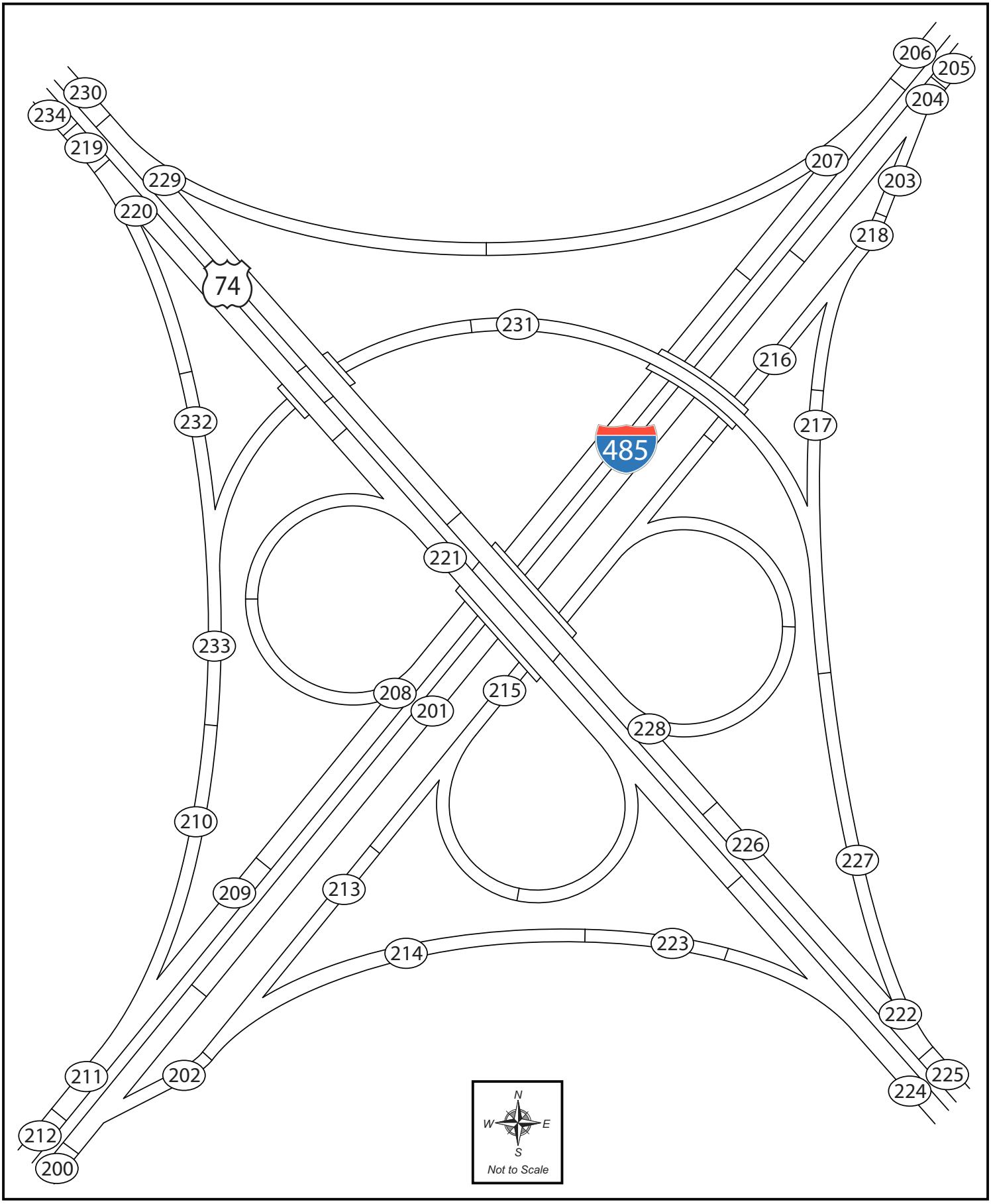
Intermediate speed variable,	D_S = 0.403	
Space mean speed in ramp influence area,	S_R = 49.8	mph
Space mean speed in outer lanes,	S_0 = 60.3	mph
Space mean speed for all vehicles,	S = 52.2	mph

E-10

Alternative 3B

E-10-1

US 74 / I-485 I/C



NORTH CAROLINA Turnpike Authority

MONROE CONNECTOR / BYPASS

TIP Project Numbers R-3329 & R-2559

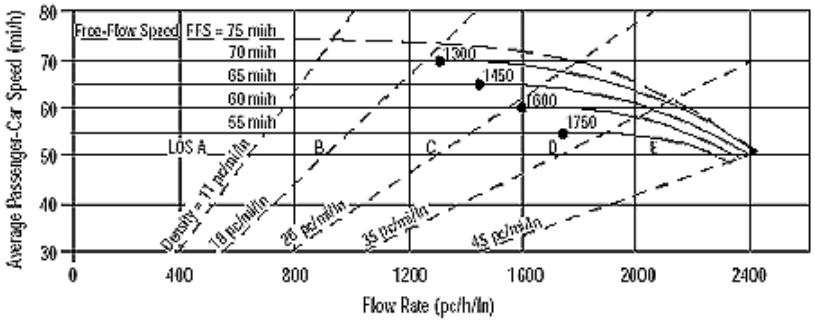
Mecklenburg and Union Counties

US 74 Corridor
I-485
Key Sheet

Appendix E

KeysheetUS74CorridorI485.ai

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	04/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 NB south of Interchange
From/To	
Jurisdiction	200
Analysis Year	2035 Build Toll Alternative 3B

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4137 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	67.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1716	pc/h/ln
S	66.2	mi/h
D = v_p / S	25.9	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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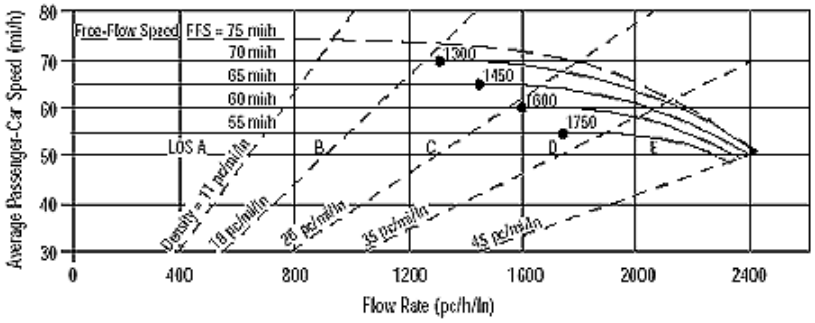
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	04/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 NB south of Interchange
From/To	
Jurisdiction	200
Analysis Year	2035 Build Toll Alternative 3B

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	5073 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	67.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	2104	pc/h/ln
S	60.7	mi/h
D = v_p / S	34.7	pc/mi/ln
LOS	D	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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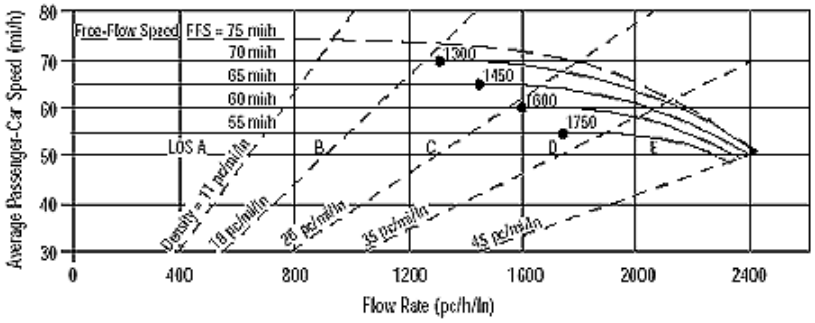
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	04/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 NB
From/To	
Jurisdiction	201
Analysis Year	2035 Build Toll Alternative 3B

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	2439 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	4.5	mi/h
FFS	65.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1518	pc/h/ln
S	65.5	mi/h
D = v_p / S	23.2	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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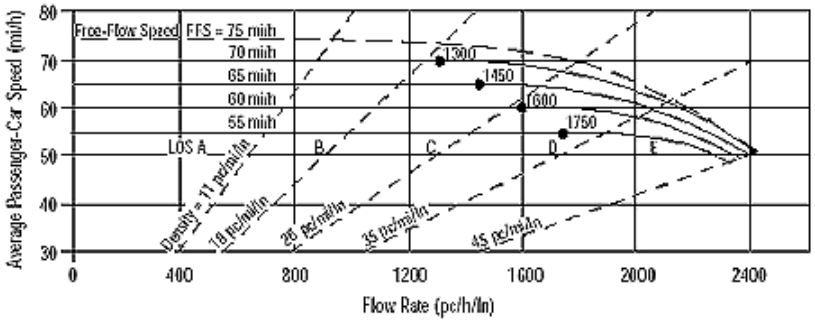
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	04/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 NB
From/To	
Jurisdiction	201
Analysis Year	2035 Build Toll Alternative 3B

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	3108 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	4.5	mi/h
FFS	65.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1934	pc/h/ln
S	62.8	mi/h
D = v_p / S	30.8	pc/mi/ln
LOS	D	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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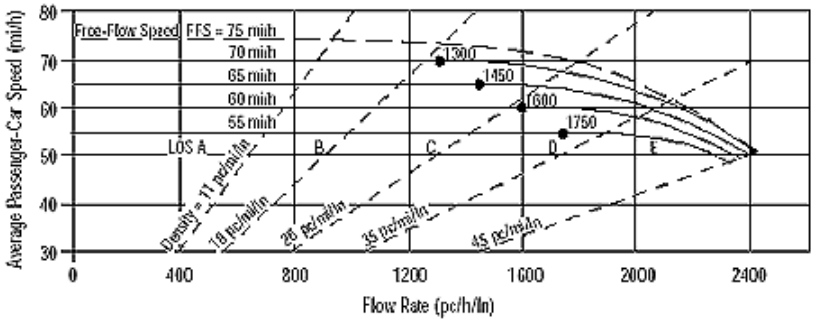
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 NB off ramp
From/To	
Jurisdiction	202
Analysis Year	2035 Build Toll Alternative 3B

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1698 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1057	pc/h/ln
S	55.0	mi/h
D = v_p / S	19.2	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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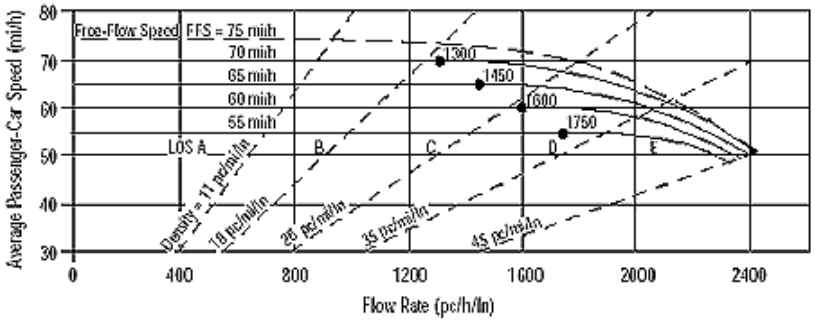
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 NB off ramp
From/To	
Jurisdiction	202
Analysis Year	2035 Build Toll Alternative 3B

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1965 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1223	pc/h/ln
S	55.0	mi/h
D = v_p / S	22.2	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	AM Peak

Site Information

Highway/Dir of Travel	I-485 NB On Ramp
From/To	
Jurisdiction	203
Analysis Year	2035 Build Toll Alternative 3B

Flow Inputs

Volume, V	1284 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	9%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.88106$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 1619.27$$

LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **29.6**

LOS: **D**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	PM Peak

Site Information

Highway/Dir of Travel	I-485 NB On Ramp
From/To	
Jurisdiction	203
Analysis Year	2035 Build Toll Alternative 3B

Flow Inputs

Volume, V	1428 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	9%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.88106$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 1800.87$$

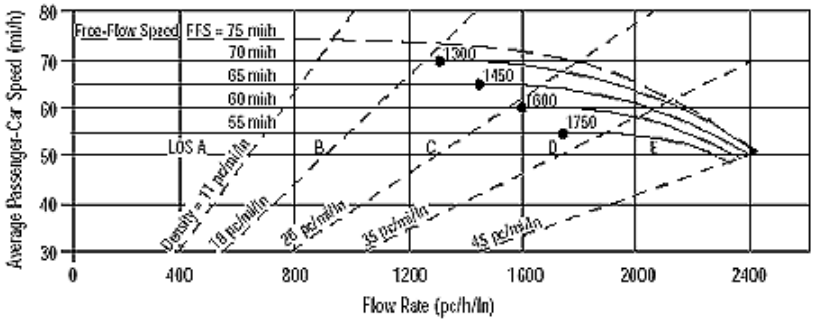
LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **32.9**

LOS: **D**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 NB
From/To	
Jurisdiction	204
Analysis Year	2035 Build Toll Alternative 3B

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	3723 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.930

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	67.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1482	pc/h/ln
S	67.0	mi/h
D = v_p / S	22.1	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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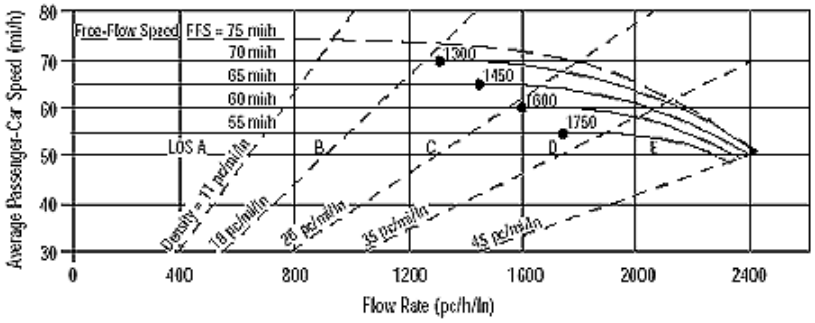
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 NB
From/To	
Jurisdiction	204
Analysis Year	2035 Build Toll Alternative 3B

