
TRAFFIC FORECASTS FOR THE
NO-BUILD ALTERNATIVES FOR
NCDOT STATE TIP PROJECT No. R-3329
AND
NCDOT STATE TIP PROJECT No. R-2559,
MONROE CONNECTOR/BYPASS STUDY
MECKLENBURG COUNTY AND UNION COUNTY, NORTH CAROLINA

Prepared for



for the



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4000 WestChase Boulevard, Suite 530, Raleigh, North Carolina 27607

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NO-BUILD FORECASTS FOR MONROE CONNECTOR/BYPASS STUDY

INTRODUCTION

This memorandum details the methodology used to develop the Base Year and Future Year No-Build Forecasts for the Monroe Connector/Bypass Study, a North Carolina Turnpike Authority (NCTA) candidate project. The base year is 2007 and the future year is 2030. Daily, A.M. peak hour, and P.M. peak hour forecasts for each were prepared as well. Procedures for both No-Build Alternatives are summarized in this document.

PURPOSE

The purpose of this project is to establish the No-Build Forecasts for the Purpose and Need for the project. This effort requires the use of the Metrolina Regional Travel Demand Model (MRTDM). The version of the Metrolina Regional Travel Demand Model (MRTDM) received on April 13, 2006, from Charlotte Department of Transportation is used for traffic assignment. The resulting traffic volumes will be used to estimate 2030 traffic volumes for preliminary design and impact assessment.

The current model is not capable of testing toll alternatives and therefore had to be enhanced to incorporate the capability. This report does NOT include estimates of toll revenues.

PROJECT DESCRIPTION

The Monroe Connector/Bypass Study is a 21.1-mile candidate North Carolina Turnpike Authority alternative that is planned as a multi-lane, new location freeway from the intersection of US 74 at I-485 in Mecklenburg County to US 74 near the Town of Marshville in Union County.

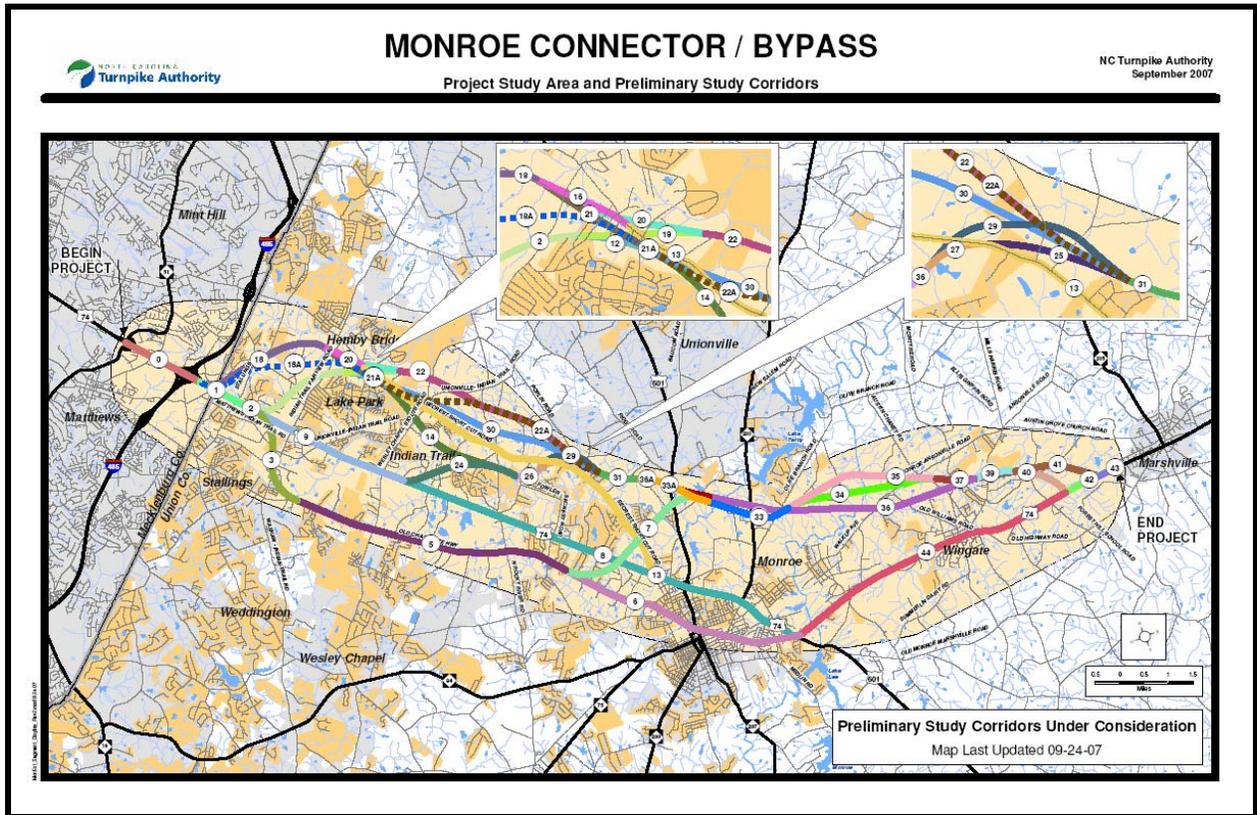
The Monroe Connector/Bypass Study is a culmination of two NCDOT State Transportation Improvement Program (TIP) Projects:

- TIP Project No. R-3329, Monroe Connector, where three sections are described as:
 - *Section A*: From the Charlotte Outer Loop (I-485 at US 74) to SR 1520 (Indian Trail-Fairview Road).
 - *Section B*: From SR 1520 (Indian Trail-Fairview Road) to SR 1514 (Rocky River Road).
 - *Section C*: From SR 1514 (Rocky River Road) to US 601.
- TIP Project No. R-2559, Monroe Bypass, where three sections are described as:
 - *Section A*: From east of SR 1515 (Sustar Road) to west of US 601.
 - *Section B*: From west of US 601 to west of SR 1758 (Whitmore Road).
 - *Section C*: From west of SR 1758 (Whitmore Road) to Existing US 74.

The project limits for the Monroe Connector/Bypass Study are shown in Figure 1.

NO-BUILD FORECASTS FOR MONROE CONNECTOR/BYPASS STUDY

Figure 1: Monroe Connector/Bypass Project Limits¹



Unless otherwise specified, relevant roadway projects assumed to be constructed in the future years are included in Table 1.

Table 1: Projects Included in the MRTDM Future Networks

YEAR	PROJECT	LIMITS	TYPE	PROJECT LENGTH
2030	Arequipa Dr. / Northeast Parkway	Margaret Wallace Rd. to Sam Newell Rd.	New Road (2)	2.19
2030	Idlewild Rd.	Margaret Wallace Rd. to NC 51	Widening (4)	0.93
2020	Independence Pointe Pkwy.	Charlotte City Limits to Sam Newell Rd.	New Road (2)	0.92
2020	Krefeld Dr. Extension	Current End to Charlotte City Limit	New Road (2)	0.96
2030	Lawyers Rd.	I-485(E) to StevensMill Rd.	Widening (4)	0.44
2020	NC 51 (Matthews-Mint Hill Rd.)	Matthews Byp. to Lawyers Rd.	Widening (4)	1.75

¹ Taken from www.ncturnpike.org.

NO-BUILD FORECASTS FOR MONROE CONNECTOR/BYPASS STUDY

YEAR	PROJECT	LIMITS	TYPE	PROJECT LENGTH
2030	Northeast Pkwy. Extension	New NC 51 to Old NC 51	New Road (2)	1.84
2030	John St	Trade St. to I-485	Widening (4)	1.39
2030	Sardis Rd.	Sardis Rd. North to NC 51	Widening (4)	1.67
2030	Sardis Church/Unionville-Indian Trial Rd	Secrest Short Cut to US 74	Widening (4)	1.58
2030	Faith Church Extension	US 74 to Monroe Rd	New Road (2)	1.22
2030	NC 84	NC 84 Relocation to Waxhaw-Indian Trail Rd	Widening (4)	2.69
2020	US 74 Expressway	Krefeld to Hayden Way	Freeway	2.23
2020	US 74 Expressway	Hayden Way to NC 51	Freeway	4.01
2020	US 74 Expressway	NC 51 to I 485	Expressway	5.88
2030	I-485	NC 16 (Providence Rd) to US 74	Widening (6) Freeway	10.09
2020	I-485	US 74 to Albemarle Road	Widening (6) Freeway	4.66
2004	McKee Rd.	NC 16 to Tilley Morris Rd.	Widening (4)	0.24
2030	Pleasant Plains Rd	McKee to Old Monroe	Widen to 2-lanes	1.19
2020	McKee Rd.	Pleasant Plains Road to Johns Street	New Road (4)	0.81
2030	McKee Rd.	Tilley Morris Rd. to Pleasant Plains Rd	Widening (4)	3.29
2020	Old Monroe Rd	Indian Trail Road to Wesley Chapel-Stouts Rd.	Widening (4)	2.39
2030	US 601	Lawyers Rd. to Cabarrus County Line	Widening (4)	2.38
2030	Weddington Road	Trade St. to NC 84	Improvement (2)	8.85
2030	Wesley Chapel-Stouts Rd	US 74 to Old Charlotte Highway	Widening (4)	1.2
2030	US 601	Lawyers Rd to Ridge Rd	Widen to 4 lands	5.2
2010	US 601	Roosevelt Blvd. to US 74	Widen to 4 lns	2.33

NO-BUILD FORECASTS FOR MONROE CONNECTOR/BYPASS STUDY

YEAR	PROJECT	LIMITS	TYPE	PROJECT LENGTH
2030	North Main St	US 74 to Monroe Bypass	Widen to 4 lanes	0.83
2030	Rocky River Rd	Old Charlotte Hwy to US 74 Byp Connector	Widen to 4 lns	0.73
2030	Wesley Chapel-Stouts Rd	Old Charlotte Hwy to NC 84	Widen to 4 lns	0.53
2030	Wesley Chapel-Stouts Rd	Old Charlotte Hwy to NC 84	Widen to 4 lns	3.09
2010	I-485 / Weddington Rd.	Interchange	Interchange	0.42
2000	NC 16 (Providence Rd.)	Windbluff to I-485 (Partly open 00)	Widening (4)	1.3
2030	Idlewild Rd.	Stevens Mill Rd to Faith Church Rd	Widening (4)	2.28
2020	Independence Pointe Pkwy.	Old NC 51 to Campus Ridge Road	New Road (2)	1.36
2020	SR 1008 (Indian Trail Rd)	Union Co. US 74 to SR 1009 (Old Charlotte Hwy)	Widening (4)	1.5
2020	SR 1326 (Stallings Rd)	Union Co. US 74 to SR 1009 (Old Charlotte Hwy)	Widening (4)	1.29
2020	John St/Old Monroe Rd	I-485 to Indian Trail Road	Widening (4)	2.75
2012	Martin Luther King Jr Dr	Goldmine Rd to NC 200	2-lanes	2.8
2030	Matthews-Indian Trail Rd	Campus Ridge Rd to Indian Trail Rd	Widen to 4-lns	3.78
2030	Potter Rd.	Old Monroe to Chestnut Ln	Widen to 2-lns	0.22
2030	Potter Rd.	Old Monroe to Chestnut Ln	Widen to 2-lns	0.94
2030	Chestnut Lane	Matthews-Weddington Rd to Old Monroe Rd	Widen to 4-lns, bike ln	2.75
2030	Monroe Northern Loop	US 601 N to US 74	New 4-ln facility	3.71
2030	Monroe Northern Loop	US 601 N to US 74	New 4-ln facility	5.69
2030	Monroe Northern Loop	Dickerson Blvd to US 601 N	New 4-ln facility	2.27

NO-BUILD FORECASTS FOR MONROE CONNECTOR/BYPASS STUDY

YEAR	PROJECT	LIMITS	TYPE	PROJECT LENGTH
2030	Secrest Ave. Ext.	Secrest Ave to Olive Branch Rd (w/ US 74 Int)	New 5-ln facility	1.82
2030	NC 84	Waxhaw-Indian Tr. Rd. to Airport Rd	Widen to 4-lanes	2.62
2020	Charles Street	Franklin St. to Sunset Dr. (Monroe)	Widening to 4 lns	0.58
2020	Chestnut Lane	Old Monroe Rd to US 74	Widening to 5-lns	1.48
2030	Charlotte Ave.	Concord St. to Seymour St.	Widen (4)	0.43
2030	Charlotte Ave.	Dickerson Blvd to Rocky River Rd.	Widen (4)	2.75
2020	Charlotte Ave.	Seymour St. to Dickerson Blvd	Widen (4)	0.68
2020	Charlotte Ave.	Church St. to Concord Ave.	Widen (4)	0.55
2020	McKee Rd. Ext	John St. to Campus Ridge Rd.	New Road (4)	0.59
2030	McKee Rd. Ext	Campus Ridge Rd to Stevens Mill Rd	New Road (4)	2.1
2001	Monroe Rd/Sardis Road North	Add EB thru, WB thru lanes on Sardis Rd North	Intersection improvements	0.96
2030	Idlewild Rd.	NC 51 to I-485	Widening (4)	1.86
2020	Idlewild Rd.	I-485 to Stevens Mill Rd.	Widening (4)	0.72
2013 ²	Monroe Connector	I-485 to US 601	New Construction	12.7
2013 ³	Monroe Bypass	US 601 to US 74	New Construction	8.4

FORECAST ALTERNATIVES

Descriptions of each of the No-Build Alternatives are detailed below and shown in Table 2. For both alternatives, the term No-Build refers to the Monroe Connector/Bypass being not constructed. The alternatives are:

- **Alternative 1** - Base Year (2007) No-Build Non-Toll; and
- **Alternative 3** - Future Year (2030) No-Build Non-Toll.

² This project is NOT included in the No-Build Alternative.

³ This project is NOT included in the No-Build Alternative.

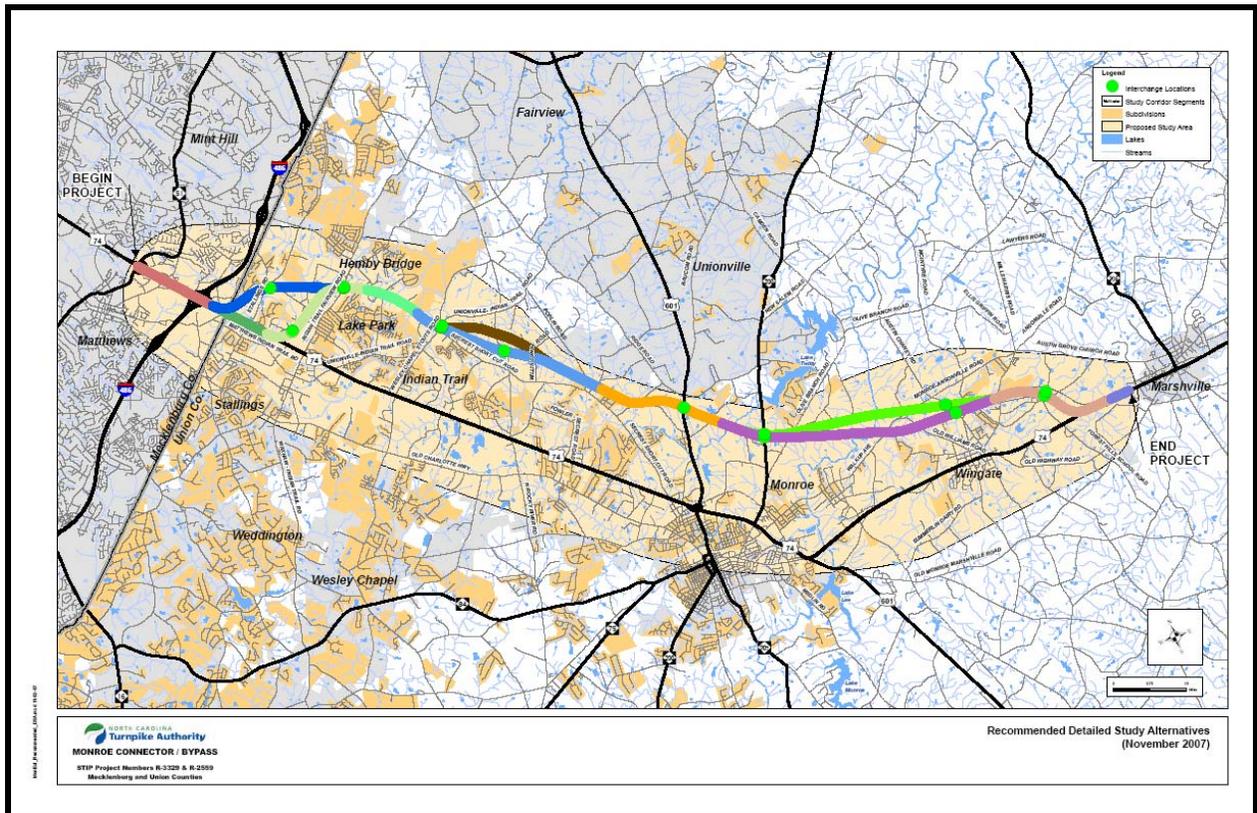
NO-BUILD FORECASTS FOR MONROE CONNECTOR/BYPASS STUDY

Table 2: Alternative Descriptions for the Monroe Connector/Bypass Study Forecasts

Alternative	Forecast Year	Scenario	Build Alignment	Non-Tolled or Tolled Build Facility	
				Monroe Connector	Monroe Bypass
1	2007	No-Build Non-Toll	N/A	N/A	N/A
3	2030		N/A	N/A	N/A

Two alternative alignments (Build Alignment DSC D2 and Build Alignment DSC E3) for the Monroe Connector/Bypass are under consideration by the NCTA. Each Build Alignment is shown in Figure 2 and Figure 4.

Figure 2: Monroe Connector/Bypass Build Alignments⁴



⁴ Taken from www.ncturnpike.org.

NO-BUILD FORECASTS FOR MONROE CONNECTOR/BYPASS STUDY

TASKS

The initial scope of services had four major tasks:

- Task 1: Collect Traffic Data;
- Task 2: Develop proposed Toll Model methodology and Update Base Year Model with Toll Methodology and Validate;
- Task 3: Prepare Base Year (2007), Future Year (2030) and Opening Year (2013) No-Build Forecasts (3 Alternatives); and
- Task 4: Prepare Future Year (2030 and Opening Year (2013) Build Toll Forecasts (12 Alternatives).

Initially fifteen alternatives were included in the initial scope of services. However, this report only details:

- **Task 1; and the**
- **Base Year (2007) No-Build Forecasts and Future Year (2030) No-Build Forecasts, as identified in Task 3.**

TASK 1: DATA COLLECTION

Traffic data were collected at the existing study area intersections on US 74 to develop the traffic forecasts for Alternative 1 - Base Year (2007) No-Build Non-Toll.

Task 1.1: Background Data

Historical NCDOT AADT traffic data from 1980-2005 were obtained from the NCDOT Traffic Survey Unit. These data are shown in Table 3. Field visits were conducted to verify existing roadway conditions and characteristics.

Task 1.2: Supplemental Traffic Data

Supplemental daily and intersection turning movement count data were collected in March and April, 2007 to establish the base year forecasts for 2007.

Tube and vehicle classification counts were collected over a 48-hour period at selected locations along the US 74 corridor. These 48-hour vehicle classification counts were used to develop and verify the base AADT and the design data (i.e., design hour factors, directional splits, truck percentages).

Intersection turning movement counts were collected for 16 hours at selected study area intersections shown in Figure 4. Morning (7:00-9:00 A.M.) and evening (4:00-6:00 P.M.) peak hour counts were collected at the remaining intersections. All counts were reviewed for accuracy.

The locations are also summarized in Table 4.

Table 3: NCDOT Historical AADT Count Data

AADT Location		Year																										
		1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	
A	US 74 (East Independence Boulevard) WEST of I-485 Interchange			22,300	21,100		24,700	28,000		32,000		31,700		34,000		39,900					53,000	53,000		55,000		53,000		
B	I 485 NORTH of US 74 (East Independence Boulevard)																					13,000	21,000		23,000	49,000	54,000	
C	US 74 (East Independence Boulevard) WEST of SR 1365 (Stallings Road)	22,400	23,000	22,300	23,000	22,500	22,500	24,000	28,000	28,700	33,000	32,300	32,300	34,000	36,300	37,200		42,800	46,000	50,000					57,000	56,000	54,000	58,000
C-1	US 74 (East Independence Boulevard) East of I-485 Interchange	19,900	23,800	22,300	21,100		24,700	28,000		32,000		31,700		34,000		39,900					50,000	52,000		52,000		54,000		
D	I 485 SOUTH of US 74 (East Independence Boulevard)																		25,300		33,000	37,000	42,000	39,000	45,000	63,000	68,000	
E	SR 1365 (Stallings Road) NORTH of US 74		2,100	2,100					2,200		2,500		3,100		3,400				5,500							5,300	4,500	
F	US 74 BETWEEN SR 1365 (Stallings Road) and SR 1520 (Indian Trail-Fairview Road/SR 1008 Indian Trail Road North)	18,200	23,900	13,400		22,000	22,000		25,000	27,800	28,400	28,000	28,600	33,100	35,200	36,600		37,200	42,000	45,000					53,000	52,000	54,000	52,000
G	SR 1365 (Stallings Road) SOUTH of US 74		4,900	5,200					6,700		7,000		8,000		9,200				10,600		9,500						8,900	
H	SR 1520 (Indian Trail-Fairview Road) NORTH of US 74																											
I	US 74 BETWEEN SR 1520 (Indian Trail-Fairview Road/SR 1008 Indian Trail Road North) and SR 1367 (Unionville Indian Trail Road West) - west	15,400	21,800	19,900	20,500	18,400	18,400	20,000	23,400	24,800		27,000	28,400	31,200	32,800	35,000		38,200	42,000	45,000					50,000	48,000	46,000	49,000
J	SR 1008 Indian Trail Road North SOUTH of US 74		3,700		3,600				4,800		5,500		6,900		8,300				9,800						9,800		13,000	
I-1	US 74 BETWEEN SR 1520 (Indian Trail-Fairview Road/SR 1008 Indian Trail Road North) and SR 1367 (Unionville Indian Trail Road West) - east	18100	18900	17,500	19,000	20,000	20,000	21,200	22,500	23,500	25,400	25,200	25,700	28,300	31,000	32,400		36,600	38,000	43,000					49,000	48,000	49,000	49,000
K	SR 1367 (Unionville Indian Trail Road West) NORTH of US 74		700		1,000				1,800				2,500		2,800				8,100						12,000		11,000	
L	US 74 BETWEEN SR 1367 (Unionville Indian Trail Road West) and SR 3014 (Faith Church Road)	19,100	18,700	17,700	17,700	17,700	17,000	18,000	21,100	23,300	25,200	25,700	27,100	28,600	32,300	30,900		35,300	38,000	40,000					48,000	47,000	45,000	47,000
M	SR 1367 (Unionville Indian Trail Road West) SOUTH of US 74		1,250		1,000				1,500		1,200		1,600		1,700				8,600							4,800		5,500
N	SR 3014 (Faith Church Road) NORTH of US 74																											
P	Harris Teeter Distribution Center Entrance SOUTH of US 74																											
Q	SR 1377 (Sardis Church Road) NORTH of US 74														1,300				4,400						5,600		6,100	