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4536 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.930

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	67.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1806	pc/h/ln
S	65.5	mi/h
D = v_p / S	27.6	pc/mi/ln
LOS	D	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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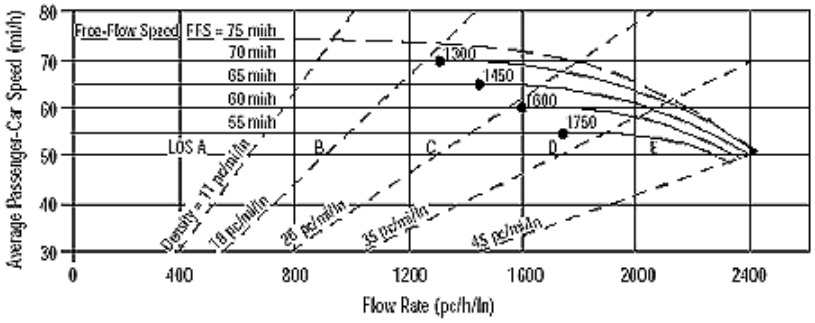
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 NB
From/To	
Jurisdiction	205
Analysis Year	2035 Build Toll Alternative 3B

Project Description Monroe Bypass / Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	3723 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.930

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	4.5	mi/h
FFS	65.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	2223	pc/h/ln
S	56.7	mi/h
D = v_p / S	39.2	pc/mi/ln
LOS	E	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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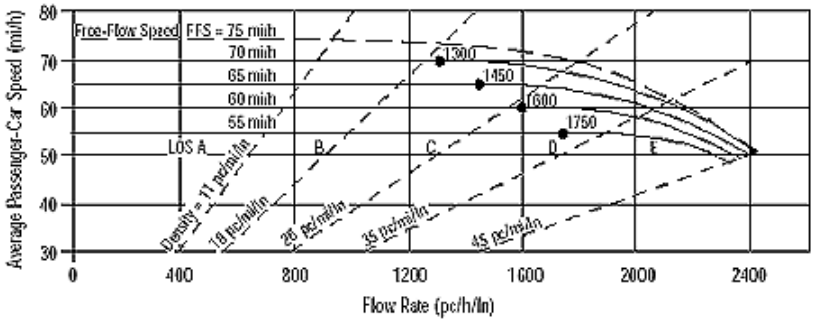
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 NB
From/To	
Jurisdiction	205
Analysis Year	2035 Build Toll Alternative 3B

Project Description Monroe Bypass / Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4536 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.930

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	4.5	mi/h
FFS	65.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	2709	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	F	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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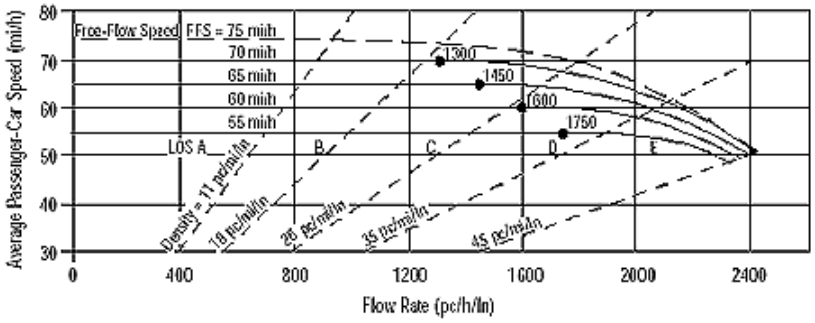
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 SB
From/To	
Jurisdiction	206
Analysis Year	2035 Build Toll Alternative 3B

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4536 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.930

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	4.5	mi/h
FFS	65.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	2709	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	F	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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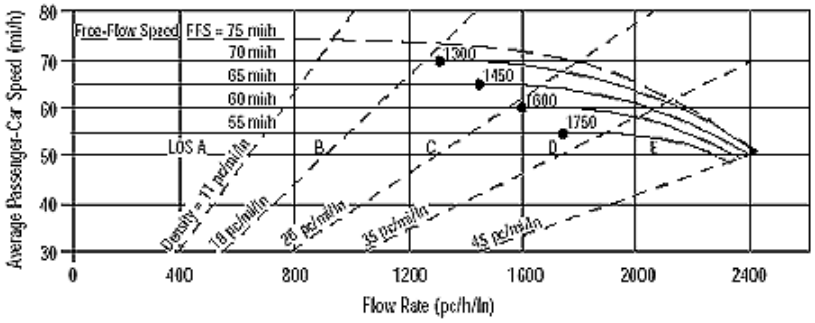
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 SB
From/To	
Jurisdiction	206
Analysis Year	2035 Build Toll Alternative 3B

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	3723 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	5
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.930

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	4.5	mi/h
FFS	65.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	2223	pc/h/ln
S	56.7	mi/h
D = v_p / S	39.2	pc/mi/ln
LOS	E	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/24/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-485 SB Off Ramp
Junction:	I-485 SB and US 74 WB
Jurisdiction:	207
Analysis Year:	2035 Build Toll Alternative 3B
Description:	Monroe Bypass/Connector

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4536	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	622	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent ramp		vph
Position of adjacent ramp		
Type of adjacent ramp		
Distance to adjacent ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	4536		622			vph
Peak-hour factor, PHF	0.90		0.90			
Peak 15-min volume, v15	1260		173			v
Trucks and buses	5		5			%
Recreational vehicles	0		0			%
Terrain type:	Rolling		Rolling			
Grade	0.00	%	0.00	%		%
Length	0.00	mi	0.00	mi		mi
Trucks and buses PCE, ET	2.5		2.5			
Recreational vehicle PCE, ER	2.0		2.0			

Heavy vehicle adjustment, fHV	0.930	0.930	
Driver population factor, fP	1.00	1.00	
Flow rate, vp	5418	743	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 5418 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5418	4800	Yes
v_{12}	5418	4400	Yes
$v_{FO} = v_F - v_R$	4675	4800	No
v_R	743	2100	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 48.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable,	D_S = 0.365	
Space mean speed in ramp influence area,	S_R = 59.8	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 59.8	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/24/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-485 SB Off Ramp
Junction:	I-485 SB and US 74 WB
Jurisdiction:	207
Analysis Year:	2035 Build Toll Alternative 3B
Description:	Monroe Bypass/Connector

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3723	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	484	vph
Length of first accel/decel lane	300	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent ramp		vph
Position of adjacent ramp		
Type of adjacent ramp		
Distance to adjacent ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3723	484		vph
Peak-hour factor, PHF	0.90	0.90		
Peak 15-min volume, v15	1034	134		v
Trucks and buses	5	5		%
Recreational vehicles	0	0		%
Terrain type:	Rolling	Rolling		
Grade	0.00 %	0.00 %		%
Length	0.00 mi	0.00 mi		mi
Trucks and buses PCE, ET	2.5	2.5		
Recreational vehicle PCE, ER	2.0	2.0		

Heavy vehicle adjustment, fHV	0.930	0.930	
Driver population factor, fP	1.00	1.00	
Flow rate, vp	4447	578	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 4447 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4447	4800	No
v_{12}	4447	4400	Yes
$v_{FO} = v_F - v_R$	3869	4800	No
v_R	578	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 39.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable,	D_S = 0.350	
Space mean speed in ramp influence area,	S_R = 60.2	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 60.2	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/24/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-485 SB Off Ramp
Junction:	I-485 SB and US 74 EB
Jurisdiction:	208
Analysis Year:	2035 Build Toll Alternative 3B
Description:	Monroe Bypass/Connector

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3914	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	25.0	mph
Volume on ramp	806	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent ramp		vph
Position of adjacent ramp		
Type of adjacent ramp		
Distance to adjacent ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	3914		806			vph
Peak-hour factor, PHF	0.90		0.90			
Peak 15-min volume, v15	1087		224			v
Trucks and buses	5		5			%
Recreational vehicles	0		0			%
Terrain type:	Rolling		Rolling			
Grade	0.00	%	0.00	%		%
Length	0.00	mi	0.00	mi		mi
Trucks and buses PCE, ET	2.5		2.5			
Recreational vehicle PCE, ER	2.0		2.0			

Heavy vehicle adjustment, fHV	0.930	0.930	
Driver population factor, fP	1.00	1.00	
Flow rate, vp	4675	963	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 4675 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4675	4800	No
v_{12}	4675	4400	Yes
$v_{FO} = v_F - v_R$	3712	4800	No
v_R	963	1900	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 40.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable,	D_S = 0.645	
Space mean speed in ramp influence area,	S_R = 51.9	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 51.9	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/24/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-485 SB Off Ramp
Junction:	I-485 SB and US 74 EB
Jurisdiction:	208
Analysis Year:	2035 Build Toll Alternative 3B
Description:	Monroe Bypass/Connector

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70.0	mph
Volume on freeway	3239	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	25.0	mph
Volume on ramp	800	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent ramp		vph
Position of adjacent ramp		
Type of adjacent ramp		
Distance to adjacent ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	3239		800			vph
Peak-hour factor, PHF	0.90		0.90			
Peak 15-min volume, v15	900		222			v
Trucks and buses	5		5			%
Recreational vehicles	0		0			%
Terrain type:	Rolling		Rolling			
Grade	0.00	%	0.00	%		%
Length	0.00	mi	0.00	mi		mi
Trucks and buses PCE, ET	2.5		2.5			
Recreational vehicle PCE, ER	2.0		2.0			

Heavy vehicle adjustment, fHV	0.930	0.930	
Driver population factor, fP	1.00	1.00	
Flow rate, vp	3869	956	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3869 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3869	4800	No
v_{12}	3869	4400	No
$v_{FO} = v_F - v_R$	2913	4800	No
v_R	956	1900	No

Level of Service Determination (if not F)

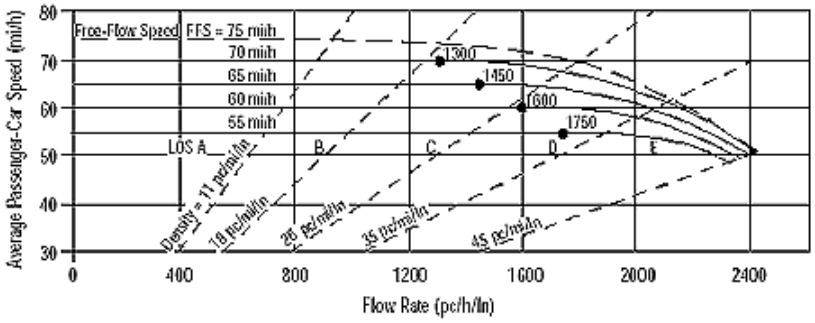
Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 33.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable,	D_S = 0.644	
Space mean speed in ramp influence area,	S_R = 52.0	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 52.0	mph

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 SB
From/To	
Jurisdiction	209
Analysis Year	2035 Build Toll Alternative 3B

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	3108 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	4.5	mi/h
FFS	65.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1934	pc/h/ln
S	62.8	mi/h
D = v_p / S	30.8	pc/mi/ln
LOS	D	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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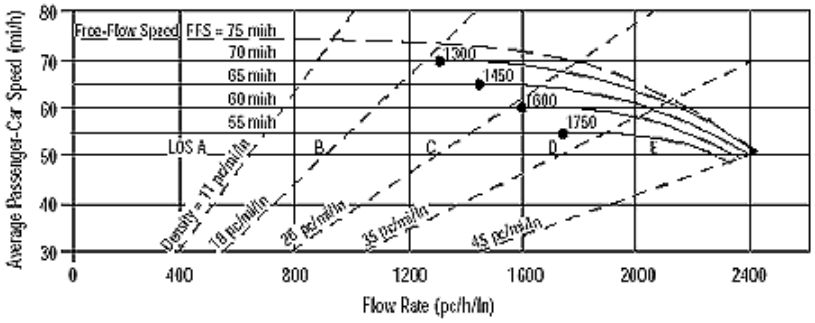
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 SB
From/To	
Jurisdiction	209
Analysis Year	2035 Build Toll Alternative 3B

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	2439 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	4.5	mi/h
FFS	65.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1518	pc/h/ln
S	65.5	mi/h
D = v_p / S	23.2	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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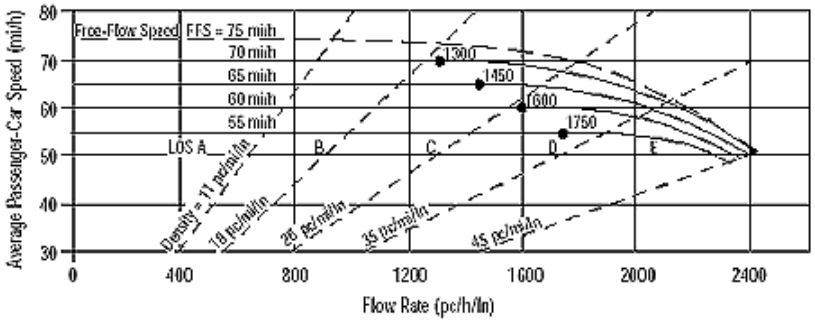
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 SB On Ramp
From/To	
Jurisdiction	210
Analysis Year	2035 Build Toll Alternative 3B

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1965 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1239	pc/h/ln
S	55.0	mi/h
D = v_p / S	22.5	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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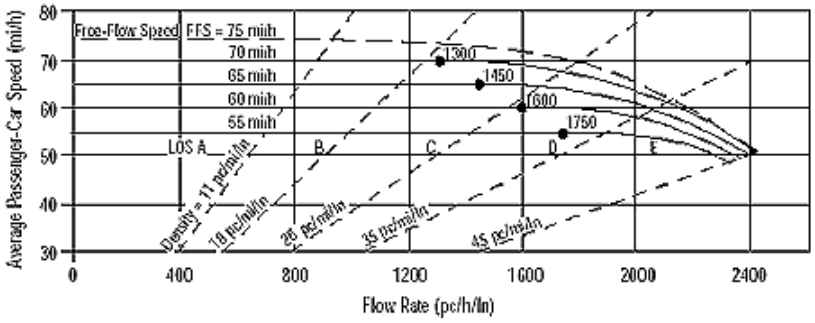
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 SB On Ramp
From/To	
Jurisdiction	210
Analysis Year	2035 Build Toll Alternative 3B

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1698 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1071	pc/h/ln
S	55.0	mi/h
D = v_p / S	19.5	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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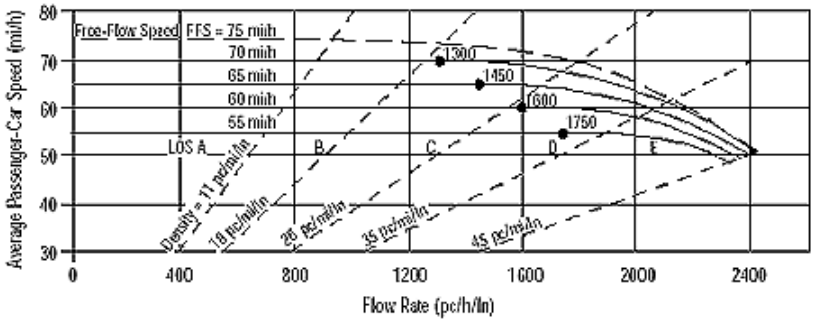

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 SB
From/To	
Jurisdiction	211
Analysis Year	2035 Build Toll Alternative 3B

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	5073 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	1.5	mi/h
FFS	68.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1578	pc/h/ln
S	68.2	mi/h
D = v_p / S	23.1	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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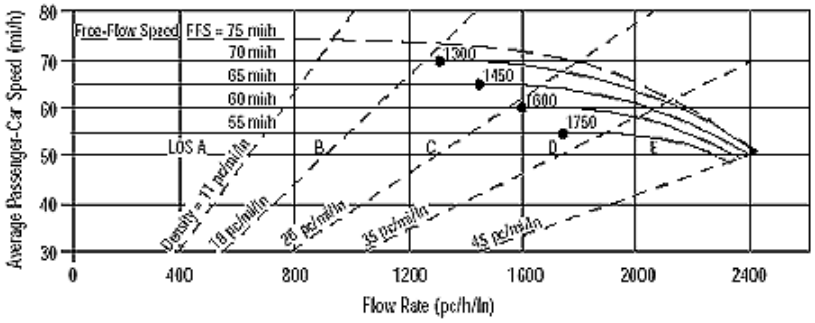

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 SB
From/To	
Jurisdiction	211
Analysis Year	2035 Build Toll Alternative 3B

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4137 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	1.5	mi/h
FFS	68.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1287	pc/h/ln
S	68.5	mi/h
D = v_p / S	18.8	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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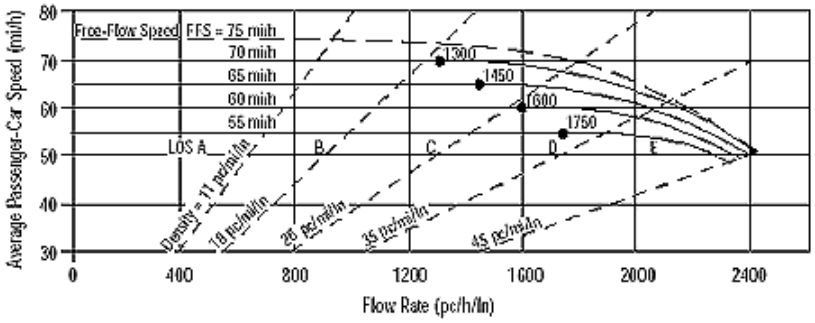

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 SB
From/To	
Jurisdiction	212
Analysis Year	2035 Build Toll Alternative 3B

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	5073 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	67.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	2104	pc/h/ln
S	60.7	mi/h
D = v_p / S	34.7	pc/mi/ln
LOS	D	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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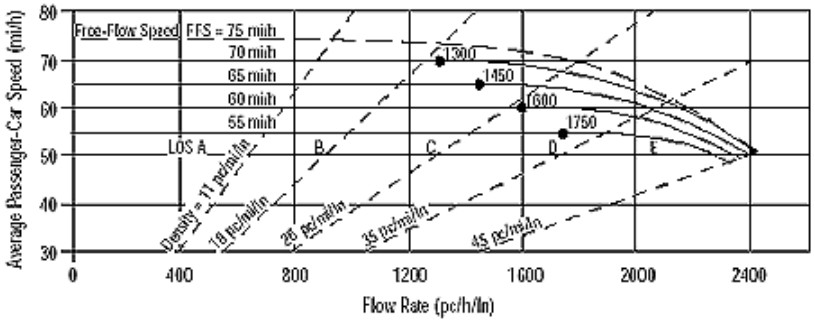
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 SB
From/To	
Jurisdiction	212
Analysis Year	2035 Build Toll Alternative 3B

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4137 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	70.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	67.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1716	pc/h/ln
S	66.2	mi/h
D = v_p / S	25.9	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	AM Peak

Site Information

Highway/Dir of Travel	I-485 NB Off Ramp
From/To	
Jurisdiction	213
Analysis Year	2035 Build Toll Alternative 3B

Flow Inputs

Volume, V	670 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	8%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.89286$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 833.78$$

LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **15.2**

LOS: **B**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	PM Peak

Site Information

Highway/Dir of Travel	I-485 NB Off Ramp
From/To	
Jurisdiction	213
Analysis Year	2035 Build Toll Alternative 3B

Flow Inputs

Volume, V	664 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	8%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.89286$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 826.31$$

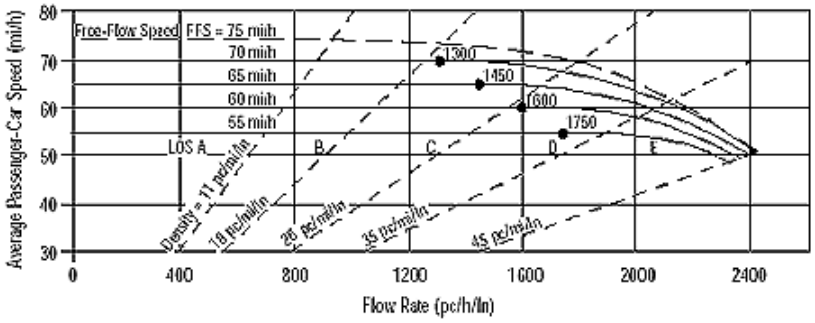
LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **15.0**

LOS: **B**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 NB Off Ramp
From/To	
Jurisdiction	214
Analysis Year	2035 Build Toll Alternative 3B

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1028 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	640	pc/h/ln
S	55.0	mi/h
D = v_p / S	11.6	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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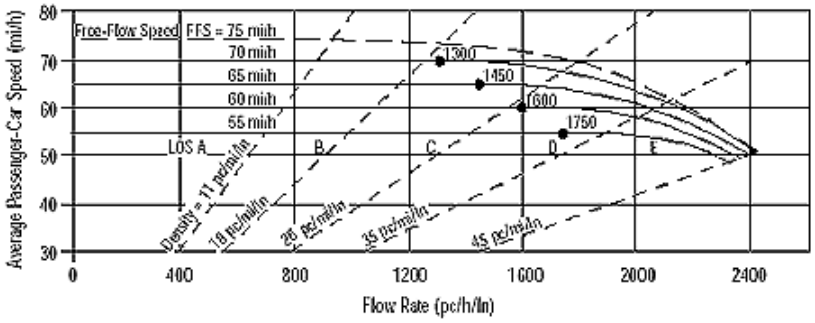
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 NB Off Ramp
From/To	
Jurisdiction	214
Analysis Year	2035 Build Toll Alternative 3B

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1301 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	8
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.893

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	810	pc/h/ln
S	55.0	mi/h
D = v_p / S	14.7	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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FREEWAY WEAVING WORKSHEET

General Information

Analyst	OSR
Agency/Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Freeway/Dir of Travel	I-485 NB
Weaving Seg Location	215
Jurisdiction	
Analysis Year	2035 Build Toll Alternative 3B

Inputs

Freeway free-flow speed, S_{FF} (mi/h)	45	Weaving type	A
Weaving number of lanes, N	2	Volume ratio, VR	1.00
Weaving seg length, L (ft)	700	Weaving ratio, R	0.42
Terrain	Rolling		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	0	0.90	0	0	2.5	2.0	1.000	1.00	0
Vo2	0	0.90	0	0	2.5	2.0	1.000	1.00	0
Vw1	670	0.90	8	0	2.5	2.0	0.893	1.00	833
Vw2	484	0.90	9	0	2.5	2.0	0.881	1.00	610
Vw				1443	Vnw				0
V									1443

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.00
b (Exhibit 24-6)			4.00	4.00
c (Exhibit 24-6)			0.97	1.30
d (Exhibit 24-6)			0.80	0.75
Weaving intensity factor, Wi			5.04	1.22
Weaving and non-weaving speeds, Si (mi/h)			20.79	30.75

Number of lanes required for unconstrained operation, Nw 1.64
Maximum number of lanes, Nw (max) 1.40

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	20.79
Weaving segment density, D (pc/mi/ln)	34.70
Level of service, LOS	D
Capacity of base condition, c_b (pc/h)	
Capacity as a 15-minute flow rate, c (veh/h)	
Capacity as a full-hour volume, c_h (veh/h)	

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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FREEWAY WEAVING WORKSHEET

General Information

Analyst	OSR
Agency/Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Freeway/Dir of Travel	I-485 NB
Weaving Seg Location	215
Jurisdiction	
Analysis Year	2035 Build Toll Alternative 3B

Inputs

Freeway free-flow speed, S_{FF} (mi/h)	45	Weaving type	A
Weaving number of lanes, N	2	Volume ratio, VR	1.00
Weaving seg length, L (ft)	700	Weaving ratio, R	0.49
Terrain	Rolling		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	0	0.90	0	0	2.5	2.0	1.000	1.00	0
Vo2	0	0.90	0	0	2.5	2.0	1.000	1.00	0
Vw1	664	0.90	8	0	2.5	2.0	0.893	1.00	826
Vw2	622	0.90	9	0	2.5	2.0	0.881	1.00	784
Vw				1610	Vnw				0
V									1610

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.00
b (Exhibit 24-6)			4.00	4.00
c (Exhibit 24-6)			0.97	1.30
d (Exhibit 24-6)			0.80	0.75
Weaving intensity factor, Wi			5.61	1.41
Weaving and non-weaving speeds, Si (mi/h)			20.30	29.53

Number of lanes required for unconstrained operation, Nw 1.67
Maximum number of lanes, Nw (max) 1.40

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	20.30
Weaving segment density, D (pc/mi/ln)	39.66
Level of service, LOS	E
Capacity of base condition, c_b (pc/h)	
Capacity as a 15-minute flow rate, c (veh/h)	
Capacity as a full-hour volume, c_h (veh/h)	

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	AM Peak

Site Information

Highway/Dir of Travel	I-485 NB On Ramp
From/To	
Jurisdiction	216
Analysis Year	2035 Build Toll Alternative 3B

Flow Inputs

Volume, V	484 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	8%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.89286$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 602.31$$

LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **11.0**

LOS: **B**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	PM Peak

Site Information

Highway/Dir of Travel	I-485 NB On Ramp
From/To	
Jurisdiction	216
Analysis Year	2035 Build Toll Alternative 3B

Flow Inputs

Volume, V	622 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	8%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.89286$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 774.04$$

LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **14.1**

LOS: **B**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	AM Peak

Site Information

Highway/Dir of Travel	I-485 NB On Ramp
From/To	
Jurisdiction	217
Analysis Year	2035 Build Toll Alternative 3B

Flow Inputs

Volume, V	800 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	9%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.88106$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 1008.89$$

LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **18.3**

LOS: **C**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	PM Peak

Site Information

Highway/Dir of Travel	I-485 NB On Ramp
From/To	
Jurisdiction	217
Analysis Year	2035 Build Toll Alternative 3B

Flow Inputs

Volume, V	806 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	9%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.88106$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 1016.46$$

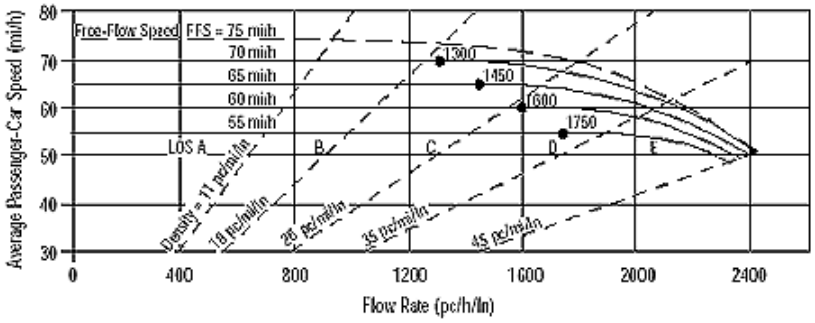
LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **18.5**

LOS: **C**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 NB On Ramp
From/To	
Jurisdiction	218
Analysis Year	2035 Build Toll Alternative 3B

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1284 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	810	pc/h/ln
S	55.0	mi/h
D = v_p / S	14.7	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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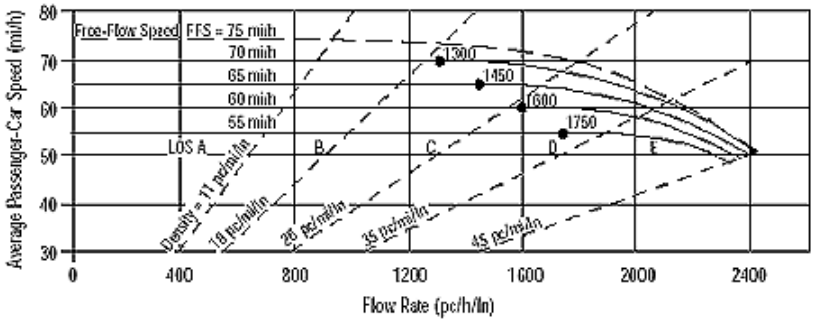
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 NB On Ramp
From/To	
Jurisdiction	218
Analysis Year	2035 Build Toll Alternative 3B