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Task 1: Data Collection

Table 3: NCDOT Historical AADT Count Data

AADT Location		Year																									
		1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
R	US 74 BETWEEN SR 1377 (Sardis Church Road/Wesley Chaple Stouts Road) and SR 2356 (Chambers Drive)	15,700	15,900	17,900	18,000	19,000	19,000	20,000	22,200	22,200	23,500	22,700	25,500	25,800	28,900	30,300		33,500	37,000	41,000				44,000	41,000	44,000	
S	SR 1377 (Wesley Chaple Stouts Road) SOUTH of US 74		1,700		1,700				1,700		2,000		2,400		3,100				5,400						8,500		11,000
T	SR 2356 (Chambers Drive) NORTH of US 74																								3,200		3,600
U	US 74 BETWEEN SR 2356 (Chambers Drive) and SR 1007/SR 1514 (North Rocky River Road)			14,900	15,000	17,000	18,000	18,400	20,300	20,100		22,600	23,700	26,000	28,000	29,000		31,700	33,700	35,000				41,000	37,000	36,000	37,000
V	SR 1514 (North Rocky River Road) NORTH of US 74		1,400		1,500				2,800		3,100								3,500					5,000	6,400	4,700	8,300
W	US 74 BETWEEN SR 1007/SR 1514 (North Rocky River Road) and Fowler Secrest Road/John Moore Road	18,900	18,900	18,400	18,400	19,500	20,600	18,500	18,600	19,700	23,500	23,600	24,500	26900	26900	28100		30,300		36,000				38,000	36,000	35,000	36,000
X	SR 1007 (North Rocky River Road) SOUTH of US 74											5,700		6,200					8,800					11,000		8,700	
Y	Fowler Secrest Road NORTH of US 74																										
BB	SR 1977 (Rolling Hills Drive) NORTH of US 74		600		700																						
CC	US 74 BETWEEN SR 1977 (Rolling Hills Drive) and Round Table Road/Roland Drive													26,900	28,800	29,700		32,700		40,000				40,000	37,000	35,000	46,000
EE	Round Table Road NORTH of US 74																										
HH	Williams Road NORTH of US 74																										
II	US 74 BETWEEN Williams Road and Walmart-Lowe's Entrance/Hanover Drive																										
MM	Hanover Drive (a.k.a Williams Road Extension) SOUTH of US 74																										
PP	SR 1223 (Dickerson Boulevard) SOUTH of US 74																							17,000		14,000	
OO	US 74 BETWEEN SR 1223 (Dickerson Boulevard/K-Mart Entrance) and SR 1501 (Secrest Shortcut Road/Mall Entrance)	21,900	25,000	21,100	23,500	23,000		27,100			30,700		30,700	31300	32900	33100		38,700	37,300	41,000				51,000	46,000	45,000	48,000
QQ	SR 1501 (Secrest Shortcut Road) NORTH of US 74		3,500		4,000				4,900		4,000		4,900		6100				6,900						8,400		8,900
TT	SR 1501 (Secrest Shortcut Road) SOUTH of US 74																										

Task 1: Data Collection

Table 3: NCDOT Historical AADT Count Data

AADT Location		Year																									
		1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
UU	SR NNNN Concord Avenue NORTH of US 74																										
WW	SR NNNN Concord Avenue SOUTH of US 74																										
VV	US 74 BETWEEN SR NNNN (Concord Avenue) and US 601 (Concord Highway)/NC 200 (Skyway Drive)	24,500	26,700	23,100	26,000		29,400	28,000	29,900		30,500	35,700	35,100	37,700	44,000	41,400		46,800		49,000				60,000	56,000	57,000	56,000
XX	US 601 (Concord Highway/Skyway Drive) NORTH of US 74	4,900	4800	5,000	6,000	6,300	7,000	6,500	7,500	8,500	9,700	9,100	9,100	9,300	10,200	10,600		12,000	12,800	13,000				14,000	13,000	12,000	13,000
YY	US 74 BETWEEN US 601 (Concord Highway)/NC 200 (Skyway Drive) and SR 1624 (Stafford Street)	21,700	26,400	22,100	26,000	30,000	32,000	33,000	31,000		36,500	33,900	35,000	37,500	41,000	40,000		45,900	46,500	51,000				58,000	53,000	56,000	53,000
ZZ	NC 200 (Skyway Drive) SOUTH of US 74	8,500	8,500	8,500	8,000	9,000	8,000	8,900	8,300	9,500	9,900	10,800	11,000	11,800	12,000	11,900		13,000	14,500	14,000				14,000	13,000		15,000
FFF	Boyte Street SOUTH of US 74																										
EEE	US 74 BETWEEN Boyte Street and NC 200/Morgan Mill Road	21,700	26,400	22,100	31,000	28,500	34,000	29,000	32,000	29,400		32,900	36,300	37,000	39,000	39,100		44,300	46,000	50,000				55,000	51,000	52,000	54,000
GGG	NC 200/Morgan Mill Road NORTH of US 74	4,500	4,000	4,200	4,500	4,700	5,000	6,100	5,500	6,000	10,300	7,100	7,500	8,300	8,200	8,700		8,700	8,900	10,000				9,700	9,300	9,800	11,000
HHH	US 74 BETWEEN NC 200/Morgan Mill Road and SR 1106 (Walkup Avenue)	15,200	26,000	24,000	25,000	27,000	27,000	28,000	28,300	28,000	28,000	31,000	31,600	34,900	36,600	36,800		41,800	40,600	45,000				51,000	46,000	47,000	51,000
JJJ	SR 1106 (Walkup Avenue) NORTH of US 74																								11,000		11,000
MMM	South Sutherland Avenue NORTH of US 74																										
PPP	Venus Street NORTH of US 74																										
UUU	SR 2100 (East Franklin Street) SOUTH of US 74																										
TTT	US 74 BETWEEN SR 2100 (East Franklin Street)/Food Lion Entrance and US 601 (Pageland Highway)/Metro Medical Center Campus																										
XXX	US 601 (Pageland Highway) SOUTH of US 74	8,700	11,400	9,400	9,500	8,400	9,500	10,400	10,800	11,000	11,000	10,200	10,000	10,900	11,500			13,100	13,400	15,000				17,000	16,000	17,000	19,000
WWW	US 74 BETWEEN US 601 (Pageland Highway) and SR 1941 (Old Pageland-Monroe Road)	20,300	16,500	16,500	17,000	15,700	17,000	18,600	20,700	22,100	22,100	19,700	21,300	21,300	23,100	23,400		27,300	27,100	28,000				29,000	30,000	26,000	29,000
ZZZ	US 74 BETWEEN SR 1941 (Old Pageland-Monroe Road) and SR 1763 (South Bivens Road)	15,700	15,700	15,400	11,300	11,000	12,000	14,000	17,000	19,600	19,600	20,800	20,800	22,500	23,000	22,000		26,000	24,000	25,000				27,000	27,000	25,000	27,000

Table 3: NCDOT Historical AADT Count Data

AADT Location		Year																									
		1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
BBBB	SR 1763 (South Bivens Road) NORTH of US 74		350						1,700		2,000		1,400		1,700				1,900						1,900		1,900
CCCC	US 74 BETWEEN SR 1763 (South Biven Road) and SR 1762 (Bivens Road)		13,500	14,500	16,000	15,100	15,000	16,000	15,000	18,600	18,600	20,600	20,900	19,800	22,800	22,700		24,400	24,000	25,000				28,000	26,000	24,000	27,000
DDDD	SR 1762 (Bivens Street) NORTH of US 74		1,000						1,100		1,200		1,200		1,700			2,600	1,500					1,800		1,300	
EEEE	US 74 BETWEEN SR 1762 (Bivens Street)/Food Lion Driveway and Main Street	14,800	16,600	18,500	18,500	18,000	18,000	18,000		23,300	23,400	19,300	23,000	23,900	25,700	25,100		26,600	25,900	25,000				29,000	26,000	24,000	28,000
IIII	South Main Street SOUTH of US 74		950						1,400		1,900		2,100		2,300				2,600						2,700		2,900
HHHH	US 74 BETWEEN Main Street and Forest Hills School Road		12,000	12,900	12,700	12,000	13,000	14,000	14,200	14,700	14,700	14,600	16,400	16,700	19,100	18,000		19,500	20,000	20,000				22,000	21,000	19,000	21,000
LLLL	Forest Hills School Road SOUTH of US 74																										

Task 1: Data Collection

NO-BUILD FORECASTS FOR MONROE CONNECTOR/BYPASS STUDY

Table 4: Locations for Supplemental Traffic Data

Mainline	Y-Line	Intersection Number	Volume	Class	Notes
US 74	I-485	1		4	4 class on each approach
	Stallings	2		1	on Y-line east of US 74
	Indian Trail-Fairview	3		1	on Y-line east of US 74
	Unionville-Indian Trail	4	1	1	on Y-line east of US 74
	North Rocky River	8		1	on Y-line
	Morgan Mill	20		1	on Y-line
	East Franklin			1	on Y-line
	Forest Hills			1	on Y-line
	Roland			1	on US 74 north of Roland
	Stafford St. Ext			1	on US 74 north of Stafford St. Ext
	Concord			3	2 on Y-line, 1 on US 74 between Concord & Skyway
	US 601 (Skyway)	7	7	2	3 loops, 4 ramps, 2 class--1 on US 601, 1 on East
	Pageland			2	1 on Y-line, 1 on US 74 between Pageland and Old Pageland

NO-BUILD FORECASTS FOR MONROE CONNECTOR/BYPASS STUDY

Task 1.3: Forecast Templates

The study area intersections for the development of these No-Build Forecasts included 30 locations on US 74. Ten additional locations were identified for the Build Alternatives (forecasts of which are NOT included in this document). Figure 3 shows an overview of the project study area intersections.

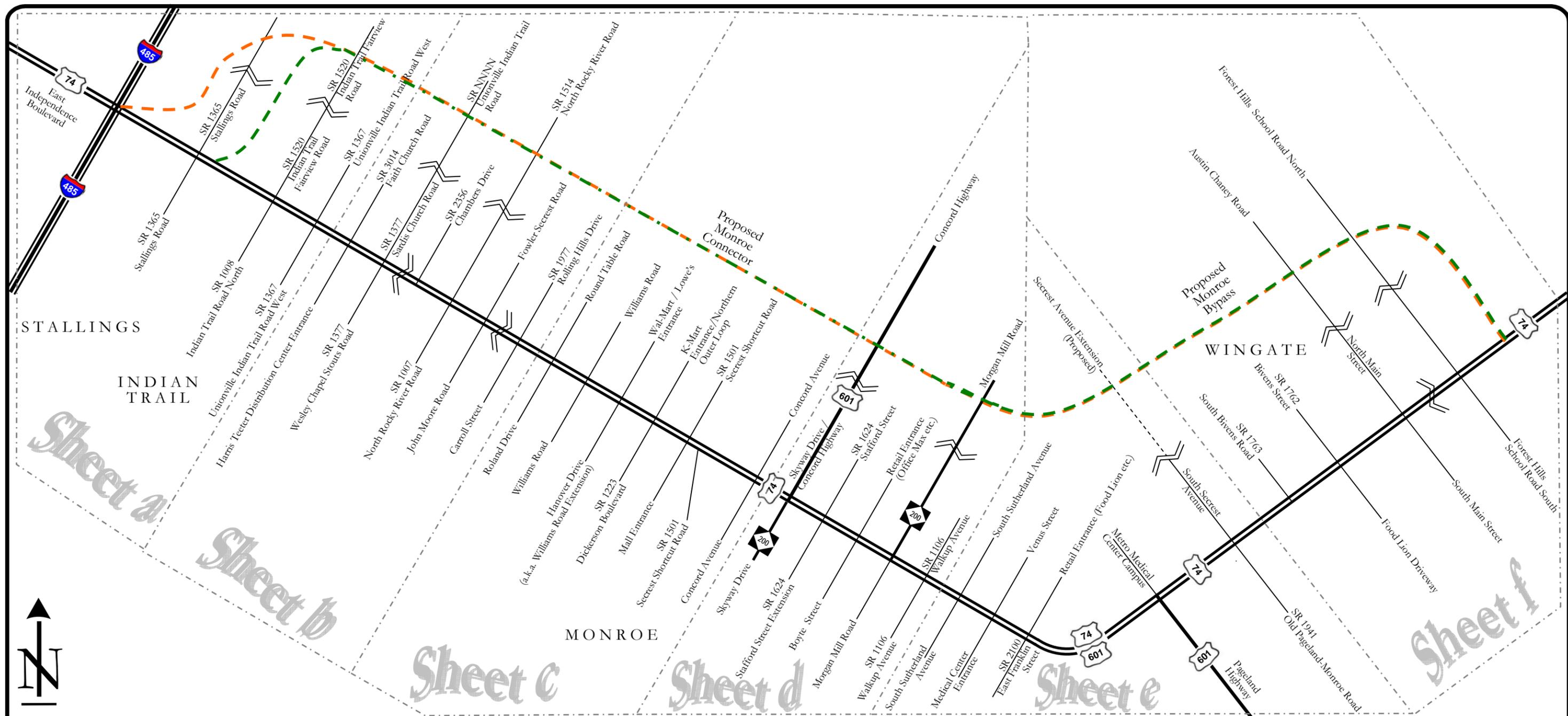
The intersections for which forecast volumes were prepared, and where supplemental turning movement counts were taken were as follows:

1. I-485 and US 74 Freeway;
2. US 74 at Stallings Road {16-hour count taken};
3. US 74 at Indian Trail Fairview Road {16-hour count taken};
4. US 74 at Unionville-Indian Trail Road {16-hour count taken};
5. US 74 at Faith Church Road {peak hour count taken};
6. US 74 at Wesley Chapel Stouts Road and Sardis Church Road {peak hour count taken};
7. US 74 at Chamber Drive {peak hour count taken};
8. US 74 at North Rocky River Road {16-hour count taken};
9. US 74 at Fowler-Secret Road and John Moore Road {peak hour count taken};
10. US 74 at Carroll Street and Rolling Hills Drive {peak hour count taken};
11. US 74 at Roland Drive and Round Table Road {peak hour count taken};
12. US 74 at Williams Road {peak hour count taken};
13. US 74 at Williams Road Extension {peak hour count taken};
14. US 74 at Dickerson Boulevard {peak hour count taken};
15. US 74 at Secret Shortcut Road {16-hour count taken};
16. US 74 at Concord Avenue {two peak hour counts taken at ramps};
17. US 74 at Skyway Drive (US 601-NC 200) {three peak hour counts taken at ramps};
18. US 74 at Stafford Street and Stafford Street Extension {16-hour count taken};
19. US 74 at Boyte Street {peak hour count taken};
20. US 74 at Morgan Mill Road {16-hour count taken};
21. US 74 at Walkup Avenue {16-hour count taken};
22. US 74 at Sutherland Avenue {peak hour count taken};
23. US 74 at Dove Street and Venus Street {peak hour count taken};
24. US 74 at East Franklin Street {16-hour count taken};
25. US 74 at Pageland Highway {16-hour count taken};
26. US 74 at South Secret Avenue and Old Pageland-Monroe Road {peak hour count taken};
27. US 74 at South Bivens Road {peak hour count taken};

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28. US 74 at Bivens Street *{peak hour count taken}*;
29. US 74 at South Main Street and North Main Street *{peak hour count taken}*;
30. US 74 at Forest Hill School Road *{16-hour count taken}*;
31. Monroe Bypass at US 74;
32. Monroe Bypass at Forest Hill School Road;
33. Monroe Bypass at Austin Chaney Road;
34. Monroe Bypass at Secrest Avenue Extension;
35. Monroe Bypass at NC 200;
36. Monroe Bypass at US 601;
37. Monroe Connector at Rocky River Road;
38. Monroe Connector at Unionville Industrial Road;
39. Monroe Connector at Indian Trail Fairview (SR 1008); and
40. Monroe Connector at US 74.

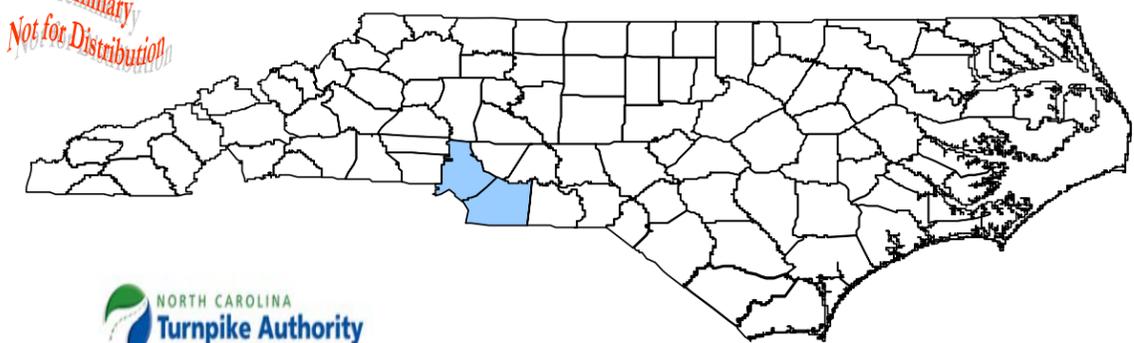
A series of schematic maps summarizing the existing roadway inventory, historical traffic data, and where supplemental traffic data were collected for the study area is shown in Figure 4.



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**FIGURE 3:
 FORECAST OVERVIEW
 DIAGRAM**

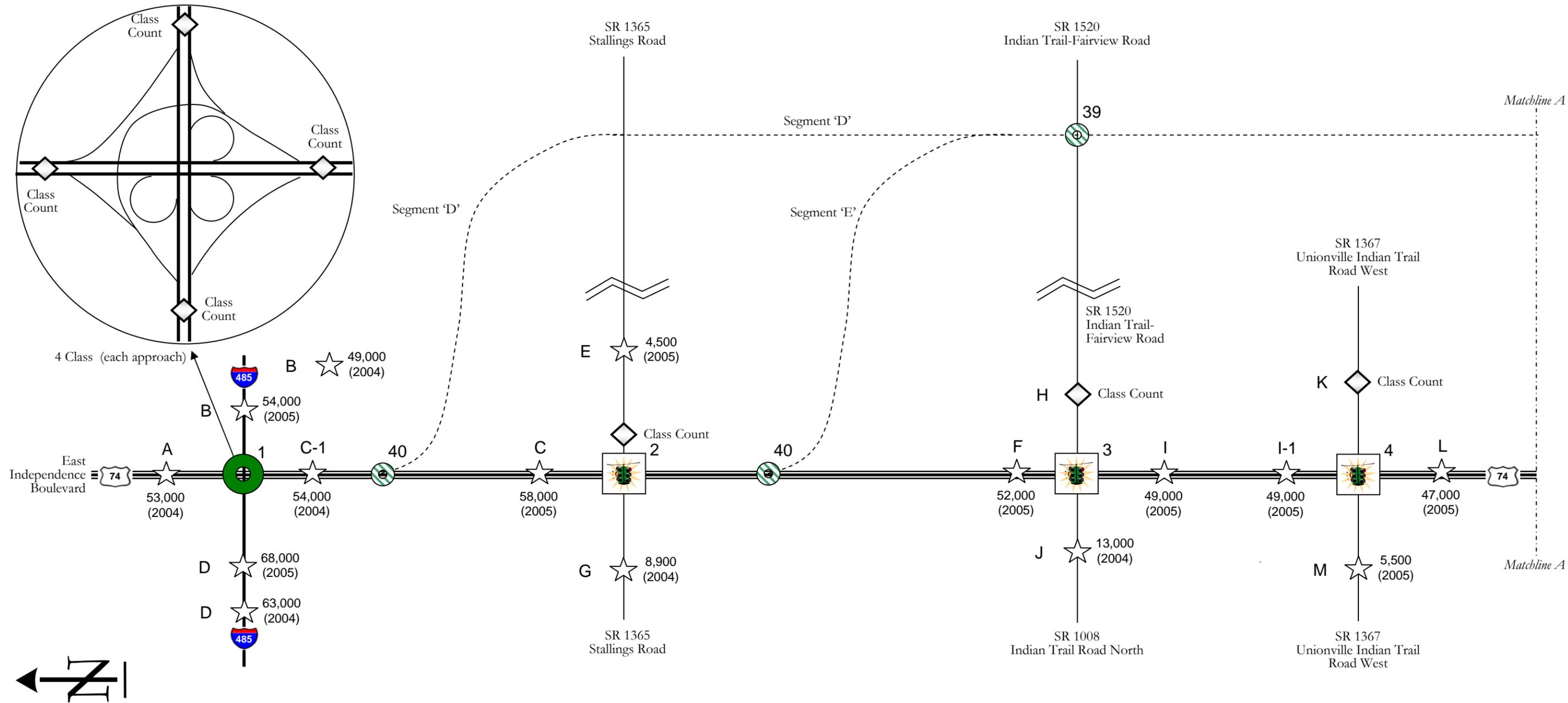
LEGEND

- Build DSC D2 Alignment
- Build DSC E3 Alignment



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LEGEND

Intersection TMC collected by M/A/B in 2007 (16-Hour)	Most Recent Historical NCDOT ADT count; AADT {Year}
Intersection TMC collected by M/A/B in 2007 (Peak Hour)	Existing Interchange
AADT count collected by M/A/B in 2007	Proposed Interchange

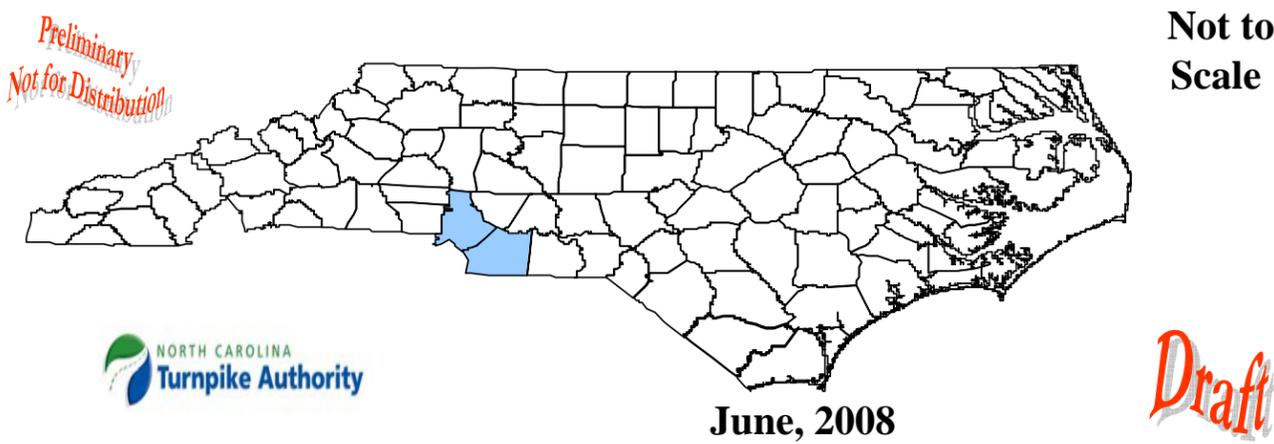
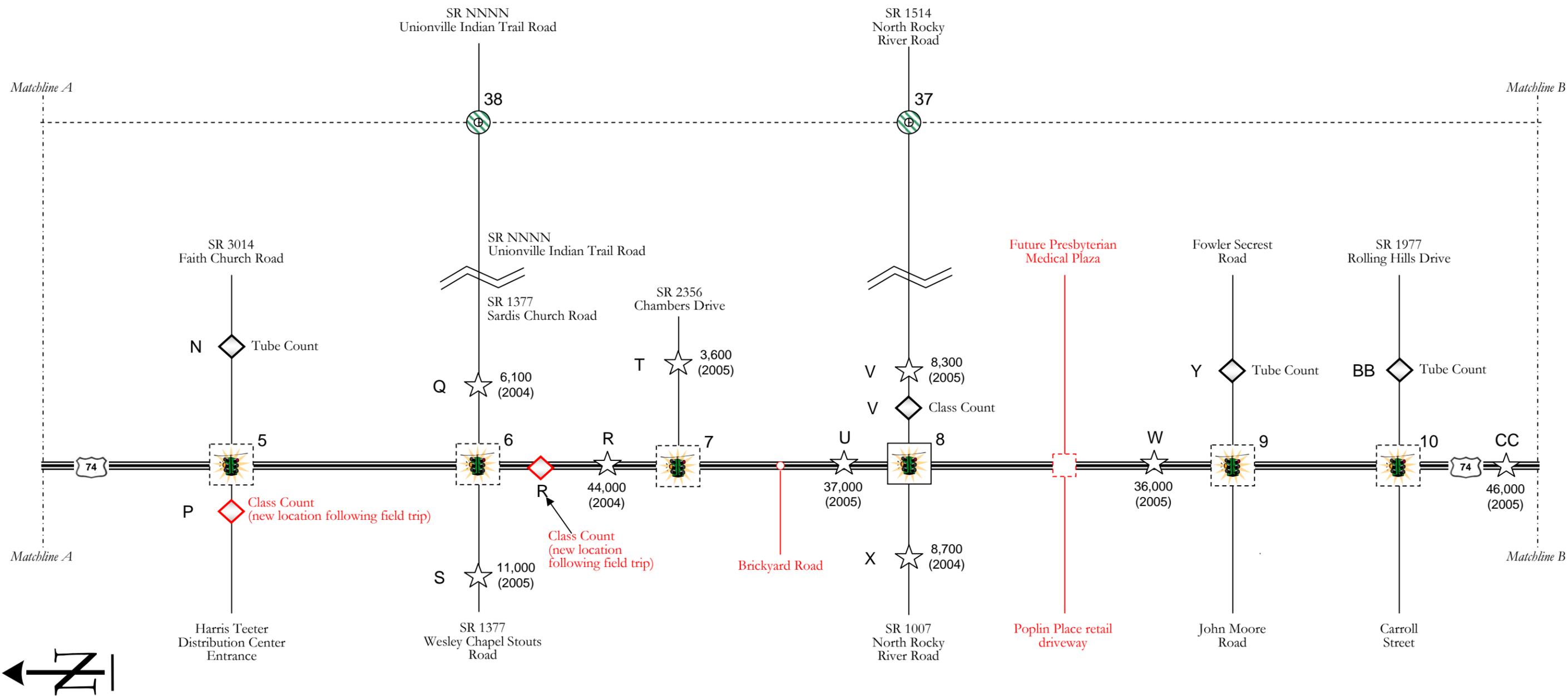


FIGURE 4a:
**EXISTING STREET INVENTORY &
 TRAFFIC COUNT LOCATIONS**

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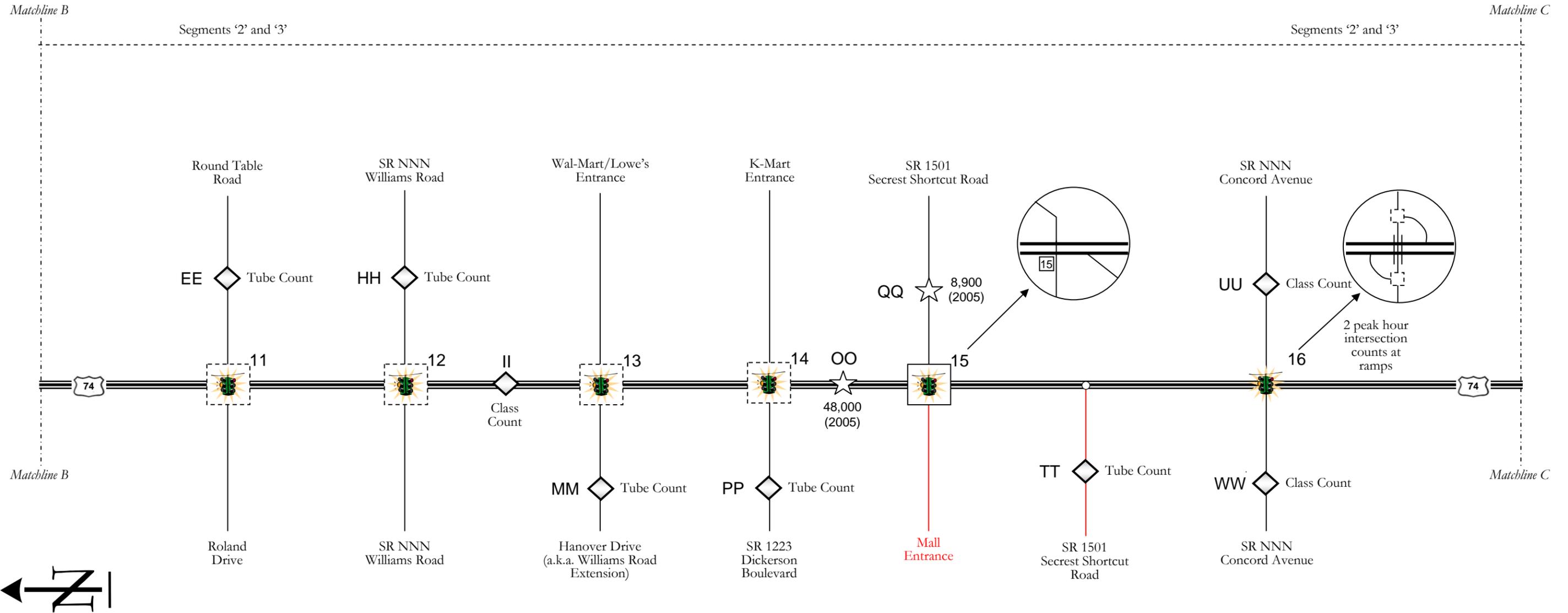
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**FIGURE 4b:
 EXISTING STREET INVENTORY &
 TRAFFIC COUNT LOCATIONS**

LEGEND

- Intersection TMC collected by M/A/B in 2007 (16-Hour)
- ☆ Most Recent Historical NCDOT ADT count; AADT {Year}
- ⊞ Intersection TMC collected by M/A/B in 2007 (Peak Hour)
- ⊙ Existing Interchange
- ◇ AADT count collected by M/A/B in 2007
- ⊕ Proposed Interchange

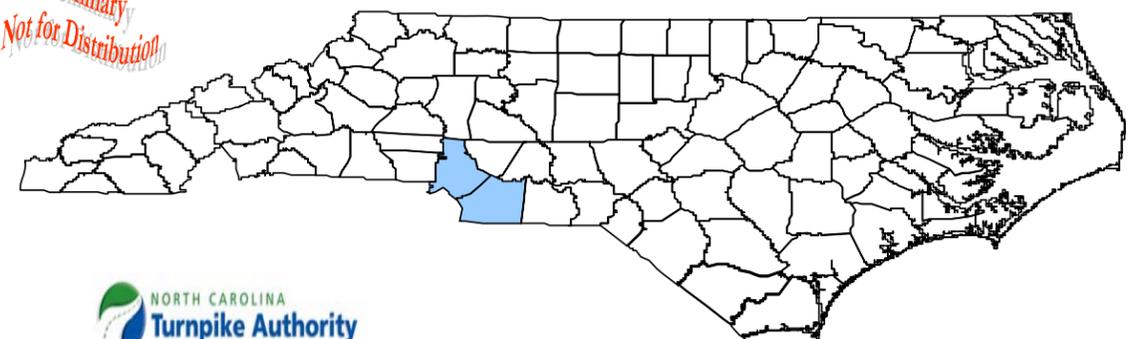


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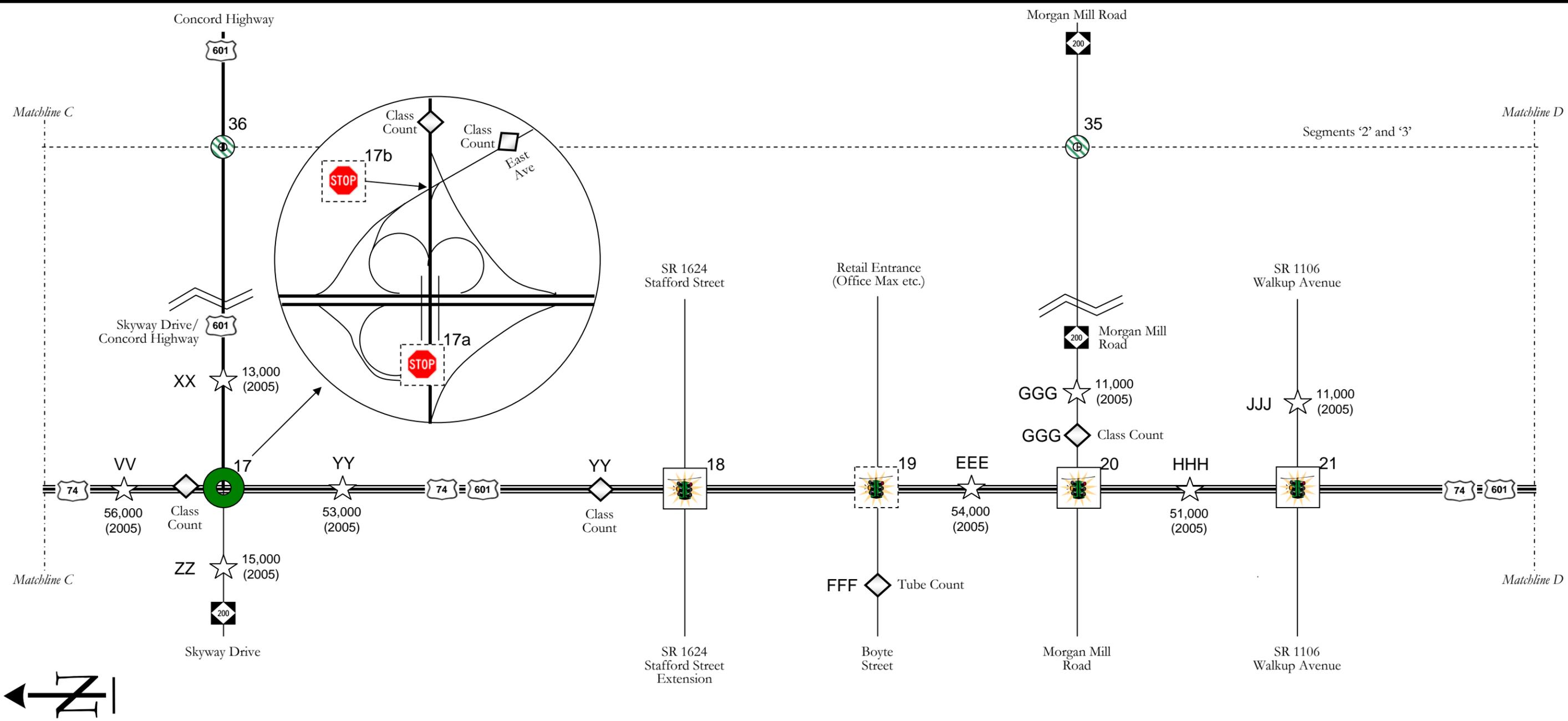


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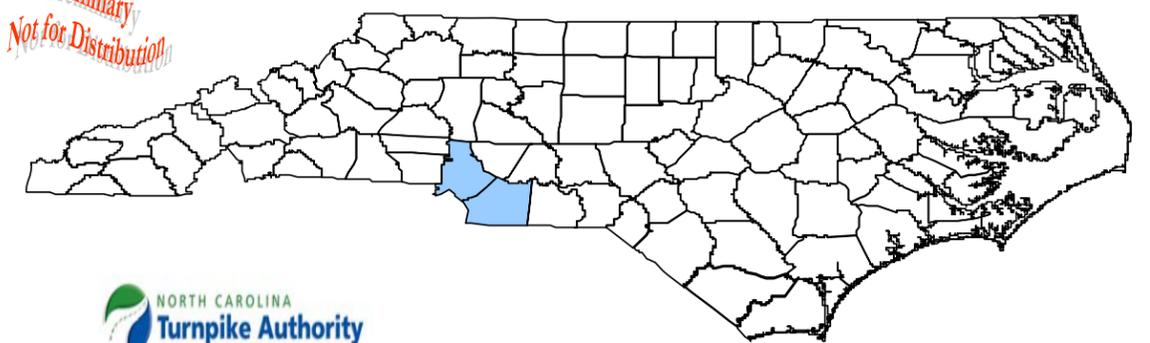
**FIGURE 4c:
EXISTING STREET INVENTORY &
TRAFFIC COUNT LOCATIONS**

- LEGEND**
- Intersection TMC collected by **M/A/B** in 2007 (16-Hour)
 - ☆ Most Recent Historical NCDOT ADT count; AADT {Year}
 - ⊞ Intersection TMC collected by **M/A/B** in 2007 (Peak Hour)
 - Existing Interchange
 - ◇ AADT count collected by **M/A/B** in 2007
 - ⊙ Proposed Interchange



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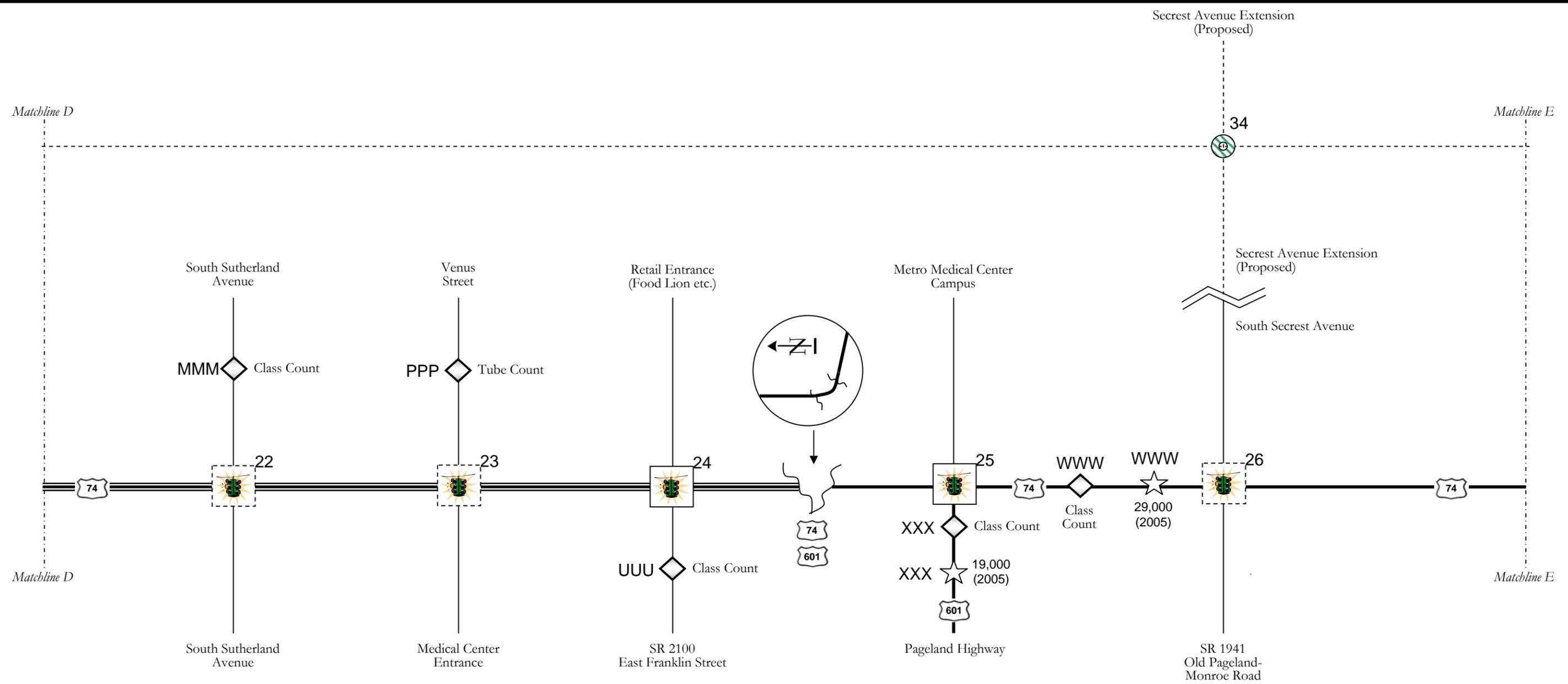
**FIGURE 4d:
 EXISTING STREET INVENTORY &
 TRAFFIC COUNT LOCATIONS**

- LEGEND**
- Intersection TMC collected by M/A/B in 2007 (16-Hour)
 - ☆ Most Recent Historical NCDOT ADT count; AADT {Year}
 - ⬢ Intersection TMC collected by M/A/B in 2007 (Peak Hour)
 - Existing Interchange
 - ◇ AADT count collected by M/A/B in 2007
 - ⊕ Proposed Interchange



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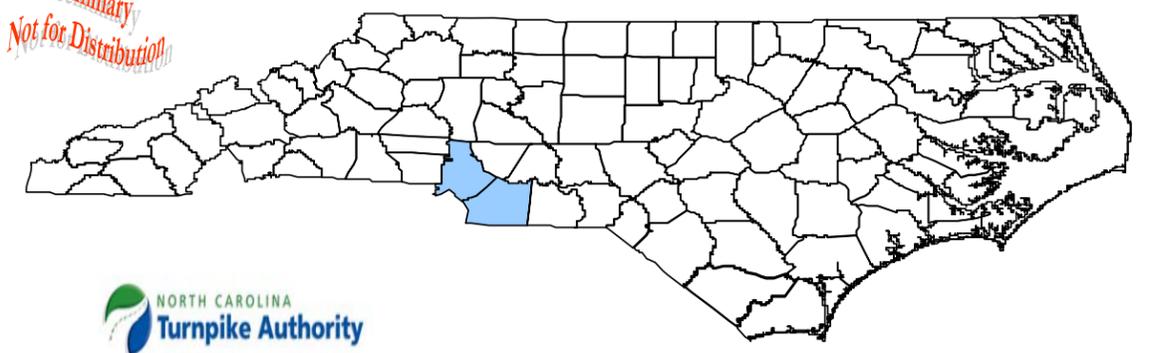


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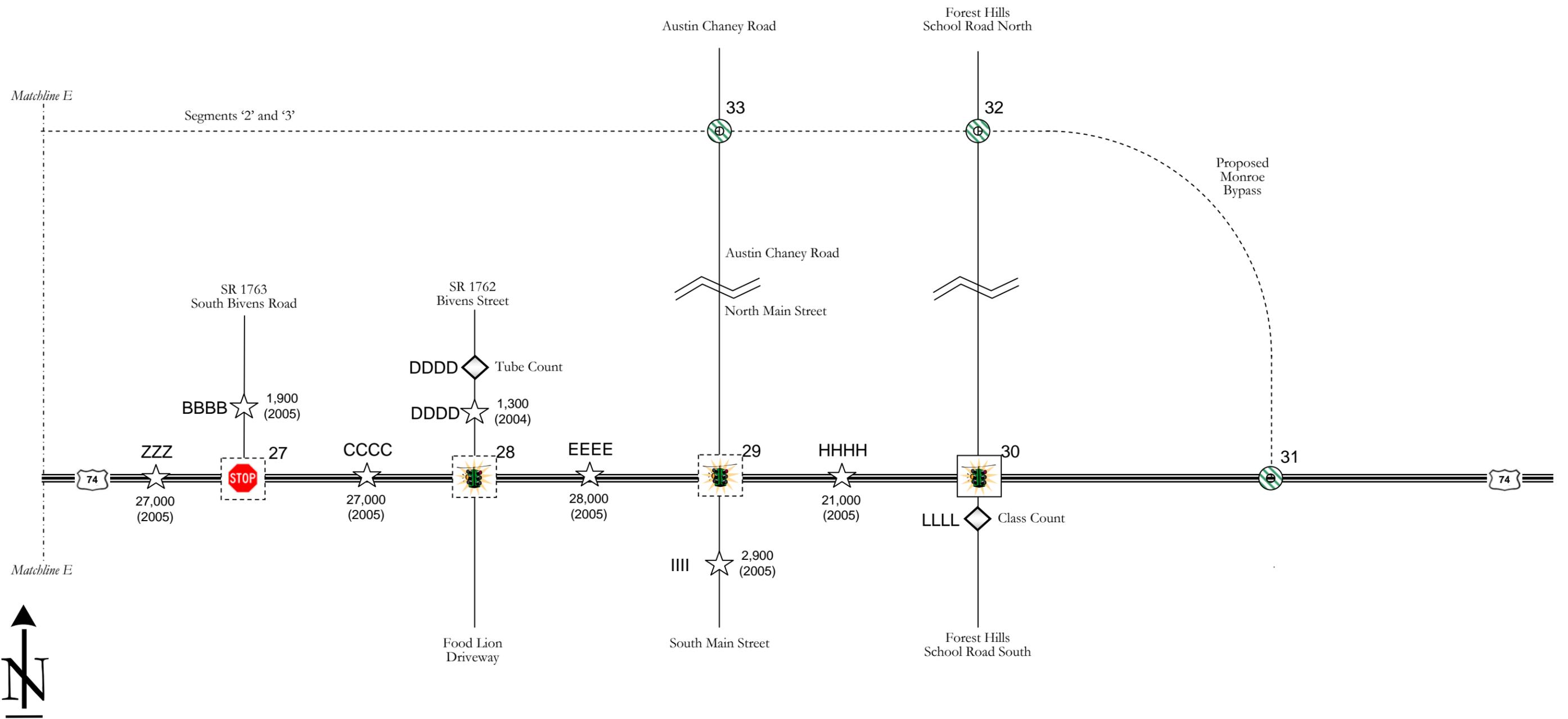


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**FIGURE 4e:
EXISTING STREET INVENTORY &
TRAFFIC COUNT LOCATIONS**

- LEGEND**
- Intersection TMC collected by M/A/B in 2007 (16-Hour)
 - ☆ Most Recent Historical NCDOT ADT count; AADT {Year}
 - ⊠ Intersection TMC collected by M/A/B in 2007 (Peak Hour)
 - Existing Interchange
 - ◇ AADT count collected by M/A/B in 2007
 - ⊙ Proposed Interchange

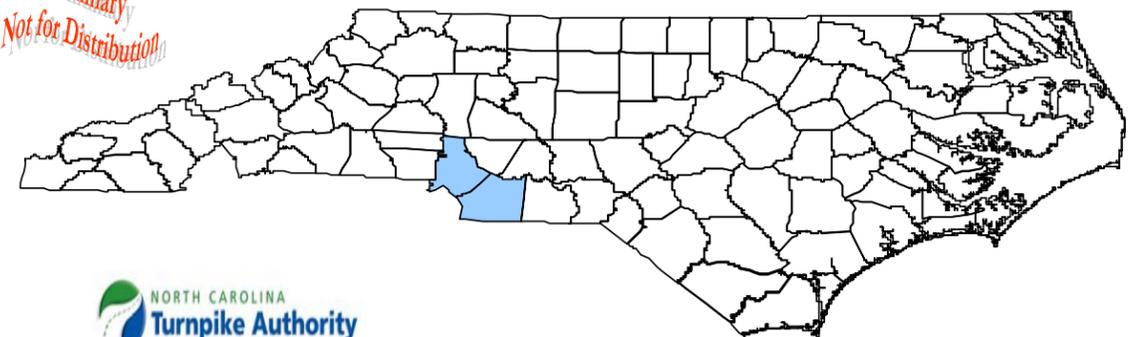


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**FIGURE 4f:
 EXISTING STREET INVENTORY &
 TRAFFIC COUNT LOCATIONS**

- LEGEND**
- Intersection TMC collected by **M/A/B** in 2007 (16-Hour)
 - ☆ Most Recent Historical NCDOT ADT count; AADT {Year}
 - ⊠ Intersection TMC collected by **M/A/B** in 2007 (Peak Hour)
 - Existing Interchange
 - ◇ AADT count collected by **M/A/B** in 2007
 - ⊙ Proposed Interchange

NO-BUILD FORECASTS FOR MONROE CONNECTOR/BYPASS STUDY

TASK 3: BASE YEAR AND FUTURE YEAR NO-BUILD FORECASTS

Task 3 consisted of developing daily and hourly forecasts for Alternatives 1 and 3. Growth factors were developed from comparisons of historical traffic data, demographic data, and model run outputs. These growth factors were applied to link and turning movement volumes developed under Alternative 1.