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1428 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	900	pc/h/ln
S	55.0	mi/h
D = v_p / S	16.4	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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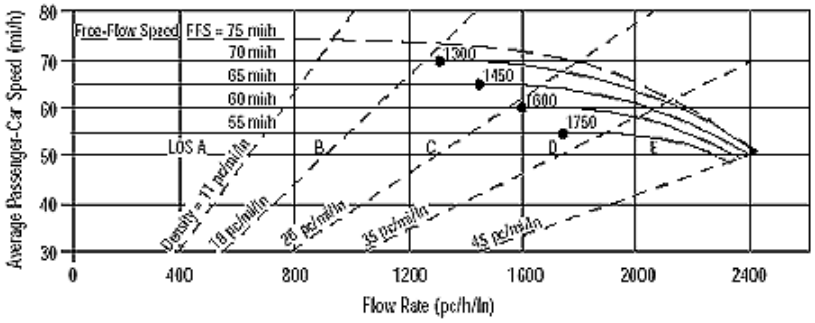
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	US 74 EB
From/To	
Jurisdiction	219
Analysis Year	2035 Build Toll Alternative 3B

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	3411 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	1.5	mi/h
FFS	58.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1075	pc/h/ln
S	58.5	mi/h
D = v_p / S	18.4	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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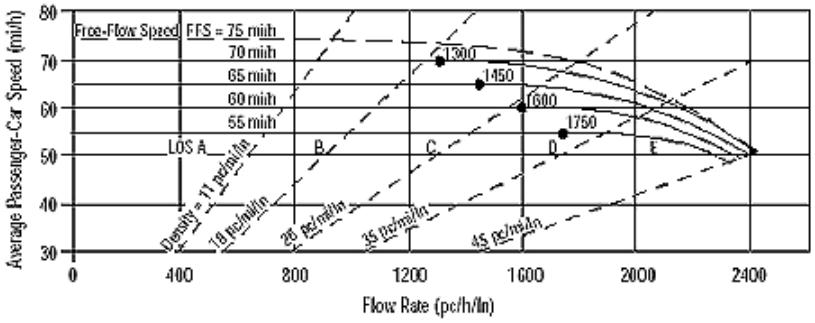
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	US 74 EB
From/To	
Jurisdiction	219
Analysis Year	2035 Build Toll Alternative 3B

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4182 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	1.5	mi/h
FFS	58.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1318	pc/h/ln
S	58.5	mi/h
D = v_p / S	22.5	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/24/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 EB Off Ramp
Junction:	US 74 EB and I-485 SB
Jurisdiction:	220
Analysis Year:	2035 Build Toll Alternative 3B
Description:	Monroe Bypass/Connector

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3411	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	664	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent ramp		vph
Position of adjacent ramp		
Type of adjacent ramp		
Distance to adjacent ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3411	664		vph
Peak-hour factor, PHF	0.90	0.90		
Peak 15-min volume, v15	948	184		v
Trucks and buses	9	9		%
Recreational vehicles	0	0		%
Terrain type:	Rolling	Rolling		
Grade	0.00 %	0.00 %		%
Length	0.00 mi	0.00 mi		mi
Trucks and buses PCE, ET	2.5	2.5		
Recreational vehicle PCE, ER	2.0	2.0		

Heavy vehicle adjustment, fHV	0.881	0.881	
Driver population factor, fP	1.00	1.00	
Flow rate, vp	4302	837	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2348 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4302	9200	No
v_{12}	2348	4400	No
$v_{FO} = v_F - v_R$	3465	9200	No
v_R	837	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 22.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.373	
Space mean speed in ramp influence area,	S_R = 53.3	mph
Space mean speed in outer lanes,	S_0 = 65.8	mph
Space mean speed for all vehicles,	S = 58.3	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/24/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 EB Off Ramp
Junction:	US 74 EB and I-485 SB
Jurisdiction:	220
Analysis Year:	2035 Build Toll Alternative 3B
Description:	Monroe Bypass/Connector

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	4182	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	670	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent ramp		vph
Position of adjacent ramp		
Type of adjacent ramp		
Distance to adjacent ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4182	670		vph
Peak-hour factor, PHF	0.90	0.90		
Peak 15-min volume, v15	1162	186		v
Trucks and buses	9	9		%
Recreational vehicles	0	0		%
Terrain type:	Rolling	Rolling		
Grade	0.00 %	0.00 %	%	
Length	0.00 mi	0.00 mi	mi	
Trucks and buses PCE, ET	2.5	2.5		
Recreational vehicle PCE, ER	2.0	2.0		

Heavy vehicle adjustment, fHV	0.881	0.881	
Driver population factor, fP	1.00	1.00	
Flow rate, vp	5274	845	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2776 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5274	9200	No
v_{12}	2776	4400	No
$v_{FO} = v_F - v_R$	4429	9200	No
v_R	845	2100	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 26.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.374	
Space mean speed in ramp influence area,	S_R = 53.3	mph
Space mean speed in outer lanes,	S_0 = 64.8	mph
Space mean speed for all vehicles,	S = 58.2	mph

FREEWAY WEAVING WORKSHEET

General Information

Analyst	OSR
Agency/Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Freeway/Dir of Travel	I-485 NB
Weaving Seg Location	221
Jurisdiction	
Analysis Year	2035 Build Toll Alternative 3B

Inputs

Freeway free-flow speed, S_{FF} (mi/h)	60	Weaving type	A
Weaving number of lanes, N	5	Volume ratio, VR	0.36
Weaving seg length, L (ft)	700	Weaving ratio, R	0.39
Terrain	Rolling		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	2263	0.90	9	0	2.5	2.0	0.881	1.00	2853
Vo2	0	0.90	0	0	2.5	2.0	1.000	1.00	0
Vw1	484	0.90	9	0	2.5	2.0	0.881	1.00	610
Vw2	806	0.90	5	0	2.5	2.0	0.930	1.00	962
Vw				1572	Vnw				2853
V									4425

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.00
b (Exhibit 24-6)			4.00	4.00
c (Exhibit 24-6)			0.97	1.30
d (Exhibit 24-6)			0.80	0.75
Weaving intensity factor, Wi			2.61	0.34
Weaving and non-weaving speeds, Si (mi/h)			28.84	52.43

Number of lanes required for unconstrained operation, Nw 1.92
Maximum number of lanes, Nw (max) 1.40

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	40.63
Weaving segment density, D (pc/mi/ln)	21.78
Level of service, LOS	C
Capacity of base condition, c_b (pc/h)	8580
Capacity as a 15-minute flow rate, c (veh/h)	7559
Capacity as a full-hour volume, c_h (veh/h)	6803

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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FREEWAY WEAVING WORKSHEET

General Information

Analyst	OSR
Agency/Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Freeway/Dir of Travel	I-485 NB
Weaving Seg Location	221
Jurisdiction	
Analysis Year	2035 Build Toll Alternative 3B

Inputs

Freeway free-flow speed, S_{FF} (mi/h)	60	Weaving type	A
Weaving number of lanes, N	5	Volume ratio, VR	0.32
Weaving seg length, L (ft)	700	Weaving ratio, R	0.45
Terrain	Rolling		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	2890	0.90	9	0	2.5	2.0	0.881	1.00	3644
Vo2	0	0.90	0	0	2.5	2.0	1.000	1.00	0
Vw1	622	0.90	9	0	2.5	2.0	0.881	1.00	784
Vw2	800	0.90	5	0	2.5	2.0	0.930	1.00	955
Vw				1739	Vnw				3644
V									5383

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.00
b (Exhibit 24-6)			4.00	4.00
c (Exhibit 24-6)			0.97	1.30
d (Exhibit 24-6)			0.80	0.75
Weaving intensity factor, Wi			3.00	0.39
Weaving and non-weaving speeds, Si (mi/h)			27.51	50.88

Number of lanes required for unconstrained operation, Nw 1.85
Maximum number of lanes, Nw (max) 1.40

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	39.92
Weaving segment density, D (pc/mi/ln)	26.97
Level of service, LOS	C
Capacity of base condition, c_b (pc/h)	8580
Capacity as a 15-minute flow rate, c (veh/h)	7559
Capacity as a full-hour volume, c_h (veh/h)	6803

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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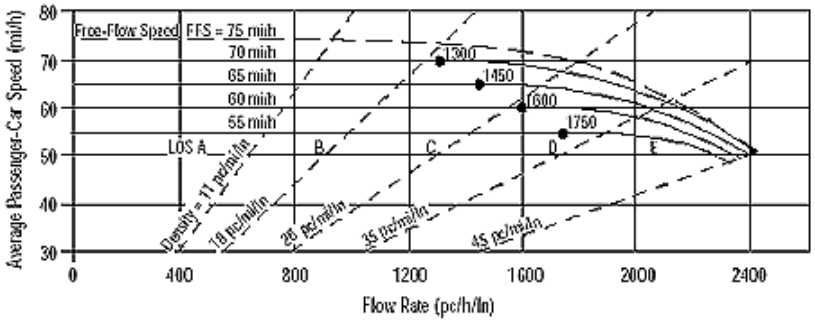
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	US 74 EB
From/To	
Jurisdiction	222
Analysis Year	2035 Build Toll Alternative 3B

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4991 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	1.5	mi/h
FFS	58.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1574	pc/h/ln
S	58.5	mi/h
D = v_p / S	26.9	pc/mi/ln
LOS	D	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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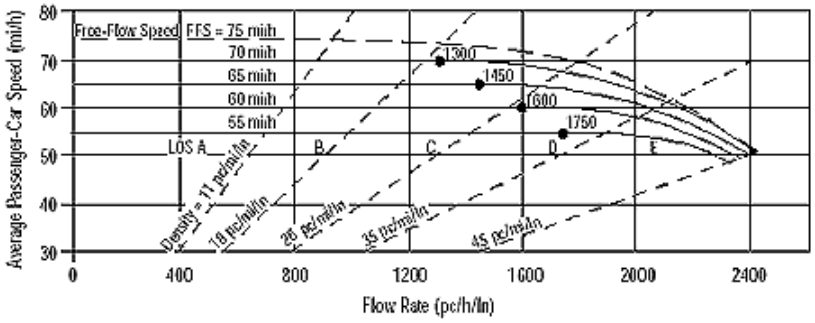
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	US 74 EB
From/To	
Jurisdiction	222
Analysis Year	2035 Build Toll Alternative 3B

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4097 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	1.5	mi/h
FFS	58.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1292	pc/h/ln
S	58.5	mi/h
D = v_p / S	22.1	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	AM Peak

Site Information

Highway/Dir of Travel	US 74 SB On Ramp
From/To	
Jurisdiction	223
Analysis Year	2035 Build Toll Alternative 3B

Flow Inputs

Volume, V	1028 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	8%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.89286$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 1279.29$$

LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **23.3**

LOS: **C**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	PM Peak

Site Information

Highway/Dir of Travel	US 74 SB On Ramp
From/To	
Jurisdiction	223
Analysis Year	2035 Build Toll Alternative 3B

Flow Inputs

Volume, V	1301 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	8%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.89286$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 1619.02$$

LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **29.6**

LOS: **D**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

FREEWAY WEAVING WORKSHEET

General Information

Analyst	OSR
Agency/Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Freeway/Dir of Travel	I-485 NB
Weaving Seg Location	224
Jurisdiction	
Analysis Year	2035 Build Toll Alternative 3B

Inputs

Freeway free-flow speed, S_{FF} (mi/h)	60	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.34
Weaving seg length, L (ft)	2100	Weaving ratio, R	0.39
Terrain	Rolling		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	2530	0.90	9	0	2.5	2.0	0.881	1.00	3190
Vo2	179	0.90	8	0	2.5	2.0	0.893	1.00	222
Vw1	539	0.90	9	0	2.5	2.0	0.881	1.00	679
Vw2	849	0.90	8	0	2.5	2.0	0.893	1.00	1056
Vw				1735	Vnw				3412
V									5147

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.00
b (Exhibit 24-6)			4.00	4.00
c (Exhibit 24-6)			0.97	1.30
d (Exhibit 24-6)			0.80	0.75
Weaving intensity factor, Wi			1.51	0.23
Weaving and non-weaving speeds, Si (mi/h)			34.89	55.74

Number of lanes required for unconstrained operation, Nw 1.79
Maximum number of lanes, Nw (max) 1.40

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	46.40
Weaving segment density, D (pc/mi/ln)	27.73
Level of service, LOS	C
Capacity of base condition, c_b (pc/h)	7276
Capacity as a 15-minute flow rate, c (veh/h)	6411
Capacity as a full-hour volume, c_h (veh/h)	5770

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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FREEWAY WEAVING WORKSHEET

General Information

Analyst	OSR
Agency/Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Freeway/Dir of Travel	I-485 NB
Weaving Seg Location	224
Jurisdiction	
Analysis Year	2035 Build Toll Alternative 3B

Inputs

Freeway free-flow speed, S_{FF} (mi/h)	60	Weaving type	A
Weaving number of lanes, N	5	Volume ratio, VR	0.34
Weaving seg length, L (ft)	700	Weaving ratio, R	0.37
Terrain	Rolling		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	3057	0.90	9	0	2.5	2.0	0.881	1.00	3855
Vo2	223	0.90	8	0	2.5	2.0	0.893	1.00	277
Vw1	633	0.90	9	0	2.5	2.0	0.881	1.00	798
Vw2	1078	0.90	8	0	2.5	2.0	0.893	1.00	1341
Vw				2139	Vnw				4132
V									6271