A Monroe Connector and Bypass No-Build scenario run was performed to provide a basis for comparison and to permit assessment of impacts on existing interstates and interchanges. To provide the most consistent, reproducible, and objective basis for this comparison, adjustments to model outputs were kept to a minimum. The 2030 model network provided by the Charlotte Department of Transportation (CDOT), as described below, was used as the starting point for developing the No-Build alternative. The Monroe Connector and Monroe Bypass links were deleted from the network to create the 2030 No-Build Network.

Task 3.1: Code Network and Assign Traffic (Daily, A.M. Peak, and P.M. Peak)

The 2030 model network obtained from CDOT as part of MRTDM was modified to reflect the actual alignment of Monroe Connector and Bypass. The Monroe Connector and Bypass links and associated interchanges were deleted from the network to create the 2030 No-Build Network.

The original network has been edited in TransCAD to add the projects described below, including interchanges. Some centroids and their connectors have been adjusted to account for new interchange locations.

The following is a description of network edits for all alternatives.

- Centroid Connector for TAZ 9254 (ID 223566) connects at the end of the ramp and hence it is moved west from the ramp to get proper turning movements.
- The following projects numbers have been removed from the 2030 project list from the Metrolina Model due to conflicts or inconsistencies with the alignments being evaluated:
 - US 74 (Monroe Connector) from US 601 to US 74 north- Project number **210**
 - US 74 Bypass (Monroe Bypass) from US 601 to US 74 south – Project number **211**
- The Monroe Connector as coded in the CDOT/Metrolina model network served as the starting point for establishing attributes for similar links in the new alignments. The following is a list of the link attributes with notes relating to how the fields were modified for this project.
 - Proj1: Same value automatically generated for “Dir”
 - Strname: Monroe Connector or Monroe Bypass
 - SecondNam: Blank
 - Projnum1: New number assigned to link, started at 3100.
 - A_CrossStr: Same as on corresponding link in original network
 - B_Crossstr: Same as on corresponding link in original network
 - Funcl: Same as on corresponding link in original network
 - Fedfuncl: Same as on corresponding link in original network

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○ Fedfunc_AQ:	Same as on corresponding link in original network
○ Lanes:	2
○ LanesAB:	Same as on corresponding link in original network
○ LanesBA:	Same as on corresponding link in original network
○ Factype:	Same as on corresponding link in original network
○ Spdlimit:	65, ramps were 45
○ Parking:	N, same as on corresponding link in original network
○ Pedactivity:	X, same as on corresponding link in original network
○ Developden:	X, same as on corresponding link in original network
○ Drivewayden:	X, same as on corresponding link in original network
○ Areatp:	Same as on corresponding link in original network
○ A_LeftLns:	Same as on corresponding link in original network
○ A_ThruLns:	Same as on corresponding link in original network
○ A_RightLns:	Same as on corresponding link in original network
○ A_Control:	Same as on corresponding link in original network
○ A_Prohibit:	Same as on corresponding link in original network
○ B_LeftLns:	Same as on corresponding link in original network
○ B_RightLns:	Same as on corresponding link in original network
○ B_control:	Same as on corresponding link in original network
○ B_prohibit:	Same as on corresponding link in original network
○ State:	Same as on corresponding link in original network
○ County:	Same as on corresponding link in original network
○ Level:	Same as on corresponding link in original network
○ Funcl_prj1:	Same as on corresponding link in original network
○ LnsAB_prj1:	Same as on corresponding link in original network
○ LnsBA_prj1:	Same as on corresponding link in original network
○ Factypprj1:	Same as on corresponding link in original network
○ Acntl_prj1:	Same as on corresponding link in original network
○ Aprhb_prj1:	Same as on corresponding link in original network
○ Aleft_prj1:	Same as on corresponding link in original network
○ Athru_prj1:	Same as on corresponding link in original network
○ Bcntl_prj1:	Same as on corresponding link in original network
○ Bprhb_prj1:	Same as on corresponding link in original network
○ Bleft_prj1:	Same as on corresponding link in original network

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- Bthru_prj1: Same as on corresponding link in original network
- Brite_Prj1: Same as on corresponding link in original network

In some cases, attributes have been modified if the original data was determined to be incorrect. No revisions have been made to **TAZ** numbers or cross street attributes.

A new field, **TurnID**, was created in the node file of the master network to identify all nodes for which the model calculated turning movements. This field was populated with a value of “5” to generate intersection movement diagrams used to develop the traffic forecast sheets. The **hwyassn.rsc** file was modified to include the script for turn penalty and turning movement calculations.

Once the coding was complete, the network was checked for the connectivity of the links, and any errors corrected.

Table 5 indicates the links that were added to the existing Metrolina model network.

Table 5: List of Links Added to the Network

LENGTH	STRNAME	FROM	TO	LANES	SPDLIMIT
2.33	Old Gold Mine Rd	Olive Branch	Ansonville	2	45
1.59	Old Gold Mine Rd	Ansonville	Marshville Olive Br	2	45
1.13	New Hope Church Rd	New Salem Rd	NC 205	2	45
1.64	New Hope Church Rd	NC 218	New Salem Rd	2	45
1.76	Lawyers Rd	NC 200	New Salem Rd	2	45
1.29	Lawyers Rd	New Salem Rd	McIntyre Rd	2	45
1.30	McIntyre Rd	Lawyers Rd	Olive Branch Rd	2	45
1.17	Lawyers Rd	McIntyre Rd	Olive Branch Rd	2	45
2.28	Lawyers Rd	Olive Branch Rd	Ansonville Rd	2	45
0.61	Lawyers Rd	Ansonville Rd	NC 205	2	45
0.95	Forest Hills School	Old Hwy 74	US 74	2	45
1.39	Old Hwy 74	Forest Hills School	Old Pageland Marshvl	2	35

NO-BUILD FORECASTS FOR MONROE CONNECTOR/BYPASS STUDY

LENGTH	STRNAME	FROM	TO	LANES	SPDLIMIT
1.47	Old Hwy 74	Camden Rd	Forest Hills School	2	35
0.75	Old Hwy 74	US 74	Camden Rd	2	35
1.10	Camden Rd	Old Hwy 74	Old Monroe Marshvl	2	45
1.22	Camden Rd	Old Monroe Marshvl	Gilboa Rd	2	45
1.22	Old Monroe Marshvl	Camden Rd	Forest Hills School	2	45
0.98	Old Monroe Marshvl	Gilboa Rd	Camden Rd	2	45
1.45	Forest Hills School	Faulks Church Rd	Old Monroe Marshvl	2	45
0.30	Forest Hills School	Old Monroe Marshvl	Old Hwy 74	2	45
0.57	Faulks Church Rd	Gilboa Rd	Forest Hills School	2	45
0.39	Faulks Church Rd	Forest Hills School	Old Pageland Marshvi	2	45
0.98	Gilboa Rd	Faulks Church Rd	Old Pageland Marshvl	2	45
0.75	Gilboa Rd	Camden Rd	Faulks Church Rd	2	45
1.51	Gilboa Rd	Old Monroe Marshvl	Camden Rd	2	45
0.64	Camden Rd	Gilboa Rd	Faulks Church Rd	2	45
0.80	Faulks Church Rd	Camden Rd	Gilboa Rd	2	45
1.12	Camden Rd	Faulks Church Rd	Old Pageland Marshvl	2	45
1.62	Faulks Church Rd	White Store Rd	Camden Rd	2	45
2.01	Snyders Store Rd	Pageland Monroe Rd	White Store Rd	2	45

NO-BUILD FORECASTS FOR MONROE CONNECTOR/BYPASS STUDY

LENGTH	STRNAME	FROM	TO	LANES	SPDLIMIT
1.60	Gilboa Rd	Old Pageland Marshvl	Philadelphia Church	2	45
0.80	Gilboa Rd	Philadelphia Church	Landsford Rd	2	45
3.13	Philadelphia Church	Gilboa Rd	White Store Rd	2	45
2.22	Philadelphia Church	White Store Rd	Smith Town Rd	2	45
1.52	Smith Town Rd	Old Pageland Marshvl	Philadelphia Church	2	45
0.70	Smith Town Rd	Philadelphia Church	Landsford Rd	2	45
2.45	Old Pageland Marshvl	White Store Rd	Pageland Monroe Rd	2	45
0.60	Old Pageland Marshvl	Pageland Monroe Rd	Smith Town Rd	2	45
1.91	Old Pageland Marshvl	Smith Town Rd	Landsford Rd	2	45
1.97	Pageland Monroe Rd	Snyders Store Rd	Old Pageland Marshvl	2	45
1.15	Pageland Monroe Rd	Snyders Store Rd	Belk Mill Rd	2	45
1.02	Joe Griffin Rd	US 601	Pageland Monroe Rd	2	45
2.76	Pageland Monroe Rd	Mountain Springs Ch	Snyders Store Rd	2	45
2.19	Mountain Springs Ch	Pageland Monroe Rd	US 601	2	45
1.59	Mountain Springs Ch	White Store Rd	Pageland Monroe Rd	2	45
1.63	Old Monroe Marshvl	White Store Rd	Witmore Rd	2	45

NO-BUILD FORECASTS FOR MONROE CONNECTOR/BYPASS STUDY

LENGTH	STRNAME	FROM	TO	LANES	SPDLIMIT
0.60	Old Monroe Marshvl	Witmore Rd	Gilboa Rd	2	45
2.85	Mangum Dairy Rd	US 601	Medlin Rd	2	45
1.70	Jack Davis Rd	Stack Rd	Medlin Rd	2	45
2.60	Jack Davis Rd	NC 207	Stack Rd	2	45
2.40	Sandy Ridge Rd	NC 207	Stack Rd	2	45
3.45	Jug Broome Rd	NC 207	Stack Rd	2	45
2.59	Sandy Ridge Rd	Plyler Mill Rd	NC 07	2	45
2.06	Trinity Church Rd	Austin Rd	NC 207	2	45
2.46	Ruben Rd	NC 522	Plyler Mill Rd	2	45
1.29	Trinity Church Rd	Eubanks Rd	Austin Rd	2	45
2.14	Doster Rd	Rocky River Rd	NC 200	2	45
2.70	Doster Rd	NC 75	Rocky River Rd	2	45
3.06	Parkwood School Road	Potter Rd	NC 200	2	45
1.21	Parkwood School Road	Old Waxhaw-Monroe Rd	Potter Rd	2	45
1.52	Potter Road	Old Waxhaw-Monroe Rd	Parkwood School Rd	2	45
2.53	Potter Road	Parkwood School Rd	NC 200	2	45
3.56	Tirzah Church Rd	Waxhaw Creek Rd	US 521	2	45
0.65	Tirzah Church Rd	Walkup Rd	Waxhaw Creek Rd	2	45

NO-BUILD FORECASTS FOR MONROE CONNECTOR/BYPASS STUDY

LENGTH	STRNAME	FROM	TO	LANES	SPDLIMIT
1.16	Tirzah Church Rd	Walkup Rd	NC 200	2	45
3.90	Walkup Rd	Rehobeth Rd	Tirzah Church Rd	2	45
1.90	Rehobeth Rd	Walkup Rd	US 521	2	45
3.10	Rehobeth Rd	NC 75	Walkup Rd	2	45
2.22	Henry Harris Rd	Shelly Mullis Rd	Jim Wilson Rd	2	45
1.25	Shelley Mullis Road	US 521	Henry Harris Rd	2	45
0.81	Stacy Howie Rd	Henry Harris Rd	Shelly Mullis Rd	2	45
1.39	Shelley Mullis Rd	Henry Harris Rd	Marvin Waxhaw Rd	2	45
1.68	Collins Rd	US 521	Henry Harris Rd	2	45
0.20	Henry Harris Rd	Collins Rd	Stacy Howie Rd	2	45
1.58	Henry Harris Rd	Marvin Rd	Collins Rd	2	45
0.70	Newtown Rd	Marvin Rd	State Line	2	45

The projects files were edited in Microsoft Excel Software to add the projects associated with each alternative alignment. Three different project files were created for the alternatives: two build and one No-build.

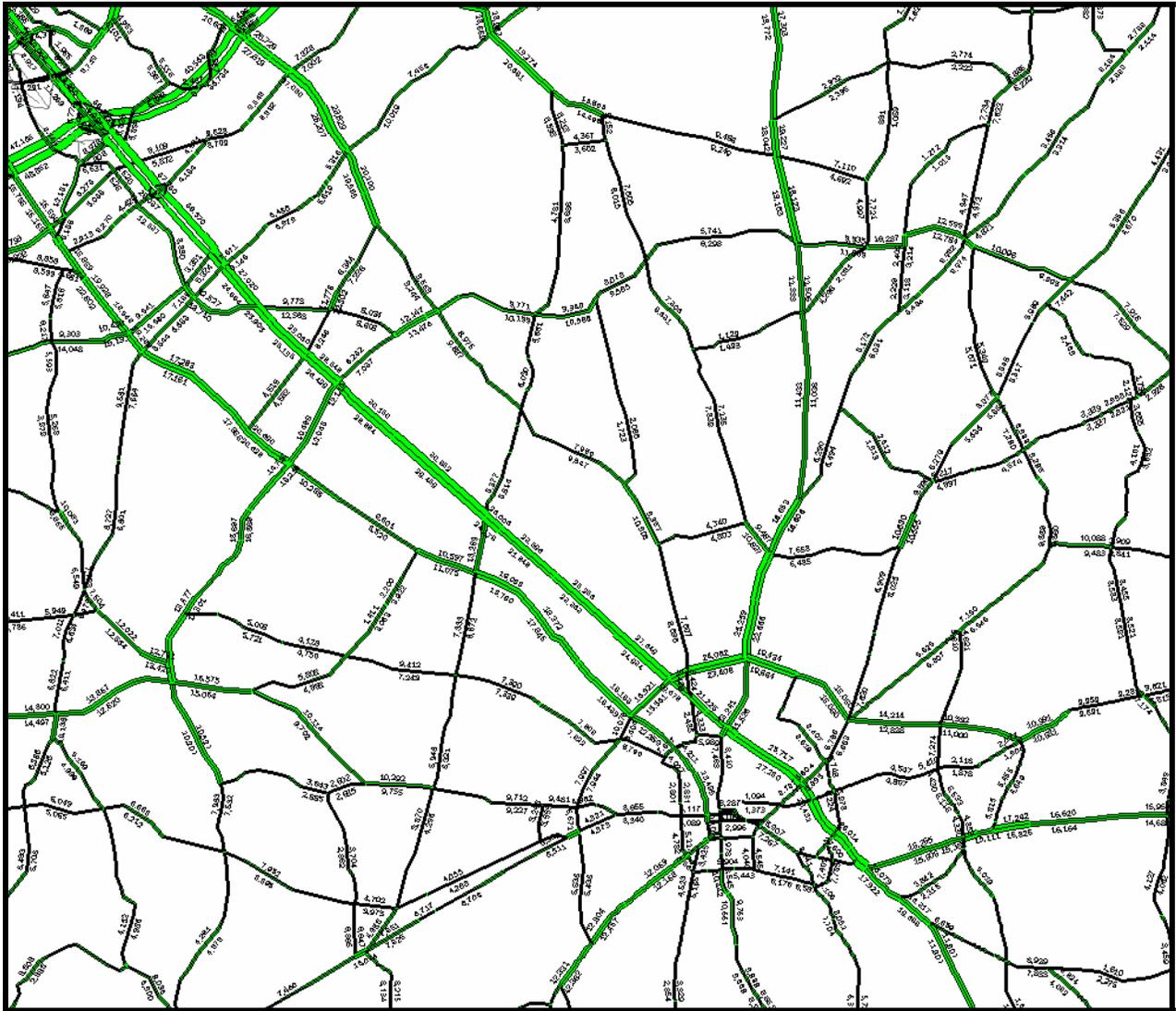
During the base-year model runs, comparisons were made between available traffic counts and assigned traffic volumes on corresponding network links. Direct movements from off-ramps immediately onto on-ramps were prohibited along the Monroe Connector/Bypass. U-turn prohibitions were also applied globally to all links during the model runs. These modifications eliminated unrealistic “short-circuiting” of short, mildly congested links at interchanges, resulting in more accurate turning movement estimates.

Task 3.2: Provide TransCAD-Generated Link Volume Plots and Summary Statistics

Figure 5 shows the Model Link Volumes for the 2030 No-Build Alternative.

NO-BUILD FORECASTS FOR MONROE CONNECTOR/BYPASS STUDY

Figure 5: Model Link Volumes for 2030 No-Build Alternative



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Task 3.3: Design Data Factors

The design data factors (K-Factors, D-Factor, truck percentages) were derived by comparing calculated values from the data collected in 2007. These factors are shown in Table 6 and Table 7.

Task 3.4: Daily No-Build Forecasts

For Alternative 1, forecast segment and turning movement volumes estimates were derived from comparisons of historical data and the supplemental data collected in 2007.

For Alternative 3, forecast segment and turning movement volumes were estimated by applying growth historical growth and model growth rates to the link volumes derived for Alternative 1.

Base Year (2007) No-Build Non-Toll (**Alternative 1**)

Segment link forecast volumes were initially determined. This process was followed by balancing turning movements at the intersections. Design data were estimated from the data collected in 2007.

The forecast estimates for **Alternative 1** were derived by extrapolating historical trends in traffic growth, and applying seasonal adjustment factors to the new 2007 turning movement counts and classification counts. From these datasets, the most reasonable link volumes were selected.

Specifically, the process for determining the 2007 AADT Link Volumes is described in the subsections below.

Determination of 2007 AADT Using Historical Data Extrapolation

This method of determining the 2007 No-Build Link Forecast Volumes consisted of extrapolation of historical trends. The data collected in Table 3 was used to facilitate this.

Determination of 2007 AADT Using 2007 Tube Counts

The following steps describe the process of developing a 2007 AADT using the tube counts collected by M/A/B:

- *Step 1: Determine Daily Estimate:* Vehicle classification counts were collected over a 48-hour period at specific locations shown in Figure 4. The volumes were compared across the two days and averaged to develop an ADT estimate.
- *Step 2: Develop AADT:* The ADT estimate is adjusted with a seasonal adjustment factor acquired from the NCDOT Traffic Survey Unit. This adjustment factor accounts for variations of seasons, months, and roadway classification type, and area classification of the State. The seasonal adjustment factors used for this study were taken from ATR Groups 1, 2, 4, and 12 for an average weekday in March or April.

The formula for developing the 2007 AADT is described as:

$$2007\ AADT = 2007\ ADT * NCDOT\ SAF$$

where:

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- 2007 AADT = No-Build Alternative Link Forecast Volume calculated for 2007.
- 2007 ADT = Link volume estimated from the 2007 vehicle classification counts.
- NCDOT SAF = Seasonal Adjustment Factor obtained NCDOT Traffic Survey Unit.

Determination of 2007 AADT Using 2007 Intersection Turning Movement Counts

The following steps describe the process of developing a 2007 AADT using the intersection turning movement counts collected by M/A/B.

- *Step 1: Access 16-Hour Volume:* Intersection turning movement counts were collected over a 16-hour period at specific locations shown in Figure 4. The hours of collection occurred between 6:00 AM and 10:00 PM. These estimates were converted to 16-hour approach link volumes.
- *Step 2: Determine Daily Estimate:* The 16-hour volumes developed under Step 1 were converted to daily estimates by applying a factor of the volumes between hours of 6:00 AM to 10:00 PM and the total 24 hours at nearby tube locations. This factor usually ranges between 0.80 and 0.95.

The formula for developing the 2007 ADT is described as:

$$2007 \text{ ADT} = \frac{2007 \text{ 16-Hour Volume}}{\text{Daily Factor}}$$

where:

- 2007 ADT = Daily volumes estimated for 2007.
 - 2007 16-Hour Volume = Link volume extracted from the 2007 intersection turning movement count.
 - Daily Factor = Tube count relationship of volumes between 16-hours (6:00 AM to 10:00 PM) and the total 24 hours.
- *Step 3: Develop AADT:* The ADT estimate is adjusted with a seasonal adjustment factor acquired from the NCDOT Traffic Survey Unit. This adjustment factor accounts for variations of seasons, months, and roadway classification type, and area classification of the State.

The formula for developing the 2007 AADT using this technique is described as:

$$2007 \text{ AADT} = 2007 \text{ ADT} * \text{NCDOT SAF}$$

where:

- 2007 AADT= No-Build Alternative Link Forecast Volume calculated for 2007.
- 2007 ADT = Daily volumes estimated for 2007.
- NCDOT SAF = Seasonal Adjustment Factor obtained NCDOT Traffic Survey Unit.

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2007 AADT Link Forecast Volume Selection

The techniques were compared against one another for each location. The most reasonable link volumes were selected to represent the 2007 No-Build Link Forecast Volumes. In some cases, the techniques were averaged. The link volumes are shown in Table 8.

Future Year (2030) No-Build Non-Toll (**Alternative 3**)

This alternative established forecast volumes for Future Year No-Build conditions. Neither the Monroe Connector nor the Monroe Bypass are assumed to be constructed. Relevant projects near the study area assumed to be completed are shown in Table 1.

The forecast estimates for **Alternative 3** were derived by extrapolating historical trends in traffic growth and extracting link volumes from the MRTRM generated from the 2000 Base Year Model and the 2030 Future Year No-Build Model. From these two datasets, appropriate growth rates determined and applied to the link volumes estimated for **Alternative 1**. The link volumes are shown in Table 8.

Segment link volumes were initially determined followed by balancing turning movements at the intersections. Design data were estimated from the data collected in 2007.

Table 6: Design Data for the Mainline Locations

Link							K-factor suggested by traffic counts			Recommended K-Factor		D-factor suggested by traffic counts						Recommended D-Factor				Truck %s suggested by 48-hour classification counts †		Recommended Truck %s			
North end of link			Mid-link tube count location	South end of link								North end	Tube	South end	North end		Tube		South end		2005		2030		2007		2030
Y-line	Int. No.	Count type		Y-line	Int. No.	Count type	D-factor	Direction	D-factor	Direction	D-factor				Direction	D-factor	Direction	D-factor	Direction	D-factor	Direction	D-factor	Direction	Duals	TT-STs	Duals	TT-STs
End of study area	-	-	A	I-485	1	-	-	8.1%	-	-	-	-	59%	SB	-	-	-	-	-	8%	3%	-	-	-	-		
I-485	1	-	C	Stallings	2	16 hour	-	7.0%	-	-	-	-	50%	SB	-	-	-	-	-	8%	5%	-	-	-	-		
Stallings	2	16 hour		Indian Trail-Fairview	3	16 hour	7.9%						52%	SB													
Indian Trail-Fairview	3	16 hour		U'ville-Indian Trail W	4	16 hour	7.6%						55%	SB													
U'ville-Indian Trail W	4	16 hour		Faith Church / Harris Teeter	5	peak hour	7.7%						56%	SB													
Faith Church / Harris Teeter	5	peak hour		Sardis Ch / Wesley Chapel Stouts	6	peak hour	-						58%	SB													
Sardis Ch / Wesley Chapel Stouts	6	peak hour	R	Chambers Dr	7	peak hour	-	7.3%	-	-	-	-	54%	SB	53%	NB	52%	SB		9%	5%						
Chambers Dr	7	peak hour		N Rocky River	8	16 hour	-			8.1%	8%	8%	56%	SB					55%	SB	55%	SB		8%	5%	8%	5%
N Rocky River	8	16 hour		Fowler Secrest	9	peak hour	7.7%			-			53%	SB													
Fowler Secrest	9	peak hour		Rolling Hills	10	peak hour	-			-			53%	SB													
Rolling Hills	10	peak hour		Round Table	11	peak hour	-			-			57%	SB													
Round Table	11	peak hour		Williams	12	peak hour	-			-			52%	SB													
Williams	12	peak hour	II	Wal-Mart/Lowe's	13	peak hour	-	7.1%	-	-			62%	SB	53%					9%	4%						
Wal-Mart/Lowe's	13	peak hour		K-Mart	14	peak hour	-			-			56%	SB													
K-Mart	14	peak hour		Secrest Shortcut	15	16 hour	-			8.0%			58%	SB													
Secrest Shortcut	15	16 hour		Concord Ave	16	-	8.1%			-			55%	SB													

Table 6: Design Data for the Mainline Locations

Task 3: Base Year and Future Year No-Build Forecasts

Link							K-factor suggested by traffic counts			Recommended K-Factor		D-factor suggested by traffic counts						Recommended D-Factor				Truck %s suggested by 48-hour classification counts †		Recommended Truck %s			
North end of link			Mid-link tube count location	South end of link								North end	Tube	South end	North end		Tube		South end		2005		2030		2007		2030
Y-line	Int. No.	Count type		Y-line	Int. No.	Count type	D-factor	Direction	D-factor	Direction	D-factor				Direction	D-factor	Direction	D-factor	Direction	D-factor	Direction	D-factor	Direction	Duals	TT-STs	Duals	TT-STs
Concord Ave	16	-	VV	Skyway Dr	17	-	-	7.7%	-	-	-	52%	NB	-	-	-	-	-	-	8%	5%	-	-	-	-		
Skyway Dr	17	-	YY	Stafford St	18	16 hour	-	7.4%	8.3%	-	-	52%	NB	51%	SB	-	-	-	-	11%	4%	-	-	-	-		
Stafford St	18	16 hour		Boyte St	19	peak hour	8.3%	-	-	8%	8%	50%	SB	-	-	51%	NB	-	-	-	-	-	-	-	-		
Boyte St	19	peak hour		Morgan Mill	20	16 hour	-	-	8.1%	-	-	52%	NB	-	-	55%	SB	-	-	-	-	-	-	-	-		
Morgan Mill	20	16 hour		Walkup	21	16 hour	8.1%	-	8.2%	-	-	55%	SB	-	-	51%	NB	-	-	-	-	-	-	-	-		
Walkup	21	16 hour		S Sutherland	22	peak hour	8.3%	-	-	-	-	51%	SB	-	-	51%	SB	-	-	-	-	-	-	-	-		
S Sutherland	22	peak hour		Venus St	23	peak hour	-	-	-	-	-	52%	SB	-	-	55%	SB	-	-	-	-	-	-	-	-		
Venus St	23	peak hour		E Franklin St	24	16 hour	-	-	8.1%	8%	8%	56%	SB	-	-	54%	SB	55%	SB	55%	SB	8%	5%	8%	5%		
E Franklin St	24	16 hour		US-601	25	16 hour	8.5%	-	9.7%	-	-	52%	NB	-	-	59%	SB	-	-	-	-	-	-	-	-		
US-601	25	16 hour	WWW	S Secrest	26	peak hour	9.6%	8.3%	-	-	-	55%	SB	51%	SB	50%	NB	-	-	7%	6%	-	-	-	-		
S Secrest	26	peak hour		S Bivens	27	peak hour	-	-	-	-	-	53%	SB	-	-	56%	SB	-	-	-	-	-	-	-	-		
S Bivens	27	peak hour		Bivens St	28	peak hour	-	-	-	-	-	58%	SB	-	-	55%	SB	-	-	-	-	-	-	-	-		
Bivens St	28	peak hour		Main St	29	peak hour	-	-	-	-	-	55%	SB	-	-	54%	SB	-	-	-	-	-	-	-	-		
Main St	29	peak hour		Forest Hills Sch Rd	30	16 hour	-	-	8.7%	-	-	56%	SB	-	-	53%	SB	-	-	-	-	-	-	-	-		
Forest Hills Sch Rd	30	16 hour		End of study area	-	-	8.3%	-	-	-	-	54%	SB	-	-	-	-	-	-	-	-	-	-	-	-		

Table 7: Design Data for the Y-Line Locations

Link					K-factor suggested by traffic counts		Recommended K-Factor		D-factor suggested by traffic counts				Recommended D-Factor				Truck %s suggested by tube counts		Recommended Truck %s			
Int. No.	TMC type	Tube count location	East/ West of mainline	Y-line name	TMC	Tube	2007	2030	TMC		Tube		2007		2030		Duals	TT-STs	2007		2030	
									D-factor	Direction	D-factor	Direction	D-factor	Direction	D-factor	Direction			Duals	TT-STs	Duals	TT-STs
1	-	B	East	I-485	9.9%		10%	10%			58%	EB	55%	EB	55%	EB	7%	3%	7%	3%	7%	3%
	-	D	West	I-485	8.3%		8%	8%			56%	EB	55%	EB	55%	EB	10%	5%	10%	5%	10%	5%
2	16 hour	E	East	Stallings	10.6%	10.1%	11%	11%	58%	EB	61%	EB	60%	EB	60%	EB	12%	1%	3%*	1%	3%*	1%
	16 hour		West	Stallings	9.4%		9%	9%	52%	EB			55%	EB	55%	EB			3%	1%	3%	1%
3	16 hour	H	East	Indian Trail-Fairview	7.7%	9.2%	9%	9%	53%	EB	64%	EB	65%	EB	65%	EB	8%	1%	8%	1%	8%	1%
	16 hour		West	Indian Trail Rd N	7.8%		8%	8%	51%	EB			55%	EB	55%	EB			8%	1%	8%	1%
4	16 hour	K	East	U'ville-Indian Trail	8.3%	8.4%	8%	8%	55% *	EB	64%	EB	65%	EB	65%	EB	5%	1%	5%	1%	5%	1%
	16 hour		West	U'ville-Indian Trail	8.3%		8%	8%	64%	EB			65%	EB	65%	EB			5%	1%	5%	1%
5	peak hour	N	East	Faith Church	-	9.6%	10%	10%	58%	WB			60%	WB	60%	WB	-	-	3%	1%	3%	1%
	peak hour	P	West	Harris Teeter Distribn Ctr	-	7.6%	8%	8%	*		59%	WB	60%	WB	60%	WB	16%	0%	16%	1%	16%	1%
6	peak hour		East	Sardis Church	-		9%	9%	58%	EB			60%	EB	60%	EB			3%	1%	3%	1%
	peak hour		West	Wesley Chapel	-		9%	9%	54%	EB			55%	EB	55%	EB			3%	1%	3%	1%
7	peak hour		East	Chambers Dr	-		9%	9%	77%	EB			75%	EB	75%	EB			3%	1%	3%	1%
8	16 hour	V	East	N Rocky River	9.3%	8.5%	9%	9%	60%	EB	54%	EB	60%	EB	60%	EB	8%	2%	3%	1%	3%	1%
	16 hour		West	N Rocky River	9.4%		9%	9%	66%	WB			65%	WB	65%	WB			3%	1%	3%	1%
9	peak hour	Y	East	Fowler Secrest	-	9.3%	9%	9%	58%	EB			60%	EB	60%	EB	-	-	3%	1%	3%	1%
	peak hour		West	John Moore	-		9%	9%	63%	EB			60%	EB	60%	EB			3%	1%	3%	1%
10	peak hour	BB	East	Rolling Hills Dr	-	9.4%	8%	8%	61%	EB			60%	EB	60%	EB	-	-	3%	1%	3%	1%
	peak hour		West	Carroll St	-		8%	8%	53%	WB			55%	WB	55%	WB			3%	1%	3%	1%
11	peak hour	EE	East	Round Table	-	10.6%	11%	11%	51%	WB			55%	WB	55%	WB	-	-	3%	1%	3%	1%
	peak hour		West	Roland Dr	-		9%	9%	53%	EB			55%	EB	55%	EB			2%	1%	2%	1%
12	peak hour	HH	East	Williams Rd	-	9.5%	9%	9%	58%	EB			60%	EB	60%	EB	-	-	2%	1%	2%	1%
	peak hour		West	Williams Rd	-		9%	9%	64%	EB			65%	EB	65%	EB			2%	1%	2%	1%
13	peak hour		East	Wal-Mart/Lowe's	-		10%	10%	52%	WB			55%	WB	55%	WB			4%	1%	4%	1%
	peak hour	MM	West	Hanover Dr	-	9.2%	9%	9%	52%	EB	52%	EB	55%	EB	55%	EB	4%	1%	4%	1%	4%	1%
14	peak hour		East	K-Mart Entrance	-		10%	8% *	54%	EB			55%	EB	55%	EB			3%	1%	8% *	5% *
	peak hour	PP	West	Dickerson Blvd	-	7.6%	8%	8%	61%	EB	64%	EB	60%	EB	60%	EB	8%	2%	8%	2%	8%	2%
15	16 hour		East	Secrest Shortcut	8.3%		8%	8%	52%	EB			55%	EB	55%	EB			3%	1%	3%	1%
	16 hour		West	Mall Entrance	10.2%		10%	10%	54%	EB			55%	EB	55%	EB			3%	1%	3%	1%
-	-	TT	West	Secrest Shortcut		9.5%	9%	9%			61%	WB	60%	WB	60%	WB	7%	1%	7%	1%	7%	1%
16	peak hour	UU	East	Concord Ave	-	8.4%	8%	8%	57%	EB	53%	EB	55%	EB	55%	EB	6%	1%	6%	1%	6%	1%
	peak hour	WW	West	Concord Ave	-	7.7%	8%	8%	54%	EB	51%	EB	55%	EB	55%	EB	6%	1%	6%	1%	6%	1%
17b	peak hour	XX	East	Concord Hwy	-	7.6%	8%	8%	*		63%	EB	55%	WB	55%	WB	8%	7%	8%	7%	8%	5%*
17a	peak hour		West	Skyway Dr	-		8%	8%	62%	EB			55%	WB	55%	WB			8%	7%	8%	5%*
17c	peak hour	No ID	South-East	East Ave	-	8.7%	8%	8%	51%	NB	53%	NB	55%	SB	55%	SB	10%	2%	8%	5%	8%	5%

Table 7: Design Data for the Y-Line Locations

Intersection No.	Link				K-factor suggested by traffic counts		Recommended K-Factor		D-factor suggested by traffic counts				Recommended D-Factor				Truck %s suggested by tube counts		Recommended Truck %s			
	TMC type	Tube count location	East/ West of mainline	Y-line name	TMC	Tube	2007	2030	TMC		Tube		2007		2030		Duals	TT-STs	2007		2030	
									D-factor	Direction	D-factor	Direction	D-factor	Direction	D-factor	Direction			Duals	TT-STs	Duals	TT-STs
18	16 hour		East	Stafford St	8.6%		9%	9%	52%	EB			55%	EB	55%	EB			2%	1%	2%	1%
	16 hour		West	Stafford St Extn	8.8%		9%	9%	60%	WB			60%	WB	60%	WB			2%	1%	2%	1%
19	peak hour		East	Retail Entrance	-		14%	14%	68%	EB			70%	EB	70%	EB			2%	1%	2%	1%
	peak hour		West	Boyte St	-		14%	14%	59%	EB			60%	EB	60%	EB			2%	1%	2%	1%
20	16 hour	GGG	East	Morgan Mill	8.1%	8.3%	8%	8%	57%	WB	58%	EB	60%	EB	60%	EB	10%	3%	10%	3%	10%	3%
	16 hour		West	Morgan Mill	7.9%		8%	8%	51%	EB			55%	EB	55%	EB			10%	3%	10%	3%
21	16 hour		East	Walkup Ave	7.8%		8%	8%	57%	WB			55%	WB	55%	WB			3%	1%	3%	1%
	16 hour		West	Walkup Ave	8.0%		8%	8%	52%	WB			55%	WB	55%	WB			3%	1%	3%	1%
22	peak hour	MMM	East	S Sutherland Ave	-	9.9%	10%	10%	51%	WB	74%	EB	55%	WB	55%	WB	17%	6%	5%	1%	5%	1%
	peak hour		West	S Sutherland Ave	-		10%	10%	54%	EB			55%	EB	55%	EB			5%	1%	5%	1%
23	peak hour	PPP	East	Venus St	-	8.5%	8%	8%	51%	WB			55%	WB	55%	WB	-	-	3%	1%	3%	1%
	peak hour		West	Dove St	-		7%	7%	65%	EB			65%	EB	65%	EB			3%	1%	3%	1%
24	16 hour		East	Retail Entrance	10.4%		10%	10%	57%	EB			55%	EB	55%	EB			4%	1%	4%	1%
	16 hour	UUU	West	E Franklin St	9.0%	8.3%	9%	9%	51%	WB	55%	EB	55%	WB	55%	WB	4%	1%	4%	1%	4%	1%
25	16 hour		East	Metro Med Ctr	4.0%		8%	8%	100%	WB			65%	EB	65%	EB			3%	1%	3%	1%
	16 hour	XXX	West	US-601	9.7%	7.9%	8%	8%	66%	WB	66%	WB	65%	WB	65%	WB	14%	13%	14%	13%	14%	13%
26	peak hour		East	S Secrest Ave	-		10%	10%	71%	WB			70%	WB	70%	WB			2%	1%	2%	1%
	peak hour		West	Old Pageland-Monroe	-		10%	10%	67%	WB			65%	WB	65%	WB			2%	1%	2%	1%
27	peak hour		East	S Bivens Rd	-		9%	9%	57%	WB			55%	WB	55%	WB			2%	1%	2%	1%
28	peak hour	DDDD	East	Bivens St	-	8.8%	9%	9%	60%	WB			60%	WB	60%	WB	-	-	2%	1%	2%	1%
	peak hour		West	Food Lion Drwy	-		9%	9%	61%	EB			60%	EB	60%	EB			2%	1%	2%	1%
29	peak hour		East	N Main St	-		9%	9%	55%	WB			55%	WB	55%	WB			3%	1%	3%	1%
	peak hour		West	S Main St	-		9%	9%	52%	WB			55%	WB	55%	WB			3%	1%	3%	1%
30	16 hour		East	Forest Hills Sch Rd N	19.3%		10%	10%	76%	EB			75%	EB	75%	EB			6%	1%	6%	1%
	16 hour	L.L.L.L	West	Forest Hills Sch Rd S	25.5%	17.8%	13%	13%	61%	EB	69%	EB	60%	EB	60%	EB	12%	1%	12%	1%	12%	1%

Table 8: 2007 and 2030 No-Build AADT Link Volumes

AADT Location		Historical Extrapolation		2007 Traffic Counts				Final No-Build Annual Average Daily Traffic Volumes					
		2007	2030	2007 Raw ADT Volume	2007 Raw TMC Volume	2007	2007 Final AADT	2000 Model	2030 Model	Annualized Model Growth Rate (2000-2030)	Annualized Historical Growth Rate (2007-2030)	Average Final Growth Rate (2007-2030)	2030 Final AADT
A	US 74 (East Independence Boulevard) WEST of I-485 Interchange	62,200	100,600	72,063		74,200	62,200	46,205	83,532	1.99%	1.29%	1.70%	91,600
B	I 485 NORTH of US 74 (East Independence Boulevard)	67,800	255,000	60,101		59,000	59,000	5,310	74,572	9.21%	1.02%	1.78%	88,400
C	US 74 (East Independence Boulevard) WEST of SR 1365 (Stallings Road)	60,800	100,400	59,528		61,400	61,800	43,162	70,281	1.64%	0.56%	1.35%	84,200
C-1	US 74 (East Independence Boulevard) East of I-485 Interchange	59,800	96,200		58,469	64,800	61,800	43,162	70,281	1.64%	0.56%	1.35%	84,200
D	I 485 SOUTH of US 74 (East Independence Boulevard)	72,600	189,600	58,831		57,800	65,200	24,824	92,652	4.49%	1.54%	2.03%	103,600
E	SR 1365 (Stallings Road) NORTH of US 74	5,600	9,000	4,611	5,639	5,400	5,600	7,555	8,400	0.35%	1.78%	1.93%	8,600
F	US 74 BETWEEN SR 1365 (Stallings Road) and SR 1520 (Indian Trail-Fairview Road/SR 1008 Indian Trail Road North)	57,000	96,000		53,755	59,600	60,000	46,490	65,638	1.16%	0.39%	1.34%	81,600
G	SR 1365 (Stallings Road) SOUTH of US 74	11,200	16,200		10,426	10,600	10,600	9,582	14,562	1.40%	1.39%	1.51%	15,000
H	SR 1520 (Indian Trail-Fairview Road) NORTH of US 74	0	0	10,318	12,615	11,600	11,800	10,589	16,609	1.51%	1.50%	1.93%	18,400
I	US 74 BETWEEN SR 1520 (Indian Trail-Fairview Road/SR 1008 Indian Trail Road North) and SR 1367 (Unionville Indian Trail Road West) - west	53,400	88,200		48,088	53,200	53,600	41,485	49,540	0.59%	-0.34%	0.95%	66,600
J	SR 1008 Indian Trail Road North SOUTH of US 74	13,200	22,600		14,357	14,600	14,600	10,134	16,867	1.71%	0.63%	1.50%	20,600
I-1	US 74 BETWEEN SR 1520 (Indian Trail-Fairview Road/SR 1008 Indian Trail Road North) and SR 1367 (Unionville Indian Trail Road West) - east	52,400	87,600		49,823	55,200	53,600	41,485	49,540	0.59%	-0.34%	0.95%	66,600
K	SR 1367 (Unionville Indian Trail Road West) NORTH of US 74	12,600	25,400	14,029	15,273	14,600	14,400	12,059	22,769	2.14%	2.01%	2.18%	23,600
L	US 74 BETWEEN SR 1367 (Unionville Indian Trail Road West) and SR 3014 (Faith Church Road)	50,600	85,000	47,493	48,245	51,200	51,800	29,017	54,026	2.09%	0.18%	1.23%	68,600
M	SR 1367 (Unionville Indian Trail Road West) SOUTH of US 74	6,600	12,400		7,567	7,600	7,200		25,731		5.69%	4.01%	17,800
N	SR 3014 (Faith Church Road) NORTH of US 74	0	0	3,553	4,740	4,200	4,200	4,628	14,186	3.80%	5.43%	3.96%	10,200
P	Harris Teeter Distribution Center Entrance SOUTH of US 74	0	0	1,512	420	1,600	1,600		7,883		7.18%	4.82%	4,800

Factored 2007 AADT

Table 8: 2007 and 2030 No-Build AADT Link Volumes

Task 3: Base Year and Future No-Build Forecasts

AADT Location		Historical Extrapolation		2007 Traffic Counts				Final No-Build Annual Average Daily Traffic Volumes					
		2007	2030	2007 Raw ADT Volume	2007 Raw TMC Volume	2007	2007 Final AADT	2000 Model	2030 Model	Annualized Model Growth Rate (2007-2030)	Annualized Historical Growth Rate (2007-2030)	Average Final Growth Rate (2007-2030)	2030 Final AADT
Q	SR 1377 (Sardis Church Road) NORTH of US 74	7,600	17,200		7,333	7,400	7,400	3,432	12,107	4.29%	2.16%	2.58%	13,200
R	US 74 BETWEEN SR 1377 (Sardis Church Road/Wesley Chaple Stouts Road) and SR 2356 (Chambers Drive)	47,800	78,200	39,002	41,171	43,000	47,600	26,594	58,137	2.64%	0.87%	1.52%	67,200
S	SR 1377 (Wesley Chaple Stouts Road) SOUTH of US 74	9,800	19,600		13,475	13,600	11,400	9,015	23,184	3.20%	3.13%	3.06%	22,800
T	SR 2356 (Chambers Drive) NORTH of US 74	4,000	8,600		5,452	5,600	4,400		4,400		0.00%	1.48%	6,200
U	US 74 BETWEEN SR 2356 (Chambers Drive) and SR 1007/SR 1514 (North Rocky River Road)	42,600	68,200		35,312	39,200	41,000	27,250	59,486	2.64%	1.63%	1.85%	62,400
V	SR 1514 (North Rocky River Road) NORTH of US 74	6,800	11,800	6,871	7,969	7,400	8,000	5,458	11,238	2.44%	1.49%	1.94%	12,400
W	US 74 BETWEEN SR 1007/SR 1514 (North Rocky River Road) and Fowler Secrest Road/John Moore Road	39,400	60,800		35,537	39,400	41,400	26,033	47,858	2.05%	0.63%	1.27%	55,200
X	SR 1007 (North Rocky River Road) SOUTH of US 74	11,200	18,800		7,765	7,800	9,600	8,965	25,448	3.54%	4.33%	3.32%	20,400
Y	Fowler Secrest Road NORTH of US 74	0	0	2,901	2,892	3,000	2,800		4,671		2.25%	2.22%	4,600
BB	SR 1977 (Rolling Hills Drive) NORTH of US 74	0	0	1,192	1,032	1,000	1,000		1,577		2.00%	2.03%	1,600
CC	US 74 BETWEEN SR 1977 (Rolling Hills Drive) and Round Table Road/Roland Drive	43,800	67,600		45,400	46,800	45,400	27,225	50,885	2.11%	0.50%	1.20%	59,800
EE	Round Table Road NORTH of US 74	0	0	1,689	1,817	1,600	1,600		2,523		2.00%	2.07%	2,600
HH	Williams Road NORTH of US 74	0	0	5,636	4,105	4,200	4,200		6,623		2.00%	1.99%	6,600
II	US 74 BETWEEN Williams Road and Walmart-Lowe's Entrance/Hanover Drive	0	0	43,355	44,800	47,000	47,000	29,128	54,656	2.12%	0.66%	1.28%	63,000
MM	Hanover Drive (a.k.a Williams Road Extension) SOUTH of US 74	0	0	6,089	5,478	5,000	5,000		7,884		2.00%	1.98%	7,800
PP	SR 1223 (Dickerson Boulevard) SOUTH of US 74	9,600	0	12,982	20,158	17,600	17,600	9,162	31,505	4.20%	2.56%	2.29%	29,600
OO	US 74 BETWEEN SR 1223 (Dickerson Boulevard/K-Mart Entrance) and SR 1501 (Secrest Shortcut Road/Mall Entrance)	50,200	77,600		58,800	63,000	56,600	34,174	39,965	0.52%	-1.50%	0.20%	59,200