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.00
b (Exhibit 24-6)			4.00	4.00
c (Exhibit 24-6)			0.97	1.30
d (Exhibit 24-6)			0.80	0.75
Weaving intensity factor, Wi			3.58	0.51
Weaving and non-weaving speeds, Si (mi/h)			25.92	48.18

Number of lanes required for unconstrained operation, Nw 1.96
Maximum number of lanes, Nw (max) 1.40

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	37.26
Weaving segment density, D (pc/mi/ln)	33.66
Level of service, LOS	D
Capacity of base condition, c_b (pc/h)	8580
Capacity as a 15-minute flow rate, c (veh/h)	7559
Capacity as a full-hour volume, c_h (veh/h)	6803

Notes

a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under constrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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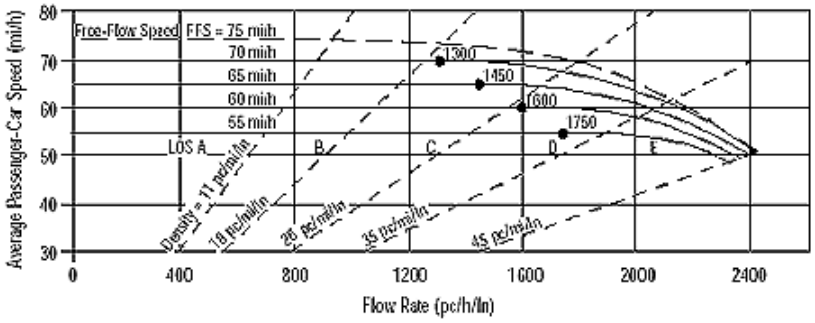
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	US 74 WB
From/To	
Jurisdiction	225
Analysis Year	2035 Build Toll Alternative 3B

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4991 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	1.5	mi/h
FFS	58.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1574	pc/h/ln
S	58.5	mi/h
D = v_p / S	26.9	pc/mi/ln
LOS	D	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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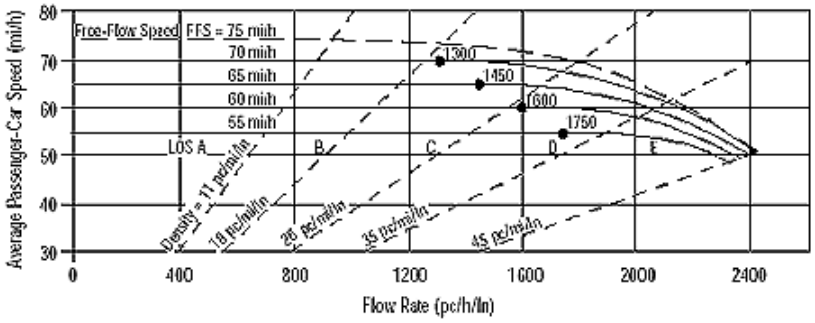
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	US 74 WB
From/To	
Jurisdiction	225
Analysis Year	2035 Build Toll Alternative 3B

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4097 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	1.5	mi/h
FFS	58.5	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1292	pc/h/ln
S	58.5	mi/h
D = v_p / S	22.1	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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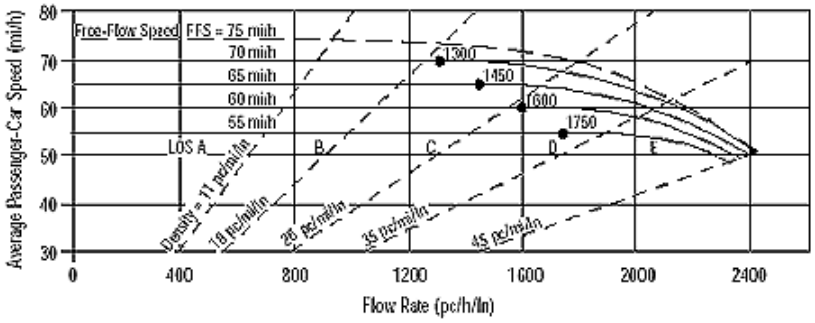
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	US 74 WB
From/To	
Jurisdiction	226
Analysis Year	2035 Build Toll Alternative 3B

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	2890 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	57.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1215	pc/h/ln
S	57.0	mi/h
D = v_p / S	21.3	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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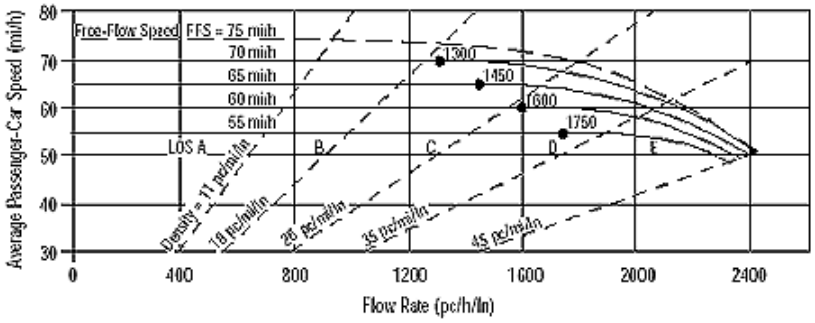
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	US 74 WB
From/To	
Jurisdiction	226
Analysis Year	2035 Build Toll Alternative 3B

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	2263 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	57.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	951	pc/h/ln
S	57.0	mi/h
D = v_p / S	16.7	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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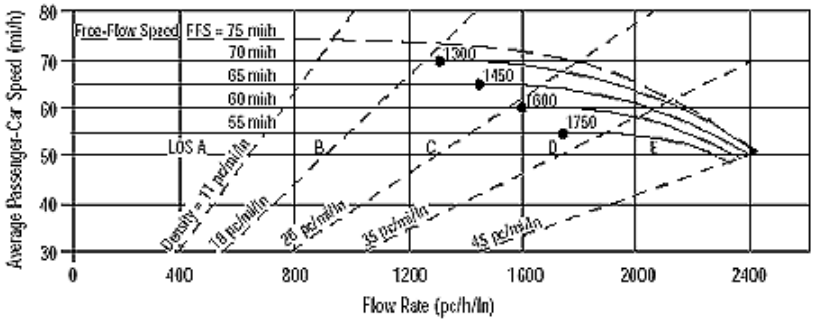
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	US 74 WB Off Ramp
From/To	
Jurisdiction	227
Analysis Year	2035 Build Toll Alternative 3B

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	2101 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1325	pc/h/ln
S	55.0	mi/h
D = v_p / S	24.1	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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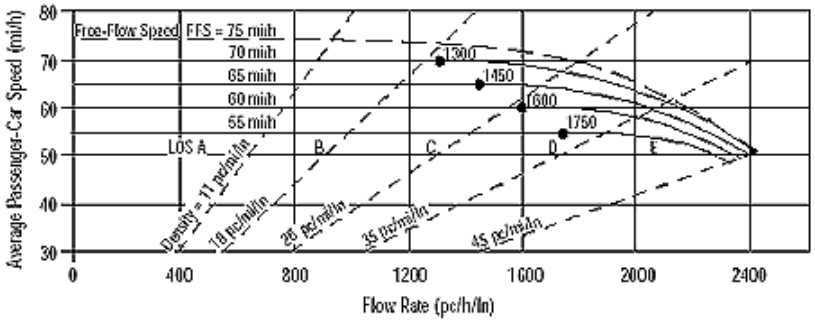
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	US 74 WB Off Ramp
From/To	
Jurisdiction	227
Analysis Year	2035 Build Toll Alternative 3B

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1834 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1156	pc/h/ln
S	55.0	mi/h
D = v_p / S	21.0	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/24/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB
Junction:	US 74 WB and I-485 NB
Jurisdiction:	228
Analysis Year:	2035 Build Toll Alternative 3B
Description:	Monroe Bypass/Connector

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2890	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	670	vph
Length of first accel/decel lane	700	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	622	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	2150	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2890	670	622	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	803	186	173	v
Trucks and buses	9	8	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.881	0.893	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3645	834	743	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.597 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 2176 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4479	6900	No
v_{R12}	3010	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 24.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.365	
Space mean speed in ramp influence area,	S_R = 53.4	mph
Space mean speed in outer lanes,	S_O = 56.5	mph
Space mean speed for all vehicles,	S = 54.4	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/24/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB
Junction:	US 74 WB and I-485 NB
Jurisdiction:	228
Analysis Year:	2035 Build Toll Alternative 3B
Description:	Monroe Bypass/Connector

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2263	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25.0	mph
Volume on ramp	664	vph
Length of first accel/decel lane	700	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	484	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	2150	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2263	664	484	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	629	184	134	v
Trucks and buses	9	8	5	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.881	0.893	0.930	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2854	826	578	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.597 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1704 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3680	6900	No
v_{R12}	2530	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 20.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.335	
Space mean speed in ramp influence area,	S_R = 54.0	mph
Space mean speed in outer lanes,	S_O = 57.7	mph
Space mean speed for all vehicles,	S = 55.1	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/24/08
Analysis time period:	AM Peak
Freeway/Dir of Travel:	US 74 WB
Junction:	US 74 WB and I-485 SB
Jurisdiction:	229
Analysis Year:	2035 Build Toll Alternative 3B
Description:	Monroe Bypass/Connector

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3560	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	622	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	670	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	2150	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3560	622	670	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	989	173	186	v
Trucks and buses	9	5	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.881	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4490	743	834	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.591 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 2656 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	5233	6900	No
v_{R12}	3399	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A$ = 28.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, M_S = 0.393

Space mean speed in ramp influence area, S_R = 52.9 mph

Space mean speed in outer lanes, S_O = 55.2 mph

Space mean speed for all vehicles, S = 53.7 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	OSR
Agency/Co.:	PBSJ
Date performed:	4/24/08
Analysis time period:	PM Peak
Freeway/Dir of Travel:	US 74 WB
Junction:	US 74 WB and I-485 SB
Jurisdiction:	229
Analysis Year:	2035 Build Toll Alternative 3B
Description:	Monroe Bypass/Connector

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2927	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	484	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	664	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	2150	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2927	484	664	vph
Peak-hour factor, PHF	0.90	0.90	0.90	
Peak 15-min volume, v15	813	134	184	v
Trucks and buses	9	5	8	%
Recreational vehicles	0	0	0	%
Terrain type:	Rolling	Rolling	Rolling	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	2.5	2.5	2.5	
Recreational vehicle PCE, ER	2.0	2.0	2.0	

Heavy vehicle adjustment, fHV	0.881	0.930	0.893	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3691	578	826	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.591 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 2183 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4269	6900	No
v_{R12}	2761	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 23.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, M_S = 0.338

Space mean speed in ramp influence area, S_R = 53.9 mph

Space mean speed in outer lanes, S_O = 56.4 mph

Space mean speed for all vehicles, S = 54.8 mph

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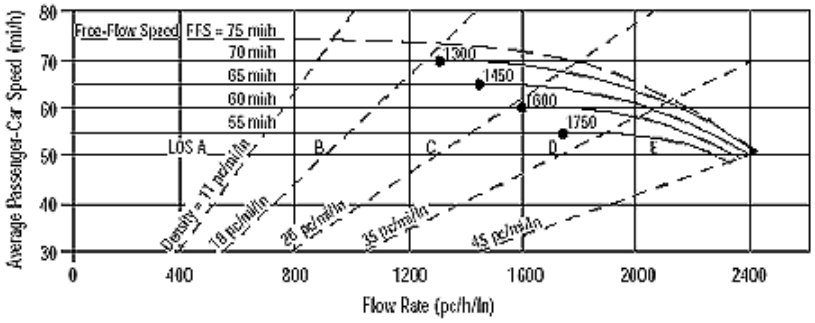

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	US 74 WB Off Ramp
From/To	
Jurisdiction	230
Analysis Year	2035 Build Toll Alternative 3B

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4182 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	57.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1758	pc/h/ln
S	57.0	mi/h
D = v_p / S	30.9	pc/mi/ln
LOS	D	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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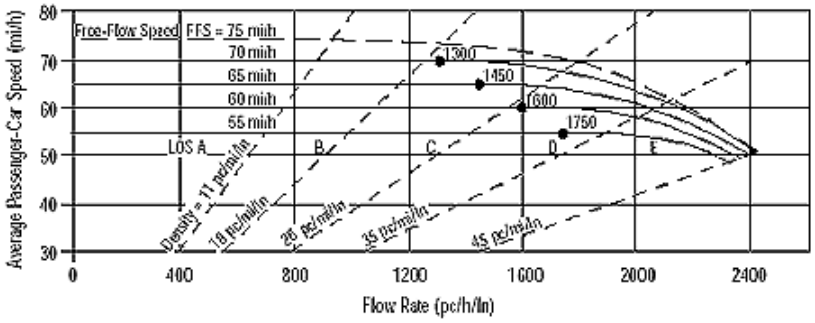
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	US 74 WB Off Ramp
From/To	
Jurisdiction	230
Analysis Year	2035 Build Toll Alternative 3B

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	3411 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	57.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1434	pc/h/ln
S	57.0	mi/h
D = v_p / S	25.2	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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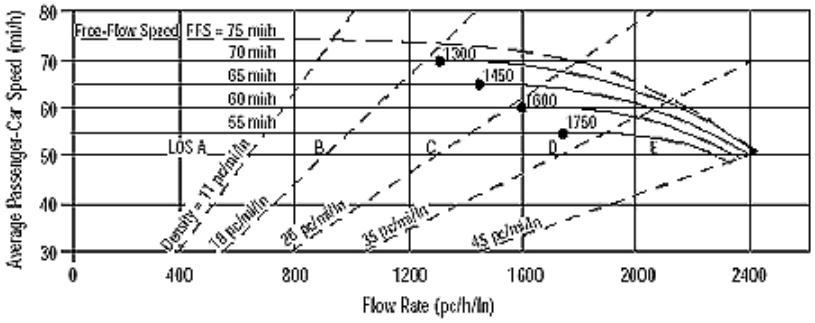
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	US 74 Flyover
From/To	
Jurisdiction	231
Analysis Year	2035 Build Toll Alternative 3B