Factored 2007 AADT

Table 8: 2007 and 2030 No-Build AADT Link Volumes

AADT Location		Historical Extrapolation		2007 Traffic Counts				Final No-Build Annual Average Daily Traffic Volumes					
		2007	2030	2007 Raw ADT Volume	2007 Raw TMC Volume	2007	2007 Final AADT	2000 Model	2030 Model	Annualized Model Growth Rate (2007-2030)	Annualized Historical Growth Rate (2007-2030)	Average Final Growth Rate (2007-2030)	2030 Final AADT
QQ	SR 1501 (Secrest Shortcut Road) NORTH of US 74	9,200	14,600		8,181	7,200	8,200	6,616	12,088	2.03%	1.70%	1.86%	12,600
TT	SR 1501 (Secrest Shortcut Road) SOUTH of US 74	0	0	6,620		5,800	5,800	4,011	6,490	1.62%	0.49%	1.26%	7,800
UU	SR NNNN Concord Avenue NORTH of US 74	0	0	5,236	5,976	5,000	5,000		7,884		2.00%	1.98%	7,800
WW	SR NNNN Concord Avenue SOUTH of US 74	0	0	6,711	7,455	6,200	6,200		9,777		2.00%	2.01%	9,800
VV	US 74 BETWEEN SR NNNN (Concord Avenue) and US 601 (Concord Highway)/NC 200 (Skyway Drive)	61,800	98,600	50,626		52,200	61,800	38,366	44,013	0.46%	-1.46%	0.29%	66,200
XX	US 601 (Concord Highway/Skyway Drive) NORTH of US 74	15,000	23,400	14,019		15,600	15,400	10,857	25,300	2.86%	2.18%	2.06%	24,600
YY	US 74 BETWEEN US 601 (Concord Highway)/NC 200 (Skyway Drive) and SR 1624 (Stafford Street)	59,800	91,800	54,436	50,786	56,400	58,200	38,358	57,416	1.35%	-0.06%	0.91%	71,800
ZZ	NC 200 (Skyway Drive) SOUTH of US 74	15,800	23,200	-	-	-	-	13,100	24,000	2.04%	-	-	25,200
FFF	Boyte Street SOUTH of US 74	0	0	2,301	2,302	2,000	2,000		3,154		2.00%	2.03%	3,200
EEE	US 74 BETWEEN Boyte Street and NC 200/Morgan Mill Road	57,600	87,200		53,400	55,000	56,400	36,235	53,081	1.28%	-0.26%	0.78%	67,400
GGG	NC 200/Morgan Mill Road NORTH of US 74	11,600	17,600	10,534	10,763	11,400	11,400	6,513	11,632	1.95%	0.09%	0.95%	14,200
HHH	US 74 BETWEEN NC 200/Morgan Mill Road and SR 1106 (Walkup Avenue)	53,200	80,600		44,450	45,800	49,600	33,000	54,107	1.66%	0.38%	1.10%	63,800
JJJ	SR 1106 (Walkup Avenue) NORTH of US 74	11,000	11,000		12,082	10,600	10,800	7,592	8,541	0.39%	-1.02%	0.38%	11,800
MMM	South Sutherland Avenue NORTH of US 74	0	0	5,925	4,724	4,800	4,800	6,760	10,682	1.54%	3.54%	2.66%	8,800
PPP	Venus Street NORTH of US 74	0	0	2,506	3,318	2,600	2,600		3,919		1.80%	1.85%	4,000
UUU	SR 2100 (East Franklin Street) SOUTH of US 74	0	0	12,797	16,657	14,400	14,400	6,391	13,976	2.64%	-0.13%	0.84%	17,400
TTT	US 74 BETWEEN SR 2100 (East Franklin Street)/Food Lion Entrance and US 601 (Pageland Highway)/Metro Medical Center Campus	-	-	-	-	-	-		65,228		-	-	-

Factored 2007 AADT

Table 8: 2007 and 2030 No-Build AADT Link Volumes

Task 3: Base Year and Future No-Build Forecasts

AADT Location		Historical Extrapolation		2007 Traffic Counts				Final No-Build Annual Average Daily Traffic Volumes					
		2007	2030	2007 Raw ADT Volume	2007 Raw TMC Volume	2007	2007 Final AADT	2000 Model	2030 Model	Annualized Model Growth Rate (2007-2030)	Annualized Historical Growth Rate (2007-2030)	Average Final Growth Rate (2007-2030)	2030 Final AADT
XXX	US 601 (Pageland Highway) SOUTH of US 74	17,600	26,800	16,212	16,192	18,000	17,600	15,868	32,877	2.46%	2.75%	2.30%	29,600
WWW	US 74 BETWEEN US 601 (Pageland Highway) and SR 1941 (Old Pageland-Monroe Road)	30,800	44,800	28,147	31,695	31,400	31,200	21,038	32,156	1.42%	0.13%	0.89%	38,200
ZZZ	US 74 BETWEEN SR 1941 (Old Pageland-Monroe Road) and SR 1763 (South Bivens Road)	29,800	45,600		28,325	28,400	29,600	22,002	34,984	1.56%	0.73%	1.21%	39,000
BBBB	SR 1763 (South Bivens Road) NORTH of US 74	2,200	2,600		2,611	2,600	2,400	2,691	11,846	5.06%	7.19%	3.93%	5,800
CCCC	US 74 BETWEEN SR 1763 (South Biven Road) and SR 1762 (Bivens Road)	29,200	42,400		26,904	27,800	29,200	19,308	33,183	1.82%	0.56%	1.10%	37,600
DDDD	SR 1762 (Bivens Street) NORTH of US 74	2,000	2,800	2,005	2,205	1,971	2,000		8,300		6.38%	3.93%	4,800
EEEE	US 74 BETWEEN SR 1762 (Bivens Street)/Food Lion Driveway and Main Street	29,600	39,200		27,397	27,400	28,600	18,787	30,176	1.59%	0.23%	0.73%	33,800
IIII	South Main Street SOUTH of US 74	3,200	4,800		3,106	3,000	3,000	1,383	8,129	6.08%	4.43%	3.05%	6,000
HHHH	US 74 BETWEEN Main Street and Forest Hills School Road	23,000	32,600		23,776	24,400	24,400	15,221	25,846	1.78%	0.25%	0.89%	30,000
LLLL	Forest Hills School Road SOUTH of US 74	0	0	1,690	1,793	1,800	1,600		2,800		2.46%	2.12%	2,600
EAST				4,140		4,000	4,000	3,415	6,253	2.04%	1.96%	1.96%	6,200

Factored 2007 AADT

NO-BUILD FORECASTS FOR MONROE CONNECTOR/BYPASS STUDY

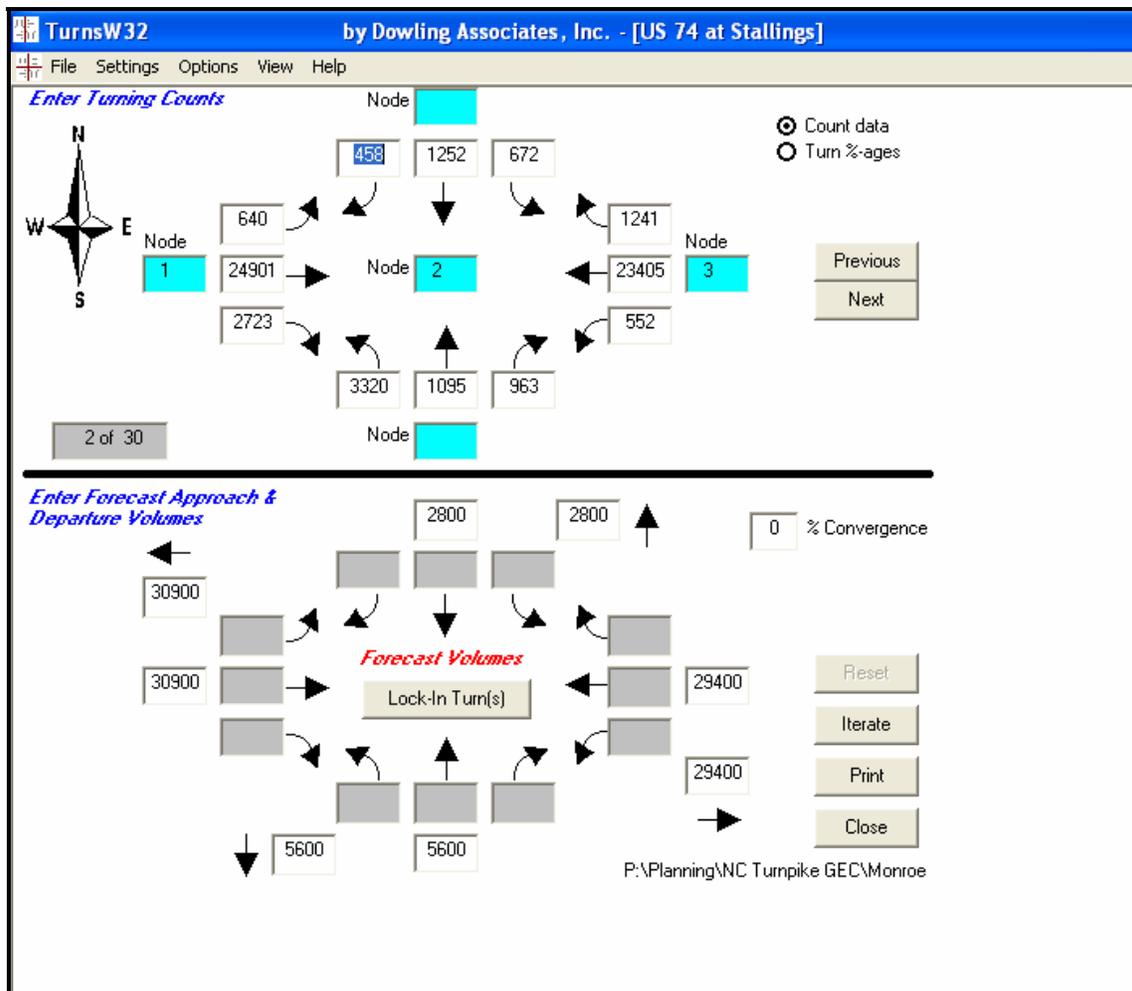
Base Year and Future Year No-Build Daily Turning Movements

The following is a description of the Base Year No-Build forecasts for 2007 and the Future Year No-Build forecasts for 2030. All No-Build daily forecast volumes are shown in Diagram 1 and Diagram 2.

Upon completion of establishing the link and intersection turning movement volumes, each intersection was balanced. *TurnsW32*, a turning movement forecasting program, was used to facilitate this process. Examples of the input and output procedures of *TurnsW32* are shown in Figure 6 and Figure 7.

TurnsW32 employs techniques described in “National Cooperative Highway Research Program (NCHRP) Report 365: Travel Estimation Techniques for Urban Planning,” published by the Transportation Research Board National Research Council.

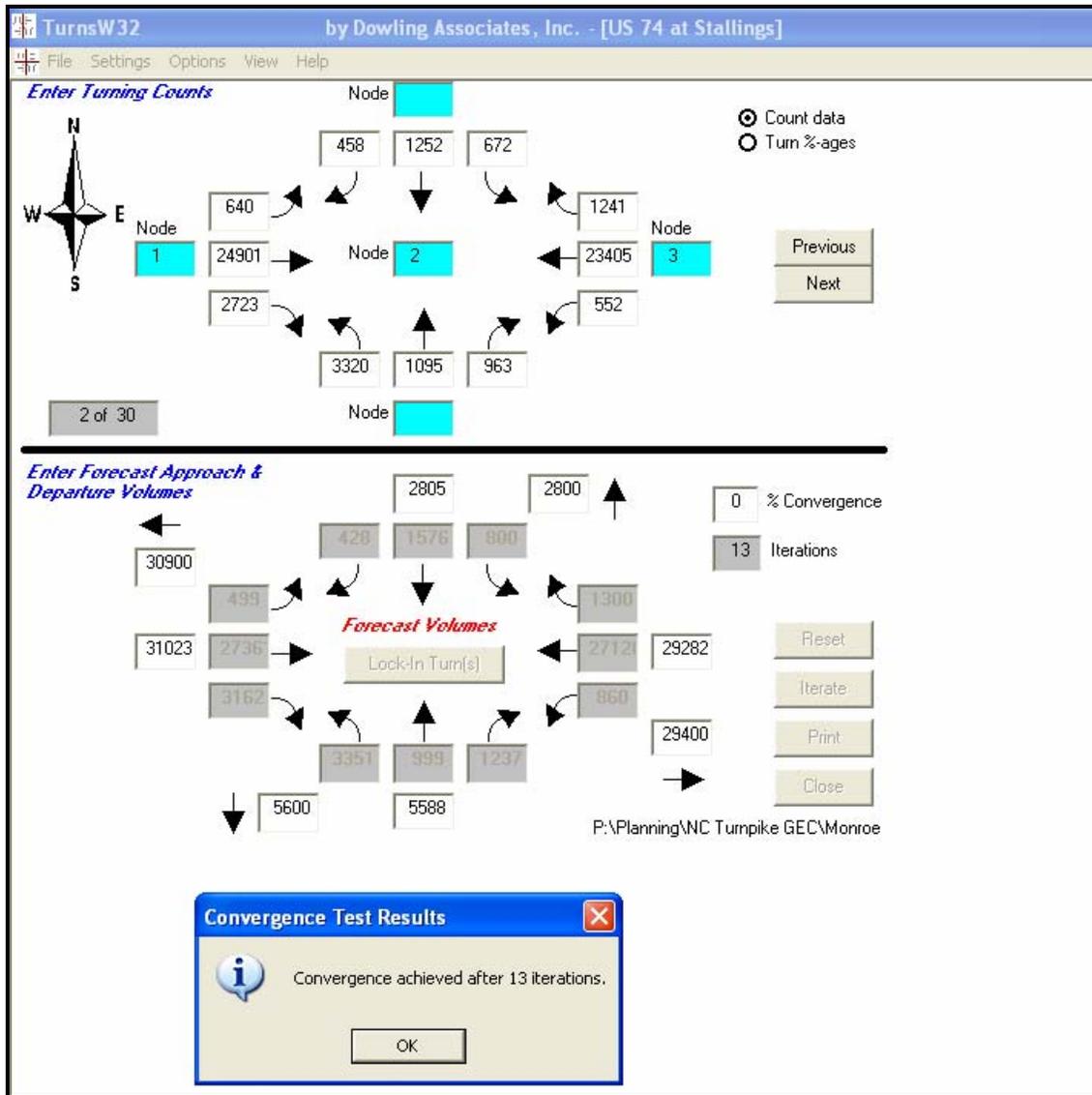
Figure 6: US 74 at Stallings Road *Input* Turning Movement Volumes *before* Iteration



TurnsW32 derives forecast turning movements using an iterative approach that alternately balances the inflows and outflows until the results converge. The results converged within 100 iterations at each location. Simply, the estimated AADT volumes (inflows and outflows) at each intersection were used to estimate the turning movements. Once this process was completed, the turning movements were manually adjusted to complete the balancing procedure.

NO-BUILD FORECASTS FOR MONROE CONNECTOR/BYPASS STUDY

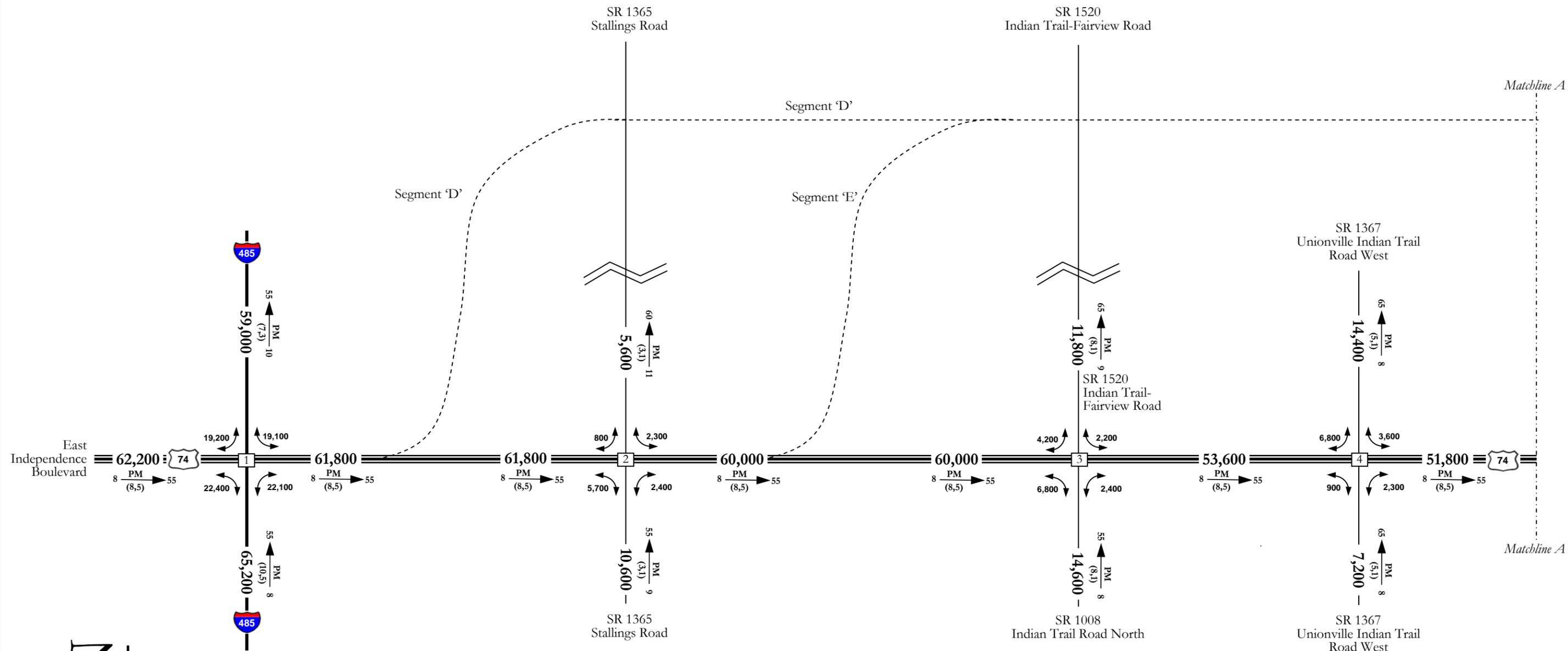
Figure 7: US 74 at Stallings Road *Output* Turning Movement Volumes *after* Iteration



Task 3.5: No-Build Design Hour Volumes

AADT volumes prepared in Task 3.4 were factored, producing the A.M. and P.M. design hour traffic volumes. Turning movement diagrams for A.M. and P.M. design hour traffic were prepared using the NCDOT Traffic Forecasting Utility Software and presented in a Microsoft Excel spreadsheet format.

The hourly forecast volumes for the No-Build Alternatives are shown in Diagram 3 and Diagram 4.



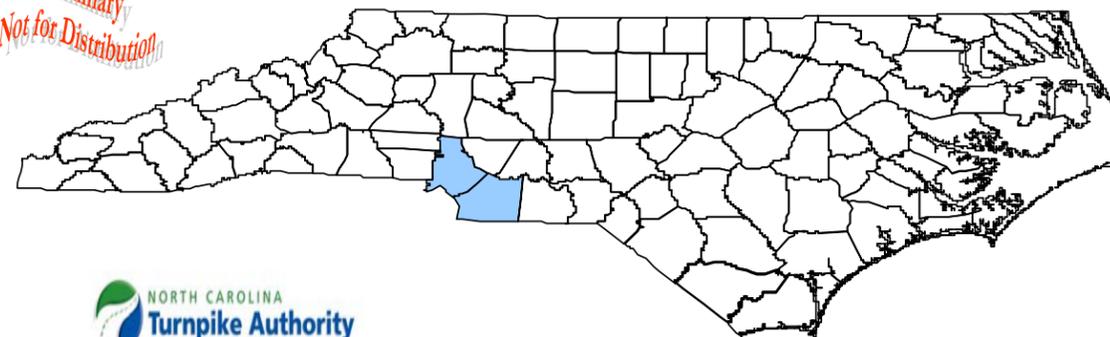
DAILY FORECAST VOLUMES



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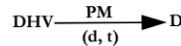
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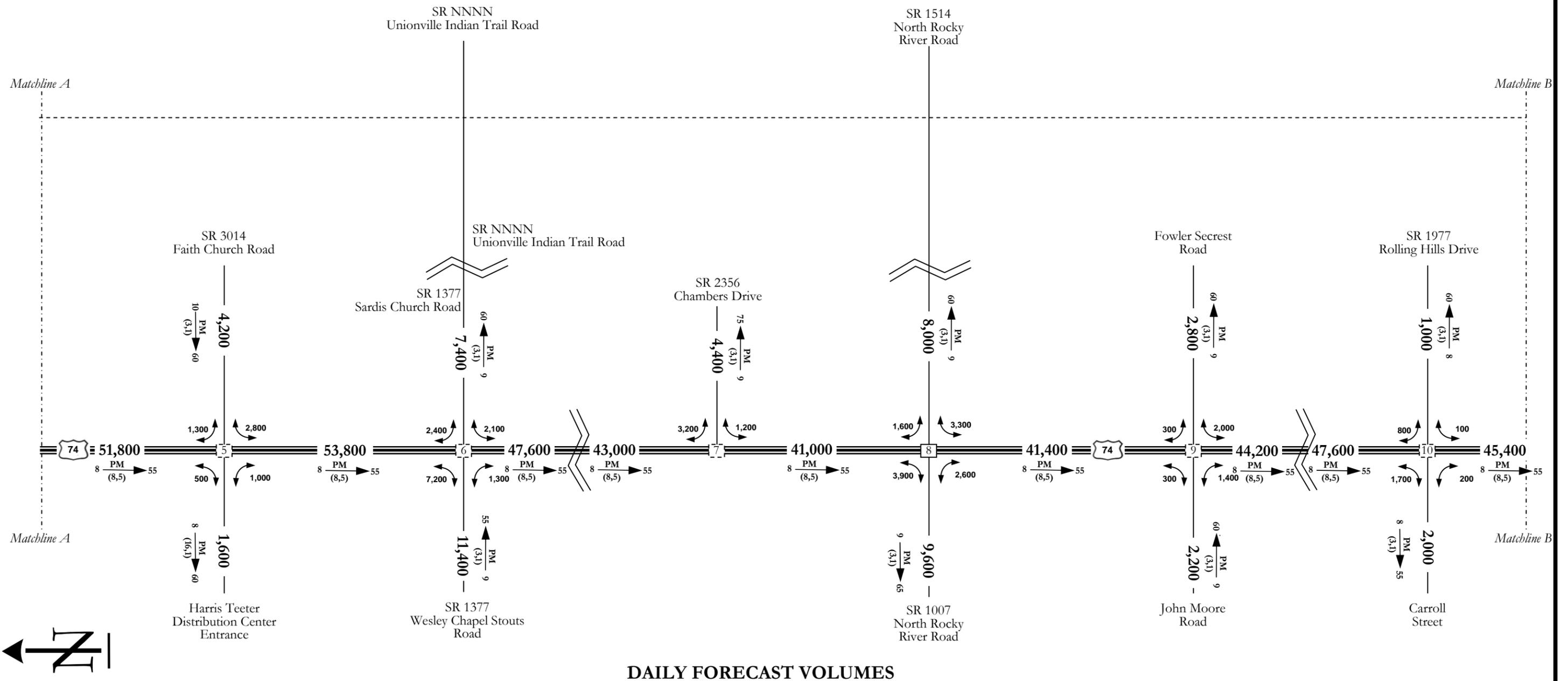
DIAGRAM 1a:
BASE YEAR (2007)
NO-BUILD
NON-TOLL
(Alternative 1)