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1301 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	820	pc/h/ln
S	55.0	mi/h
D = v_p / S	14.9	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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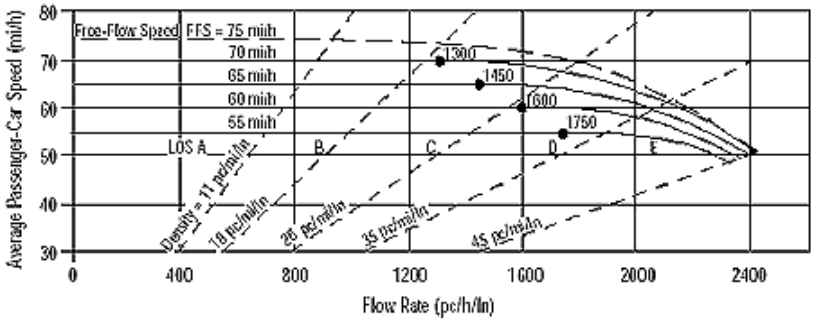
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	US 74 Flyover
From/To	
Jurisdiction	231
Analysis Year	2035 Build Toll Alternative 3B

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1028 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	648	pc/h/ln
S	55.0	mi/h
D = v_p / S	11.8	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	AM Peak

Site Information

Highway/Dir of Travel	US 74 SB Off Ramp
From/To	
Jurisdiction	232
Analysis Year	2035 Build Toll Alternative 3B

Flow Inputs

Volume, V	664 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	9%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.88106$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 837.38$$

LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **15.2**

LOS: **B**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

SINGLE LANE
BASIC FREEWAY SEGMENT WORKSHEET

General Information

Analyst:	OSR
Agency or Company:	PBSJ
Date Performed:	4/24/2008
Analysis Time Period:	AM Peak

Site Information

Highway/Dir of Travel	US 74 SB Off Ramp
From/To	
Jurisdiction	232
Analysis Year	2035 Build Toll Alternative 3B

Flow Inputs

Volume, V	670 veh/h	Peak Hour Factor, PHF	0.90
Driver Population, f_P	1	%Trucks and Buses, P_T	9%
General Terrain	Rolling	%RVs, P_R	0%

LOS and Performance Measures

$$f_{HV} = \frac{1}{1+ P_T(E_T-1)+P_R(E_R-1)} = 0.88106$$

$$V_P = \frac{V}{PHF*N*f_{HV}*f_P} = 844.94$$

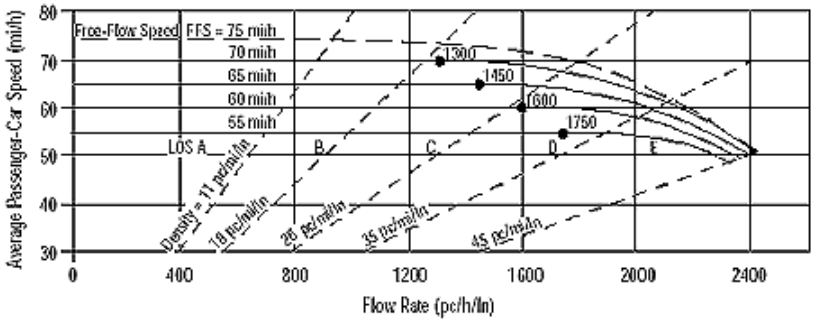
LOS	V_P (pc/h/ln)	Minimum Speed
A	600	55
B	990	55
C	1430	55
D	1910	54.7
E	2250	50

DENSITY: **15.4**

LOS: **B**

* From Exhibit 23-2 of the 2000 HCM - Maximum Service Flow Rate for a BFS with a FFS of 55mph.

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	I-485 NB On Ramp
From/To	
Jurisdiction	233
Analysis Year	2035 Build Toll Alternative 3B

Project Description Monroe Bypass / Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1965 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	826	pc/h/ln
S	55.0	mi/h
D = v_p / S	15.0	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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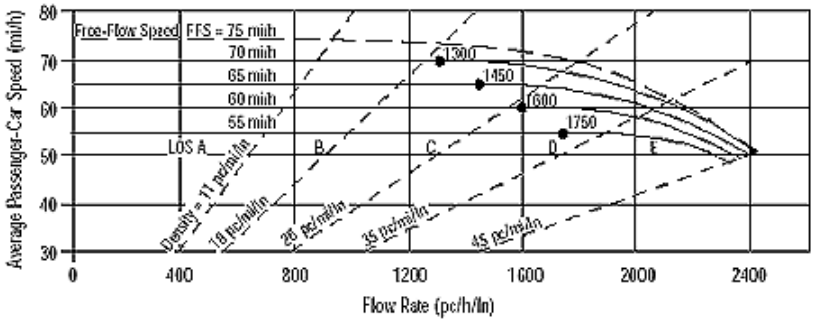
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	I-485 NB On Ramp
From/To	
Jurisdiction	233
Analysis Year	2035 Build Toll Alternative 3B

Project Description Monroe Bypass / Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1698 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)	55.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	55.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	714	pc/h/ln
S	55.0	mi/h
D = v_p / S	13.0	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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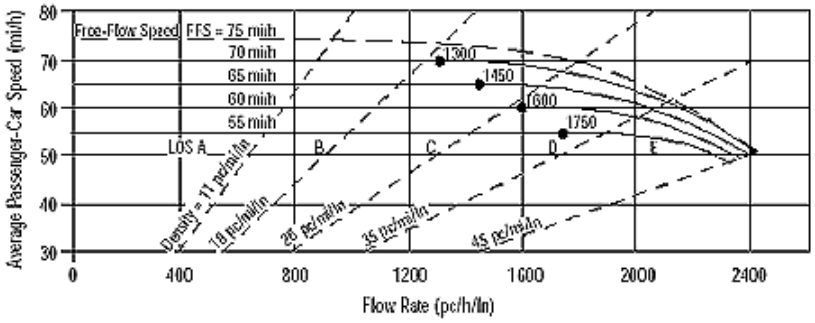

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	AM Peak

Site Information

Highway/Direction of Travel	US 74 EB
From/To	
Jurisdiction	234
Analysis Year	2035 Build Toll Alternative 3B

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	3411 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	57.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1434	pc/h/ln
S	57.0	mi/h
D = v_p / S	25.2	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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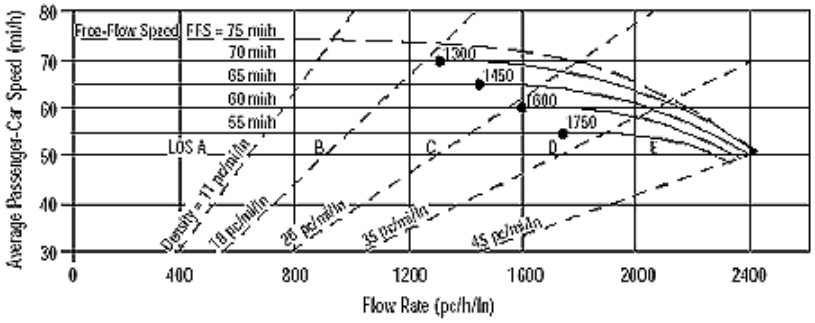
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	OSR
Agency or Company	PBSJ
Date Performed	4/24/08
Analysis Time Period	PM Peak

Site Information

Highway/Direction of Travel	US 74 EB
From/To	
Jurisdiction	234
Analysis Year	2035 Build Toll Alternative 3B

Project Description Monroe Bypass/Connector

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4182 veh/h	Peak-Hour Factor, PHF	0.90
AADT	veh/day	%Trucks and Buses, P_T	9
Peak-Hr Prop. of AADT, K		%RVs, P_R	0
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.881

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	60.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	3.0	mi/h
FFS	57.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1758	pc/h/ln
S	57.0	mi/h
D = v_p / S	30.9	pc/mi/ln
LOS	D	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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E-10-2

Business US 74 Intersections

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*OSR*
Agency/Co.	*PBS&J*
Date Performed	*4/30/08*
Analysis Time Period	*AM Peak*

Site Information

Intersection	*US 74 and Bivens Road*
Jurisdiction	
Analysis Year	*2035 Build Toll Alternative 3B*

Project Description *Monroe Connector/Bypass*

East/West Street: *US 74* | North/South Street: *Bivens Road*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*120*	*1110*	*10*	*10*	*1369*	*135*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*133*	*1233*	*11*	*11*	*1521*	*150*
Proportion of heavy vehicles, P_{HV}	*5*	--	--	*5*	--	--
Median type	*Undivided*					
RT Channelized?			*0*			*1*
Lanes	*1*	*2*	*1*	*1*	*2*	*1*
Configuration	*L*	*T*	*R*	*L*	*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*10*	*10*	*10*	*101*	*10*	*111*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*11*	*11*	*11*	*112*	*11*	*123*
Proportion of heavy vehicles, P_{HV}	*2*	*2*	*2*	*2*	*2*	*2*
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
Volume, v (vph)	*133*	*11*		*33*			*246*	
Capacity, c_m (vph)	*420*	*539*		*0*			*0*	
v/c ratio	*0.32*	*0.02*						
Queue length (95%)	*1.34*	*0.06*						
Control Delay (s/veh)	*17.5*	*11.8*						
LOS	*C*	*B*		*F*			*F*	
Approach delay (s/veh)	--	--						
Approach LOS	--	--						

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*OSR*
Agency/Co.	*PBS&J*
Date Performed	*4/30/08*
Analysis Time Period	*PM Peak*

Site Information

Intersection	*US 74 and Bivens Road*
Jurisdiction	
Analysis Year	*2035 Build Toll Alternat 3B*

Project Description *Monroe Connector/Bypass*

East/West Street: *US 74* | North/South Street: *Bivens Road*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*111*	*1369*	*10*	*10*	*1110*	*101*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*123*	*1521*	*11*	*11*	*1233*	*112*
Proportion of heavy vehicles, P_{HV}	*5*	--	--	*5*	--	--
Median type	*Undivided*					
RT Channelized?			*0*			*1*
Lanes	*1*	*2*	*1*	*1*	*2*	*1*
Configuration	*L*	*T*	*R*	*L*	*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*10*	*10*	*10*	*135*	*10*	*120*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*11*	*11*	*11*	*150*	*11*	*133*
Proportion of heavy vehicles, P_{HV}	*2*	*2*	*2*	*2*	*2*	*2*
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
Volume, v (vph)	*123*	*11*		*33*			*294*	
Capacity, c_m (vph)	*545*	*416*		*0*			*0*	
v/c ratio	*0.23*	*0.03*						
Queue length (95%)	*0.86*	*0.08*						
Control Delay (s/veh)	*13.5*	*13.9*						
LOS	*B*	*B*		*F*			*F*	
Approach delay (s/veh)	--	--						
Approach LOS	--	--						

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*OSR*
Agency/Co.	*PBS&J*
Date Performed	*4/30/08*
Analysis Time Period	*AM Peak*

Site Information

Intersection	*US 74 and Seacrest Shortcut*
Jurisdiction	
Analysis Year	*2035 Build Toll Alternative 3B*

Project Description *Monroe Connector/Bypass*

East/West Street: *US 74* | North/South Street: *Seacrest Shortcut RIRO*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*0*	*906*	*306*	*0*	*1405*	*0*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*0*	*1006*	*340*	*0*	*1561*	*0*
Proportion of heavy vehicles, P_{HV}		--	--		--	--
Median type	*Undivided*					
RT Channelized?			*0*			*1*
Lanes	*0*	*2*	*1*	*0*	*2*	*0*
Configuration		*T*	*R*		*T*	
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*428*	*0*	*0*	*0*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*0*	*0*	*475*	*0*	*0*	*0*
Proportion of heavy vehicles, P_{HV}			*4*			
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					*R*			
Volume, v (vph)					*475*			
Capacity, c_m (vph)					*509*			
v/c ratio					*0.93*			
Queue length (95%)					*11.39*			
Control Delay (s/veh)					*53.6*			
LOS					*F*			
Approach delay (s/veh)	--	--	*53.6*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*US 74 and Seacrest Shortcut*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*4/30/08*	Analysis Year	*2035 Build Toll Alternative 3B*
Analysis Time Period	*PM Peak*		

Project Description *Monroe Connector/Bypass*

East/West Street: *US 74* | North/South Street: *Seacrest Shortcut RIRO*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*0*	*1161*	*430*	*0*	*1149*	*0*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*0*	*1290*	*477*	*0*	*1276*	*0*
Proportion of heavy vehicles, P_{HV}		--	--		--	--
Median type	*Undivided*					
RT Channelized?			*0*			*1*
Lanes	*0*	*2*	*1*	*0*	*2*	*0*
Configuration		*T*	*R*		*T*	
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*304*	*0*	*0*	*0*
Peak-hour factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate (veh/h)	*0*	*0*	*337*	*0*	*0*	*0*
Proportion of heavy vehicles, P_{HV}			*4*			
Percent grade (%)		*0*			*0*	
Flared approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized?			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					*R*			
Volume, v (vph)					*337*			
Capacity, c_m (vph)					*410*			
v/c ratio					*0.82*			
Queue length (95%)					*7.57*			
Control Delay (s/veh)					*43.4*			
LOS					*E*			
Approach delay (s/veh)	--	--	*43.4*					
Approach LOS	--	--	*E*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*Stallings Rd & Union West Blvd*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*7/7/2008*	Analysis Year	*2035 Build Toll Alternative 3B*
Analysis Time Period	*AM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *Union West Blvd*	North/South Street: *Stallings Rd*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*344*	*75*	*50*	*526*	*0*
Peak-Hour Factor, PHF	*1.00*	*0.90*	*0.90*	*0.90*	*0.90*	*1.00*
Hourly Flow Rate, HFR	*0*	*382*	*83*	*55*	*584*	*0*
Percent Heavy Vehicles		--	--	*2*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*1*	*1*	*0*
Configuration		*T*	*R*	*L*	*T*	
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*126*	*0*	*55*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*140*	*0*	*61*	*0*	*0*	*0*
Percent Heavy Vehicles	*2*		*2*			
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*		*LR*				
v (vph)		*55*		*201*				
C (m) (vph)		*1096*		*288*				
v/c		*0.05*		*0.70*				
95% queue length		*0.16*		*4.81*				
Control Delay		*8.5*		*42.0*				
LOS		*A*		*E*				
Approach Delay	--	--	*42.0*					
Approach LOS	--	--	*E*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*OSR*	Intersection	*Stallings Rd & Union West Blvd*
Agency/Co.	*PBS&J*	Jurisdiction	
Date Performed	*7/7/2008*	Analysis Year	*2035 Build Toll Alternative 3B*
Analysis Time Period	*PM Peak*		

Project Description	*Monroe Connector/Bypass*
East/West Street: *Union West Blvd*	North/South Street: *Stallings Rd*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*526*	*126*	*55*	*344*	*0*
Peak-Hour Factor, PHF	*1.00*	*0.90*	*0.90*	*0.90*	*0.90*	*1.00*
Hourly Flow Rate, HFR	*0*	*584*	*140*	*61*	*382*	*0*
Percent Heavy Vehicles	*0*	--	--	*2*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*1*	*1*	*0*
Configuration		*T*	*R*	*L*	*T*	
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*75*	*0*	*50*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*83*	*0*	*55*	*0*	*0*	*0*
Percent Heavy Vehicles	*2*	*0*	*2*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*LTR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*		*LTR*				
v (vph)		*61*		*138*				
C (m) (vph)		*879*		*287*				
v/c		*0.07*		*0.48*				
95% queue length		*0.22*		*2.45*				
Control Delay		*9.4*		*28.6*				
LOS		*A*		*D*				
Approach Delay	--	--	*28.6*					
Approach LOS	--	--	*D*					

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	478	31	220	325	58	138	80	3483	527	305	4382	237
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1719	3438	1538	1719	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	1719	3438	1538	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			45			55			55	
Link Distance (ft)		1096			1168			1536			3465	
Travel Time (s)		21.4			17.7			19.0			43.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	531	34	244	361	64	153	89	3870	586	339	4869	263
Shared Lane Traffic (%)												
Lane Group Flow (vph)	531	34	244	361	64	153	89	3870	586	339	4869	263
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	1	6	7	5	2	3
Permitted Phases			4			8			6			2
Detector Phase	7	4	5	3	8	1	1	6	7	5	2	3
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	14.0	7.0	7.0	14.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0	14.0	14.0	21.0	14.0	14.0	21.0	14.0
Total Split (s)	19.0	14.0	22.0	19.0	14.0	14.0	14.0	85.0	19.0	22.0	93.0	19.0
Total Split (%)	13.6%	10.0%	15.7%	13.6%	10.0%	10.0%	10.0%	60.7%	13.6%	15.7%	66.4%	13.6%
Maximum Green (s)	12.0	7.0	15.0	12.0	7.0	7.0	7.0	78.0	12.0	15.0	86.0	12.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	14.0	9.0	28.2	16.8	9.0	21.2	10.0	80.0	99.0	19.8	89.8	111.6
Actuated g/C Ratio	0.10	0.06	0.20	0.12	0.06	0.15	0.07	0.57	0.71	0.14	0.64	0.80
v/c Ratio	1.55	0.15	0.76	0.88	0.28	0.64	0.72	1.97	0.54	1.40	2.21	0.21
Control Delay	300.7	63.6	69.1	82.1	65.8	68.1	95.1	460.8	11.9	242.5	564.6	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	300.7	63.6	69.1	82.1	65.8	68.1	95.1	460.8	11.9	242.5	564.6	4.4
LOS	F	E	E	F	E	E	F	F	B	F	F	A
Approach Delay		220.8			76.6			395.8			517.7	
Approach LOS		F			E			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 180			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 2.21			
Intersection Signal Delay: 425.7		Intersection LOS: F	
Intersection Capacity Utilization 159.8%		ICU Level of Service H	
Analysis Period (min) 15			

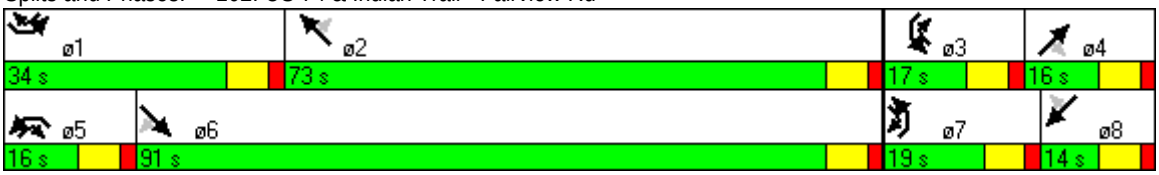
Splits and Phases: 101: Stallings Road & US 74

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	333	1704	408	104	2080	134	394	137	82	196	261	610
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3335	3438	1538	1719	3438	1538	3335	3438	1538	3335	3438	1538
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3438	1538	1719	3438	1538	3335	3438	1538	3335	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			35			35	
Link Distance (ft)		2103			2380			902			1112	
Travel Time (s)		26.1			29.5			17.6			21.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	370	1893	453	116	2311	149	438	152	91	218	290	678
Shared Lane Traffic (%)												
Lane Group Flow (vph)	370	1893	453	116	2311	149	438	152	91	218	290	678
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	1
Switch Phase												
Minimum Initial (s)	7.0	14.0	7.0	7.0	14.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.5	21.0	14.0	14.0	21.0	14.0	14.0	14.0	14.0	14.0	14.0	14.5
Total Split (s)	34.0	91.0	19.0	16.0	73.0	17.0	19.0	16.0	16.0	17.0	14.0	34.0
Total Split (%)	24.3%	65.0%	13.6%	11.4%	52.1%	12.1%	13.6%	11.4%	11.4%	12.1%	10.0%	24.3%
Maximum Green (s)	27.0	84.0	12.0	9.0	66.0	10.0	12.0	9.0	9.0	10.0	7.0	27.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	29.0	86.0	105.0	11.0	68.0	85.0	14.0	11.0	27.0	12.0	9.0	43.0
Actuated g/C Ratio	0.21	0.61	0.75	0.08	0.49	0.61	0.10	0.08	0.19	0.09	0.06	0.31
v/c Ratio	0.54	0.90	0.39	0.86	1.38	0.16	1.31	0.56	0.31	0.76	1.31	1.44
Control Delay	52.8	30.2	7.4	110.1	207.4	12.5	207.4	70.8	51.8	80.1	217.7	244.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.8	30.2	7.4	110.1	207.4	12.5	207.4	70.8	51.8	80.1	217.7	244.4
LOS	D	C	A	F	F	B	F	E	D	F	F	F
Approach Delay		29.5			191.7			156.1			207.7	
Approach LOS		C			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 170			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.44			
Intersection Signal Delay: 129.4		Intersection LOS: F	
Intersection Capacity Utilization 119.0%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 102: US 74 & Indian Trail - Fairview Rd



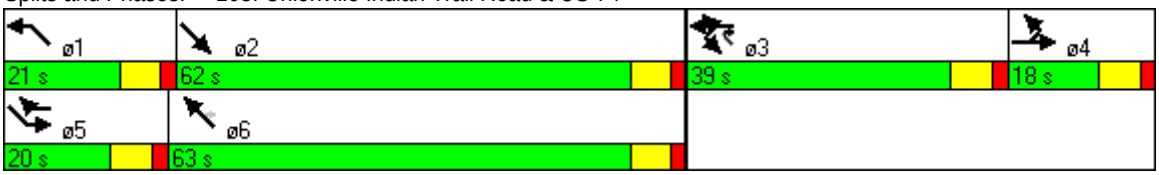
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	40	151	139	454	364	682	396	1361	56	238	1661	322
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Frt		0.937				0.850		0.994				0.850
Flt Protected		0.994		0.950	0.994		0.950			0.950		
Satd. Flow (prot)	0	3264	0	1665	1742	1568	3335	3417	0	1719	3438	1538
Flt Permitted		0.994		0.950	0.994		0.950			0.950		
Satd. Flow (perm)	0	3264	0	1665	1742	1568	3335	3417	0	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			45			55			55	
Link Distance (ft)		795			1304			1032			1062	
Travel Time (s)		15.5			19.8			12.8			13.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	44	168	154	504	404	758	440	1512	62	264	1846	358
Shared Lane Traffic (%)				12%								
Lane Group Flow (vph)	0	366	0	444	464	758	440	1574	0	264	1846	358
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	1	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	1	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pt+ov	Prot			Prot		pm+ov
Protected Phases	4	4		3	3	3 5	5	2		1	6	3
Permitted Phases												6
Detector Phase	4	4		3	3	3 5	5	2		1	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	14.0		7.0	14.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	21.0		14.0	21.0	14.0
Total Split (s)	18.0	18.0	0.0	39.0	39.0	59.0	20.0	62.0	0.0	21.0	63.0	39.0
Total Split (%)	12.9%	12.9%	0.0%	27.9%	27.9%	42.1%	14.3%	44.3%	0.0%	15.0%	45.0%	27.9%
Maximum Green (s)	11.0	11.0		32.0	32.0		13.0	55.0		14.0	56.0	32.0
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead		Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	None
Act Effct Green (s)		13.0		34.0	34.0	49.0	15.0	57.0		16.0	58.0	97.0
Actuated g/C Ratio		0.09		0.24	0.24	0.35	0.11	0.41		0.11	0.41	0.69
v/c Ratio		1.21		1.10	1.10	1.38	1.23	1.13		1.35	1.30	0.34
Control Delay		172.2		122.8	121.2	210.0	176.8	107.3		231.5	173.6	9.6
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay		172.2		122.8	121.2	210.0	176.8	107.3		231.5	173.6	9.6
LOS		F		F	F	F	F	F		F	F	A
Approach Delay		172.2			162.0			122.5			156.0	
Approach LOS		F			F			F			F	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green
Natural Cycle: 180
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.38
Intersection Signal Delay: 148.1 Intersection LOS: F
Intersection Capacity Utilization 110.4% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 103: Unionville Indian Trail Road & US 74



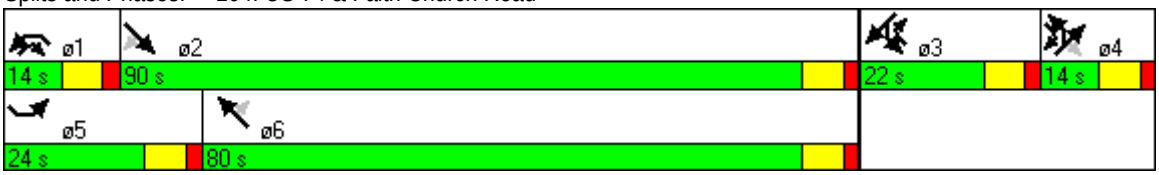
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	256	1634	24	39	2025	320	40	14	53	201	7	199
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.855	
Flt Protected	0.950			0.950				0.965		0.950		
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	0	1682	1482	1770	1593	0
Flt Permitted	0.950			0.950				0.965		0.950		
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	0	1682	1482	1770	1593	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			15			35	
Link Distance (ft)		1177			2588			625			368	
Travel Time (s)		14.6			32.1			28.4			7.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	9%	9%	9%	2%	2%	2%
Adj. Flow (vph)	284	1816	27	43	2250	356	44	16	59	223	8	221
Shared Lane Traffic (%)												
Lane Group Flow (vph)	284	1816	27	43	2250	356	0	60	59	223	229	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	5	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	5	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot		pm+ov	Split		pm+ov	Split		
Protected Phases	5	2	4	1	6	3	4	4	1	3	3	
Permitted Phases			2			6			4			
Detector Phase	5	2	4	1	6	3	4	4	1	3	3	
Switch Phase												
Minimum Initial (s)	7.0	14.0	7.0	7.0	14.0	7.0	7.0	7.0	7.0	7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	21.0	14.0	14.0	21.0	14.0	14.0	14.0	14.0	14.0	14.0	
Total Split (s)	24.0	90.0	14.0	14.0	80.0	22.0	14.0	14.0	14.0	22.0	22.0	0.0
Total Split (%)	17.1%	64.3%	10.0%	10.0%	57.1%	15.7%	10.0%	10.0%	10.0%	15.7%	15.7%	0.0%
Maximum Green (s)	17.0	83.0	7.0	7.0	73.0	15.0	7.0	7.0	7.0	15.0	15.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	
Act Effct Green (s)	21.8	90.6	97.8	9.0	75.0	97.0		9.0	20.2	17.0	17.0	
Actuated g/C Ratio	0.16	0.65	0.70	0.06	0.54	0.69		0.06	0.14	0.12	0.12	
v/c Ratio	1.06	0.82	0.03	0.39	1.22	0.33		0.56	0.28	1.04	1.19	
Control Delay	127.5	24.4	4.0	73.5	135.5	9.6		83.3	55.2	130.0	175.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	127.5	24.4	4.0	73.5	135.5	9.6		83.3	55.2	130.0	175.3	
LOS	F	C	A	E	F	A		F	E	F	F	
Approach Delay		37.9			117.6			69.4			152.9	
Approach LOS		D			F			E			F	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green
Natural Cycle: 180
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.22
Intersection Signal Delay: 87.8 Intersection LOS: F
Intersection Capacity Utilization 105.3% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 104: US 74 & Faith Church Road