LEGEND
 DHV = DESIGN HOURLY VOLUME (%) = K30
 K30 = 30th HIGHEST HOURLY VOLUME
 PM = PM PEAK PERIOD
 D = DIRECTIONAL SPLIT (%)
 INDICATES DIRECTION OF D
 REVERSE FOR AM PEAK
 (d,t) DUALS, TT-ST'S (%)



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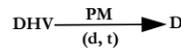


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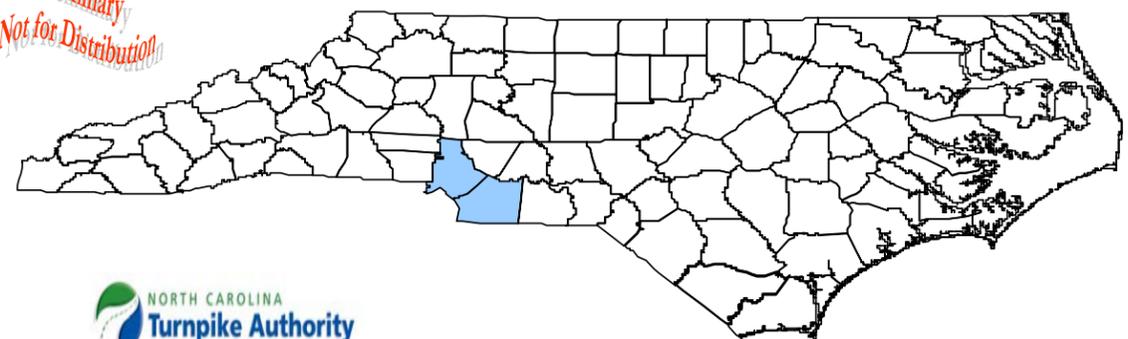
DIAGRAM 1b:
BASE YEAR (2007)
NO-BUILD
NON-TOLL
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 PM = PM PEAK PERIOD
 D = DIRECTIONAL SPLIT (%)
 INDICATES DIRECTION OF D
 REVERSE FOR AM PEAK
 (d,t) DUALS, TT-ST'S (%)



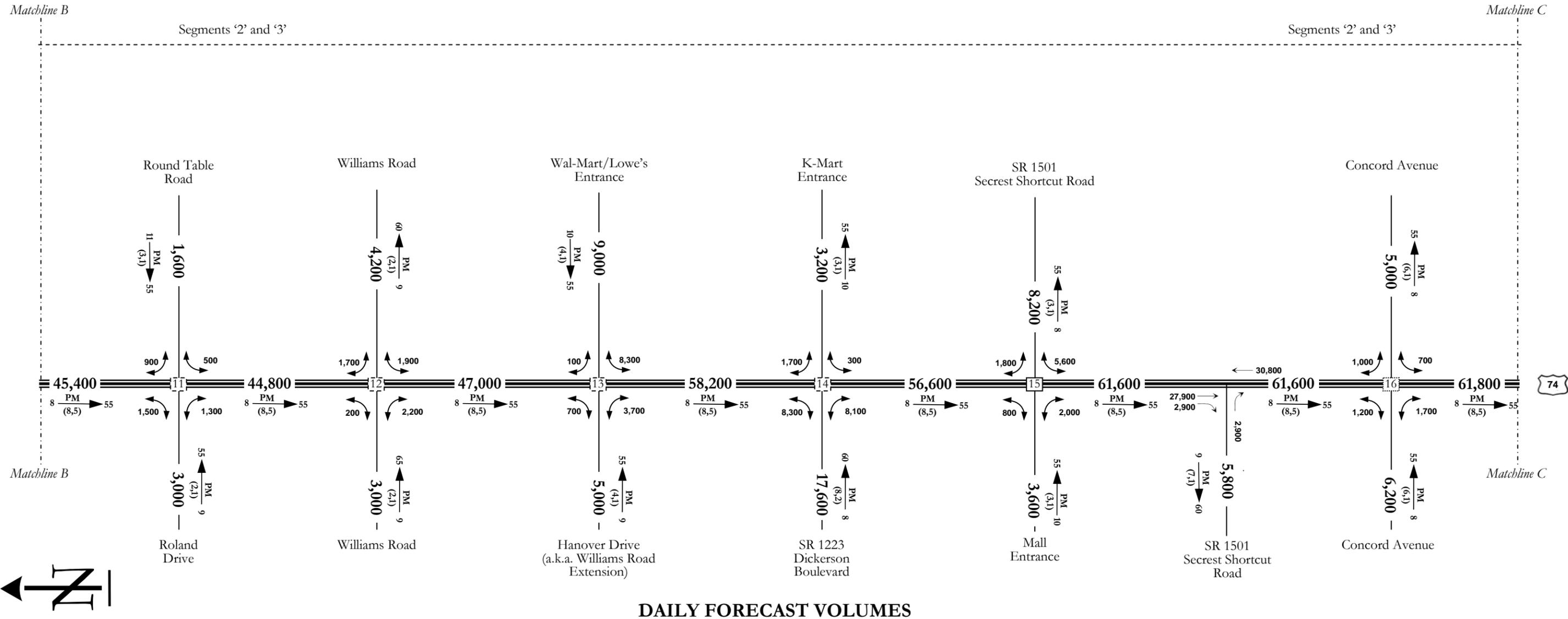
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LEGEND
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 K30 = 30th HIGHEST HOURLY VOLUME
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 REVERSE FOR AM PEAK
 (d,t) DUALS, TT-ST'S (%)

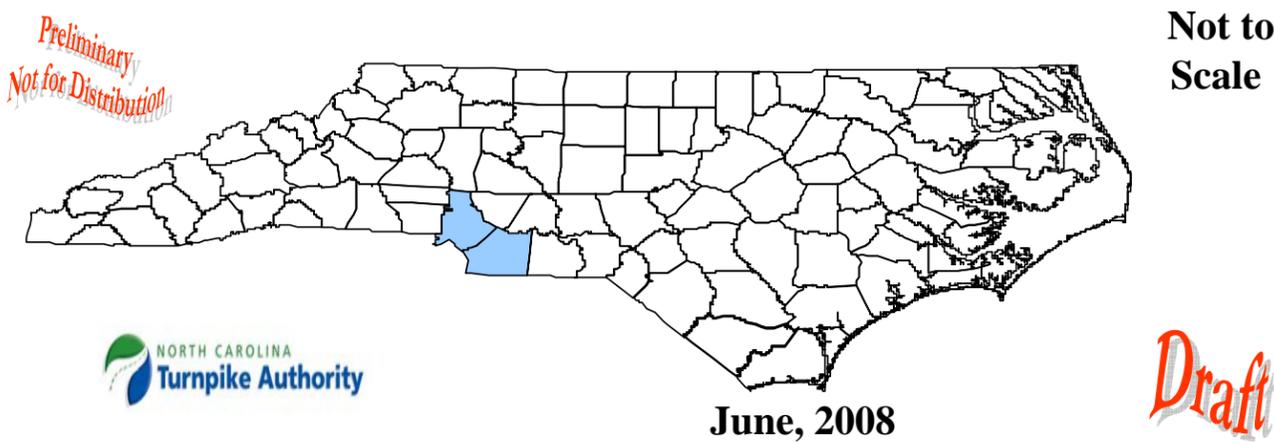
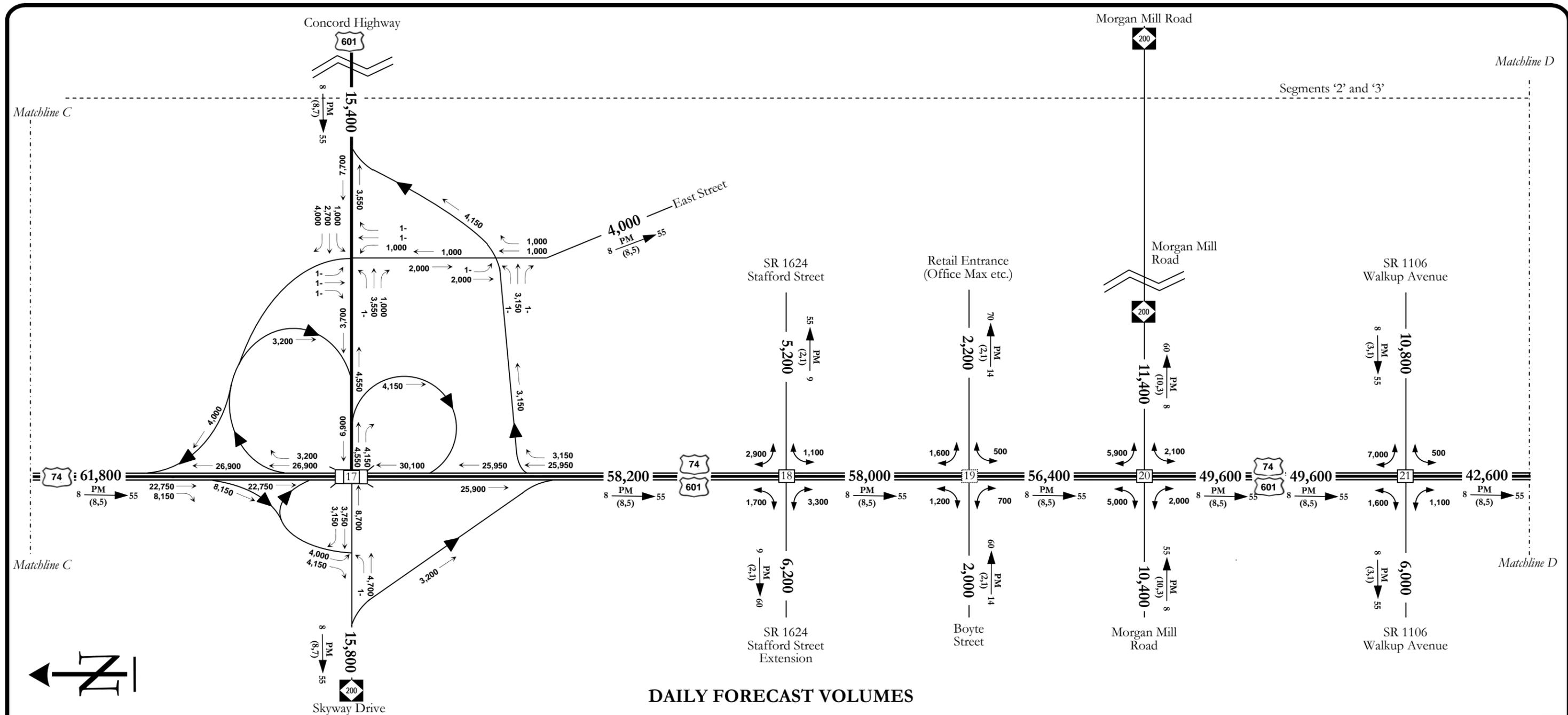


DIAGRAM 1c:
BASE YEAR (2007)
NO-BUILD
NON-TOLL
 (Alternative 1)

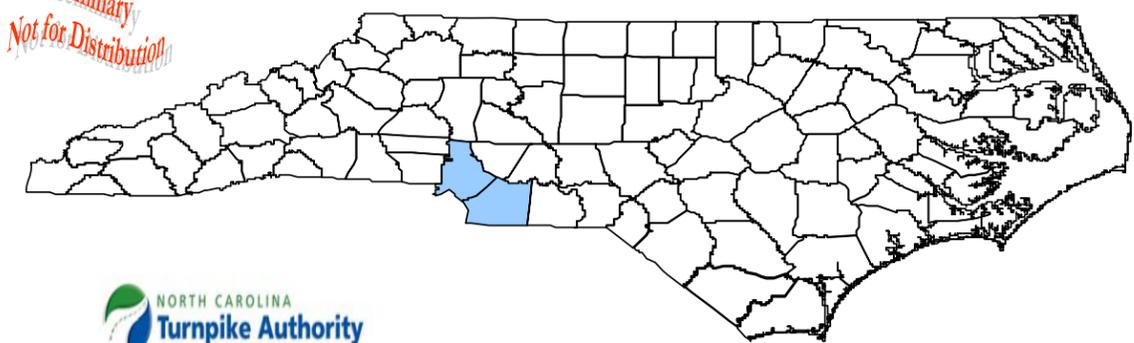
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**DIAGRAM 1d:
 BASE YEAR (2007)
 NO-BUILD
 NON-TOLL
 (Alternative 1)**

LEGEND

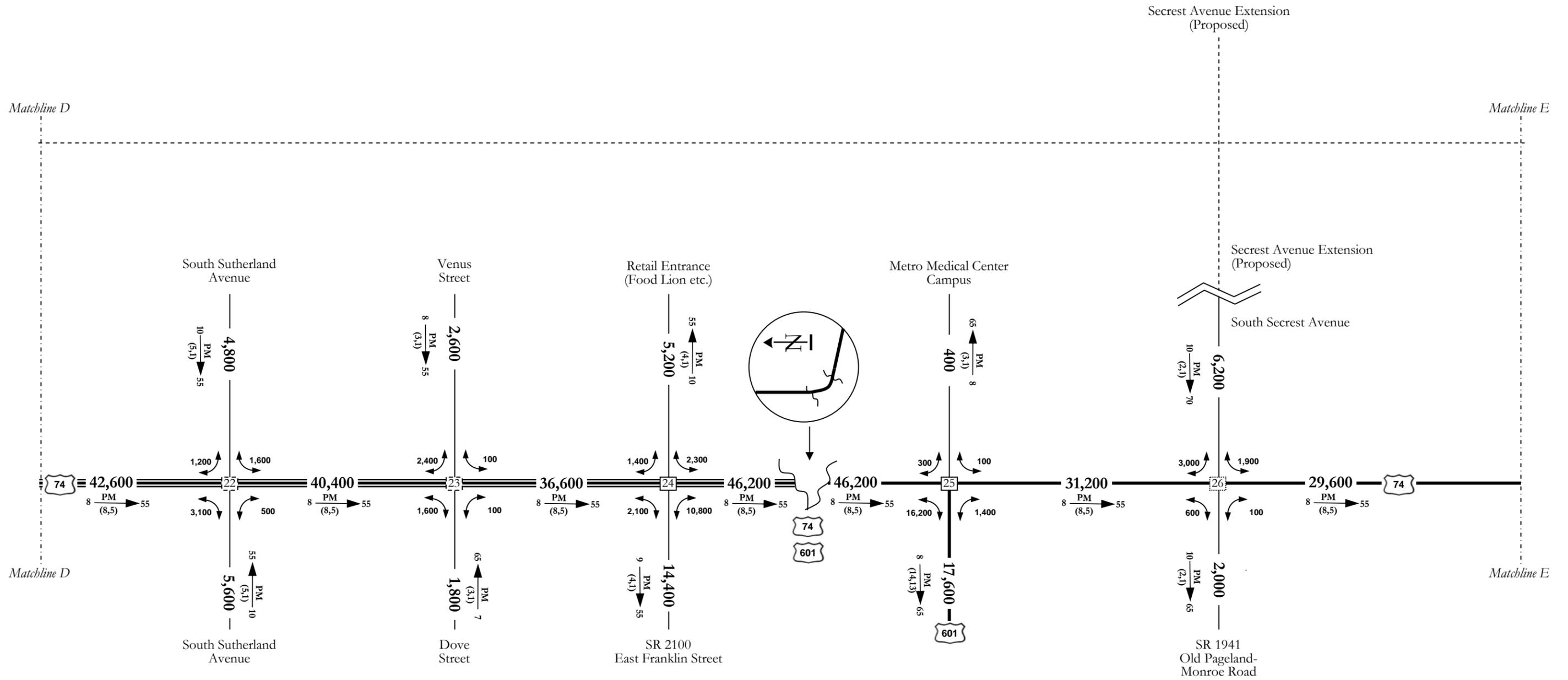
DHV = DESIGN HOURLY VOLUME (%) = K30
 K30 = 30th HIGHEST HOURLY VOLUME
 PM = PM PEAK PERIOD
 D = DIRECTIONAL SPLIT (%)
 INDICATES DIRECTION OF D
 REVERSE FOR AM PEAK
 (d,t) DUALS, TT-ST'S (%)

DHV — PM —> D
 (d, t)



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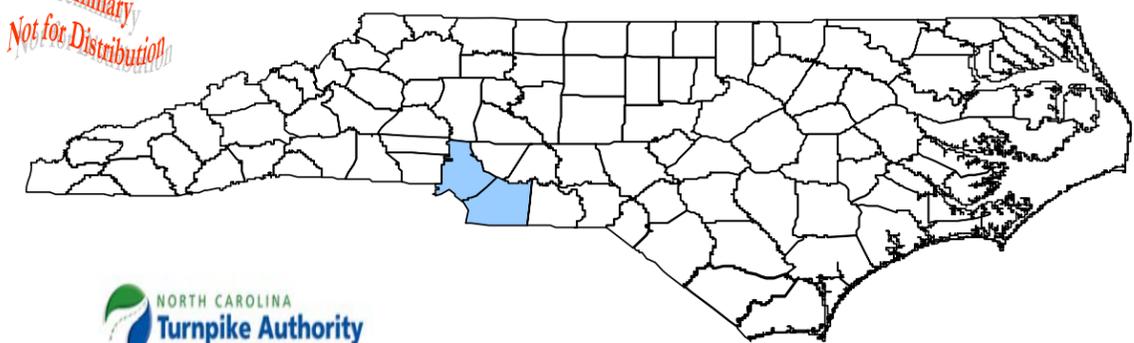


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DIAGRAM 1e:
BASE YEAR (2007)
NO-BUILD
NON-TOLL
 (Alternative 1)

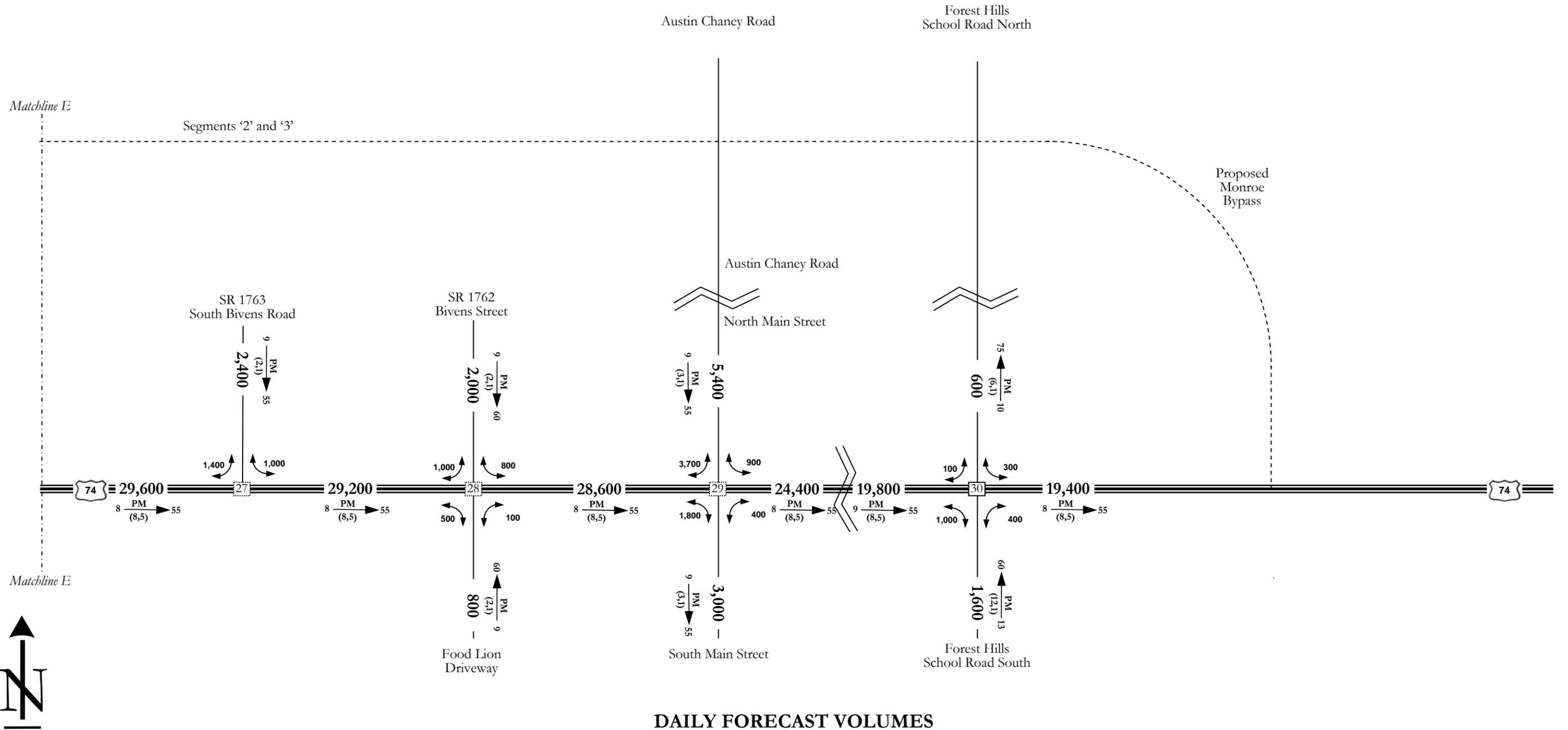
LEGEND
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 K30 = 30th HIGHEST HOURLY VOLUME
 PM = PM PEAK PERIOD
 D = DIRECTIONAL SPLIT (%)
 INDICATES DIRECTION OF D
 REVERSE FOR AM PEAK
 (d,t) DUALS, TT-ST'S (%)

DHV — PM —> D
 (d, t)



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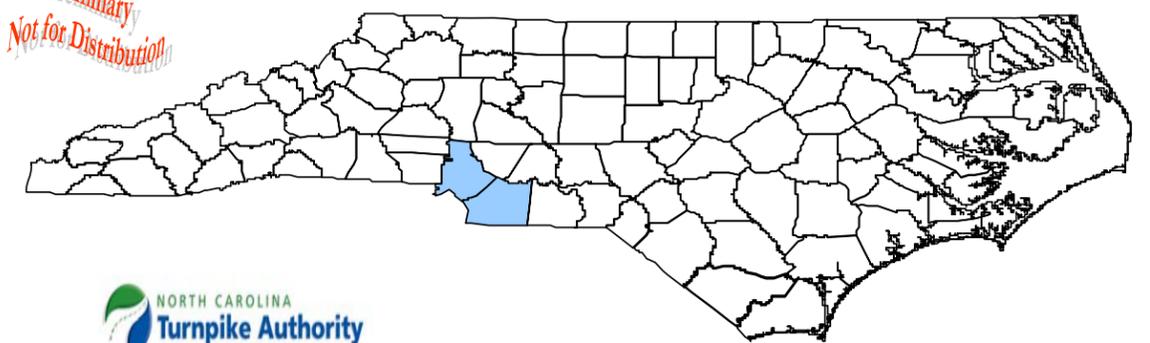
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DIAGRAM 1f:
BASE YEAR (2007)
NO-BUILD
NON-TOLL
(Alternative 1)