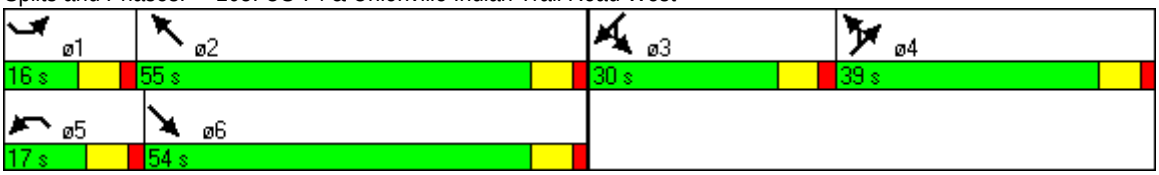
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	181	964	783	191	1300	251	727	106	132	315	193	306
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.933			0.976			0.917			0.908	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3208	0	1719	3356	0	1770	1708	0	1770	1691	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1719	3208	0	1719	3356	0	1770	1708	0	1770	1691	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		606			973			698			813	
Travel Time (s)		7.5			12.1			10.6			12.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	201	1071	870	212	1444	279	808	118	147	350	214	340
Shared Lane Traffic (%)												
Lane Group Flow (vph)	201	1941	0	212	1723	0	808	265	0	350	554	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Split			Split		
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases												
Detector Phase	1	6		5	2		4	4		3	3	
Switch Phase												
Minimum Initial (s)	7.0	14.0		7.0	14.0		7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	21.0		14.0	21.0		14.0	14.0		14.0	14.0	
Total Split (s)	16.0	54.0	0.0	17.0	55.0	0.0	39.0	39.0	0.0	30.0	30.0	0.0
Total Split (%)	11.4%	38.6%	0.0%	12.1%	39.3%	0.0%	27.9%	27.9%	0.0%	21.4%	21.4%	0.0%
Maximum Green (s)	9.0	47.0		10.0	48.0		32.0	32.0		23.0	23.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	11.0	49.0		12.0	50.0		34.0	34.0		25.0	25.0	
Actuated g/C Ratio	0.08	0.35		0.09	0.36		0.24	0.24		0.18	0.18	
v/c Ratio	1.49	1.73		1.44	1.44		1.88	0.64		1.11	1.83	
Control Delay	297.2	361.4		276.4	236.0		434.3	55.6		134.5	420.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	297.2	361.4		276.4	236.0		434.3	55.6		134.5	420.1	
LOS	F	F		F	F		F	E		F	F	
Approach Delay		355.4			240.4			340.8			309.5	
Approach LOS		F			F			F			F	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green
Natural Cycle: 170
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.88
Intersection Signal Delay: 309.2 Intersection LOS: F
Intersection Capacity Utilization 148.2% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 105: US 74 & Unionville Indian Trail Road West



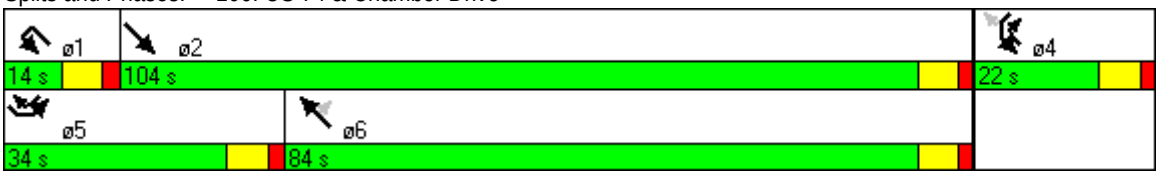
Lane Group	SEL	SET	NWU	NWT	NWR	SWL	SWR
Lane Configurations							
Volume (vph)	130	1224	10	1448	52	125	371
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Frt					0.850		0.850
Flt Protected	0.950		0.950			0.950	
Satd. Flow (prot)	1719	3438	1719	3438	1538	1770	1583
Flt Permitted	0.950		0.950			0.950	
Satd. Flow (perm)	1719	3438	1719	3438	1538	1770	1583
Right Turn on Red					No		No
Satd. Flow (RTOR)							
Link Speed (mph)		55		55		35	
Link Distance (ft)		2407		1378		1258	
Travel Time (s)		29.8		17.1		24.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	2%	2%
Adj. Flow (vph)	144	1360	11	1609	58	139	412
Shared Lane Traffic (%)							
Lane Group Flow (vph)	144	1360	11	1609	58	139	412
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Left	R NA	Left	Right	Left	Right
Median Width(ft)		12		12		12	
Link Offset(ft)		0		0		0	
Crosswalk Width(ft)		0		0		0	
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9		9	15	9
Number of Detectors	1	2	1	2	1	1	1
Detector Template	Left	Thru	Left	Thru	Right	Left	Right
Leading Detector (ft)	20	100	20	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94		94			
Detector 2 Size(ft)		6		6			
Detector 2 Type		Cl+Ex		Cl+Ex			
Detector 2 Channel							
Detector 2 Extend (s)		0.0		0.0			
Turn Type	Prot		Prot		pm+ov		pm+ov
Protected Phases	5	2	1	6	4	4	5
Permitted Phases					6		4
Detector Phase	5	2	1	6	4	4	5
Switch Phase							
Minimum Initial (s)	7.0	14.0	7.0	14.0	7.0	7.0	7.0

Lane Group	SEL	SET	NWU	NWT	NWR	SWL	SWR
Minimum Split (s)	14.0	21.0	14.0	21.0	14.0	14.0	14.0
Total Split (s)	34.0	104.0	14.0	84.0	22.0	22.0	34.0
Total Split (%)	24.3%	74.3%	10.0%	60.0%	15.7%	15.7%	24.3%
Maximum Green (s)	27.0	97.0	7.0	77.0	15.0	15.0	27.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag			Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	C-Max	None	None	None
Act Effct Green (s)	25.8	108.6	9.0	83.3	104.2	15.8	46.7
Actuated g/C Ratio	0.18	0.78	0.06	0.60	0.74	0.11	0.33
v/c Ratio	0.45	0.51	0.10	0.79	0.05	0.70	0.78
Control Delay	55.1	7.6	63.9	26.0	5.4	78.0	52.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.1	7.6	63.9	26.0	5.4	78.0	52.9
LOS	E	A	E	C	A	E	D
Approach Delay		12.1		25.5		59.2	
Approach LOS		B		C		E	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 25.1 Intersection LOS: C
Intersection Capacity Utilization 71.3% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 106: US 74 & Chamber Drive

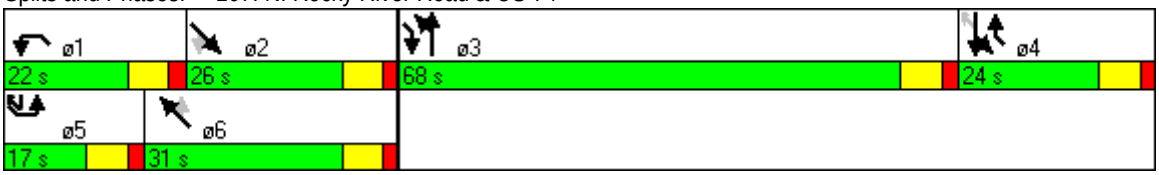


Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	753	141	375	228	123	294	193	546	433	274	692	189
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.960				0.850			0.850			0.850
Flt Protected		0.971			0.969		0.950			0.950		
Satd. Flow (prot)	0	1736	0	0	1805	1583	1719	3438	1538	1719	3438	1538
Flt Permitted		0.971			0.969		0.950			0.950		
Satd. Flow (perm)	0	1736	0	0	1805	1583	1719	3438	1538	1719	3438	1538
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		1176			418			3021			3350	
Travel Time (s)		17.8			6.3			37.5			41.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	837	157	417	253	137	327	214	607	481	304	769	210
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1411	0	0	390	327	214	607	481	304	769	210
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split			Split		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	3	3		4	4	5	5	2	3	1	6	4
Permitted Phases						4			2			6
Detector Phase	3	3		4	4	5	5	2	3	1	6	4
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	14.0	7.0	7.0	14.0	7.0

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	14.0	14.0		14.0	14.0	14.0	14.0	21.0	14.0	14.0	21.0	14.0
Total Split (s)	68.0	68.0	0.0	24.0	24.0	17.0	17.0	26.0	68.0	22.0	31.0	24.0
Total Split (%)	48.6%	48.6%	0.0%	17.1%	17.1%	12.1%	12.1%	18.6%	48.6%	15.7%	22.1%	17.1%
Maximum Green (s)	61.0	61.0		17.0	17.0	10.0	10.0	19.0	61.0	15.0	24.0	17.0
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead		Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)		63.0			19.0	36.0	12.0	21.0	89.0	17.0	26.0	45.0
Actuated g/C Ratio		0.45			0.14	0.26	0.09	0.15	0.64	0.12	0.19	0.32
v/c Ratio		1.81			1.59	0.80	1.46	1.18	0.49	1.45	1.21	0.43
Control Delay		394.7			322.7	64.7	281.6	148.7	15.7	271.0	154.3	27.1
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		394.7			322.7	64.7	281.6	148.7	15.7	271.0	154.3	27.1
LOS		F			F	E	F	F	B	F	F	C
Approach Delay		394.7			205.1			121.4			161.2	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green			
Natural Cycle: 170			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.81			
Intersection Signal Delay: 226.8		Intersection LOS: F	
Intersection Capacity Utilization 138.1%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 107: N. Rocky River Road & US 74



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	54	936	33	83	1169	138	29	66	58	173	120	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.984			0.949			0.970	
Flt Protected	0.950			0.950				0.991			0.978	
Satd. Flow (prot)	1719	3421	0	1719	3383	0	0	1752	0	0	1767	0
Flt Permitted	0.950			0.950				0.871			0.727	
Satd. Flow (perm)	1719	3421	0	1719	3383	0	0	1540	0	0	1314	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		2601			2354			277			1205	
Travel Time (s)		39.4			35.7			5.4			18.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	60	1040	37	92	1299	153	32	73	64	192	133	94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	60	1077	0	92	1452	0	0	169	0	0	419	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		
Detector Phase	1	6		5	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	

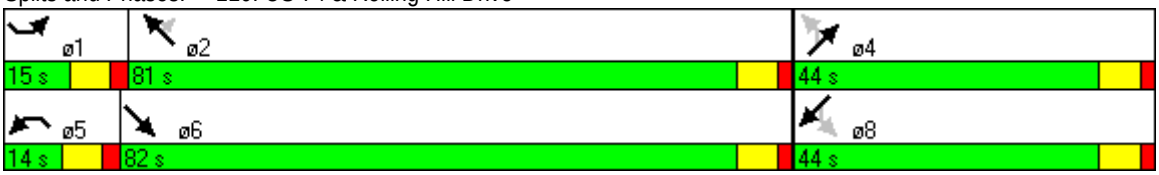
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0		14.0	19.0		14.0	14.0		21.0	21.0	
Total Split (s)	14.0	65.0	0.0	20.0	71.0	0.0	55.0	55.0	0.0	55.0	55.0	0.0
Total Split (%)	10.0%	46.4%	0.0%	14.3%	50.7%	0.0%	39.3%	39.3%	0.0%	39.3%	39.3%	0.0%
Maximum Green (s)	7.0	58.0		13.0	64.0		48.0	48.0		48.0	48.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	9.3	63.8		13.5	70.7			47.8			47.8	
Actuated g/C Ratio	0.07	0.46		0.10	0.50			0.34			0.34	
v/c Ratio	0.52	0.69		0.56	0.85			0.32			0.94	
Control Delay	80.0	34.1		73.2	37.5			35.5			73.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	80.0	34.1		73.2	37.5			35.5			73.5	
LOS	F	C		E	D			D			E	
Approach Delay		36.5			39.6			35.5			73.5	
Approach LOS		D			D			D			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 42.7		Intersection LOS: D	
Intersection Capacity Utilization 88.9%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 108: US 74 & Fowler-Secrest Rd

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	47	1028	124	16	1251	7	157	11	16	9	13	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.984				0.850		0.988			0.896	
Flt Protected	0.950			0.950				0.959			0.995	
Satd. Flow (prot)	1719	3383	0	1719	3438	1538	0	1765	0	0	1661	0
Flt Permitted	0.950			0.950				0.626			0.966	
Satd. Flow (perm)	1719	3383	0	1719	3438	1538	0	1152	0	0	1612	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		309			978			474			425	
Travel Time (s)		4.7			14.8			12.9			11.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	52	1142	138	18	1390	8	174	12	18	10	14	82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	52	1280	0	18	1390	8	0	204	0	0	106	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		0			0			0			0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot		Perm	Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases						2	4			8		
Detector Phase	1	6		5	2	2	4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	12.0	7.0	7.0		7.0	7.0	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Minimum Split (s)	14.0	19.0		14.0	19.0	19.0	14.0	14.0		14.0	14.0	
Total Split (s)	15.0	82.0	0.0	14.0	81.0	81.0	44.0	44.0	0.0	44.0	44.0	0.0
Total Split (%)	10.7%	58.6%	0.0%	10.0%	57.9%	57.9%	31.4%	31.4%	0.0%	31.4%	31.4%	0.0%
Maximum Green (s)	8.0	75.0		7.0	74.0	74.0	37.0	37.0		37.0	37.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		None	None	
Act Effct Green (s)	10.8	93.8		9.2	86.6	86.6		30.5			30.5	
Actuated g/C Ratio	0.08	0.67		0.07	0.62	0.62		0.22			0.22	
v/c Ratio	0.39	0.56		0.16	0.65	0.01		0.81			0.30	
Control Delay	70.4	15.8		65.2	21.2	14.3		75.5			46.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	
Total Delay	70.4	15.8		65.2	21.2	14.3		75.5			46.3	
LOS	E	B		E	C	B		E			D	
Approach Delay		18.0			21.7			75.5			46.3	
Approach LOS		B			C			E			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 24.5		Intersection LOS: C	
Intersection Capacity Utilization 64.3%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 110: US 74 & Rolling Hill Drive