LEGEND

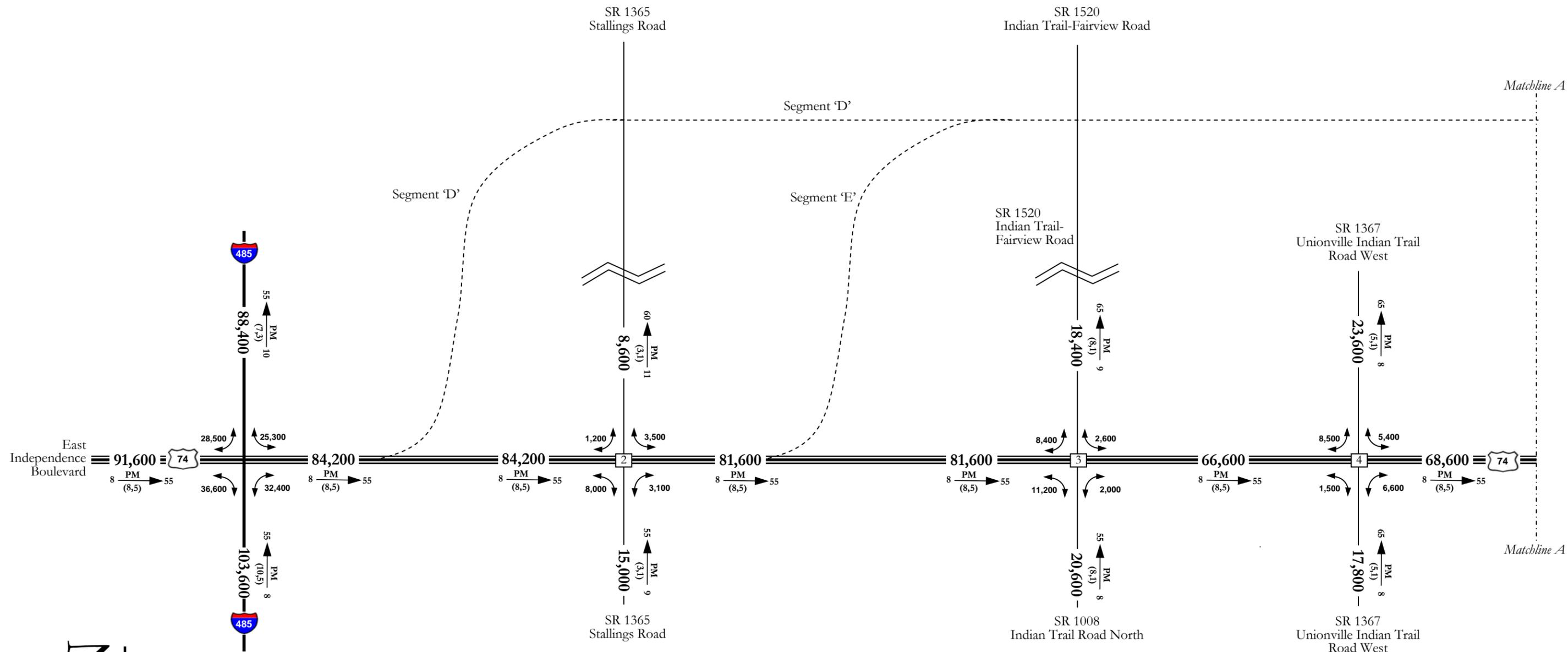
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 K30 = 30th HIGHEST HOURLY VOLUME
 PM = PM PEAK PERIOD
 D = DIRECTIONAL SPLIT (%)
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 REVERSE FOR AM PEAK
 (d,t) DUALS, TT-ST'S (%)

DHV — PM —> D
 (d, t)



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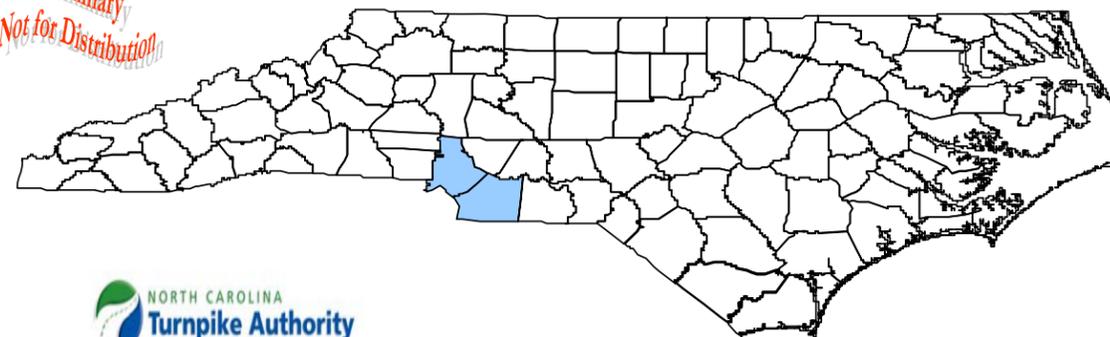
DAILY FORECAST VOLUMES



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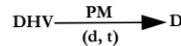
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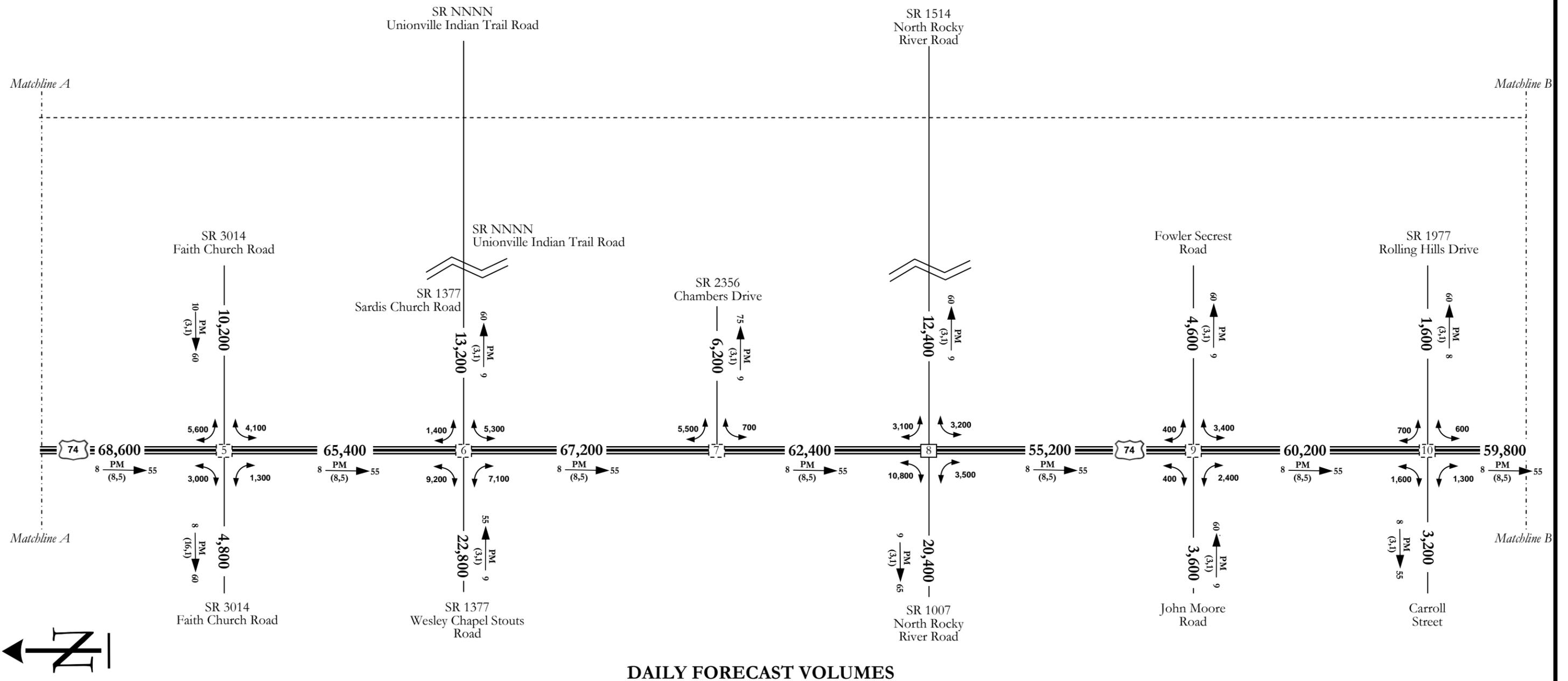
DIAGRAM 2a:
FUTURE YEAR (2030)
NO-BUILD
NON-TOLL
(Alternative 3)

LEGEND
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 K30 = 30th HIGHEST HOURLY VOLUME
 PM = PM PEAK PERIOD
 D = DIRECTIONAL SPLIT (%)
 INDICATES DIRECTION OF D
 REVERSE FOR AM PEAK
 (d,t) DUALS, TT-ST'S (%)



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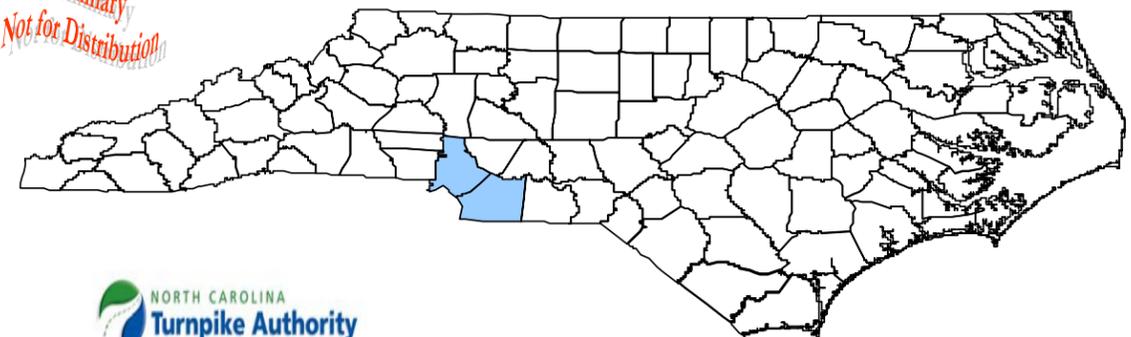
Martin/Alexiou/Bryson

DIAGRAM 2b:
FUTURE YEAR (2030)
NO-BUILD
NON-TOLL
(Alternative 3)

PROJECT
 TIP Project No. R-3329 and TIP Project No. R-2559
 Monroe Connector/Bypass Study
NCDOT Division 10
Mecklenburg County & Union County,
North Carolina

LEGEND
 DHV = DESIGN HOURLY VOLUME (%) = K30
 K30 = 30th HIGHEST HOURLY VOLUME
 PM = PM PEAK PERIOD
 D = DIRECTIONAL SPLIT (%)
 INDICATES DIRECTION OF D
 REVERSE FOR AM PEAK
 (d,t) DUALS, TT-ST'S (%)

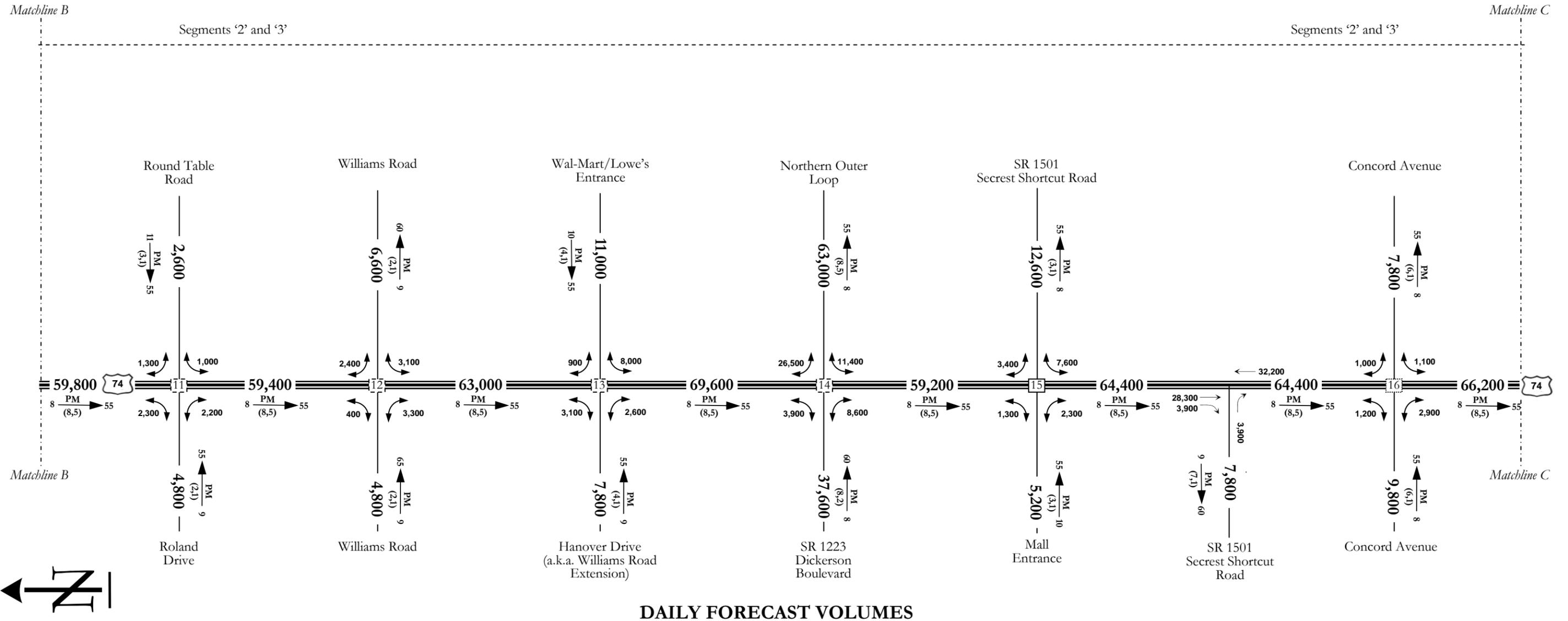
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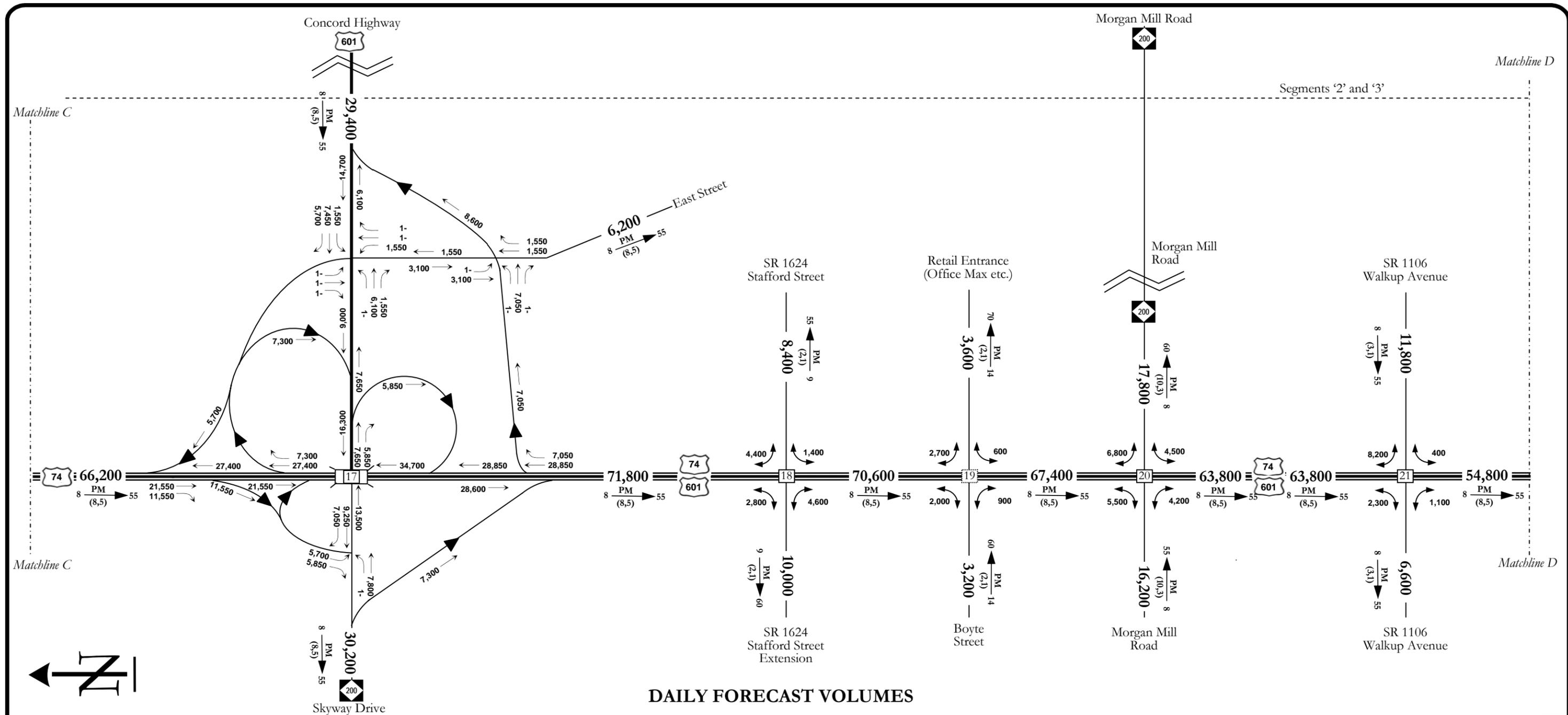
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June, 2008

NORTH CAROLINA Turnpike Authority

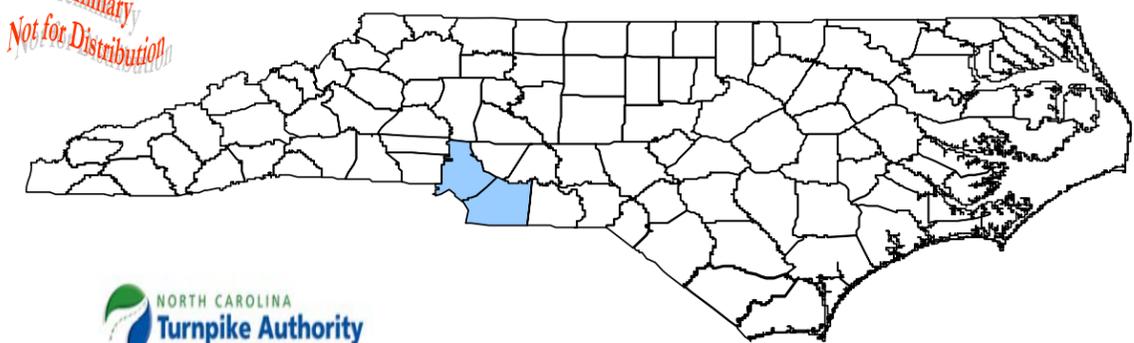
DIAGRAM 2c:
FUTURE YEAR (2030)
NO-BUILD
NON-TOLL
(Alternative 3)



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PROJECT
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 Monroe Connector/Bypass Study
 NCDOT Division 10
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 North Carolina

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DIAGRAM 2d:
FUTURE YEAR (2030)
NO-BUILD
NON-TOLL
(Alternative 3)

LEGEND

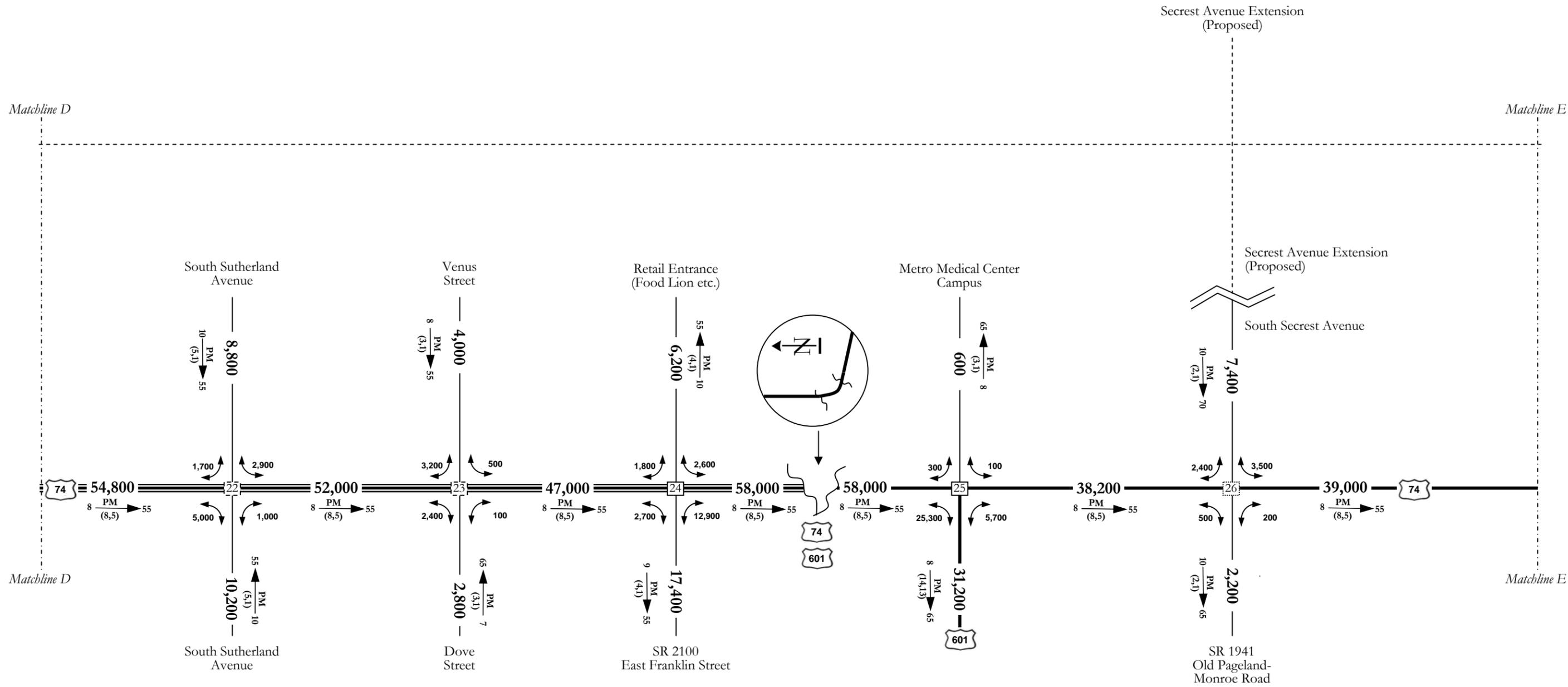
DHV = DESIGN HOURLY VOLUME (%) = K30
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 D = DIRECTIONAL SPLIT (%)
 INDICATES DIRECTION OF D
 REVERSE FOR AM PEAK
 (d,t) DUALS, TT-ST'S (%)

DHV — PM —> D
 (d, t)



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DAILY FORECAST VOLUMES

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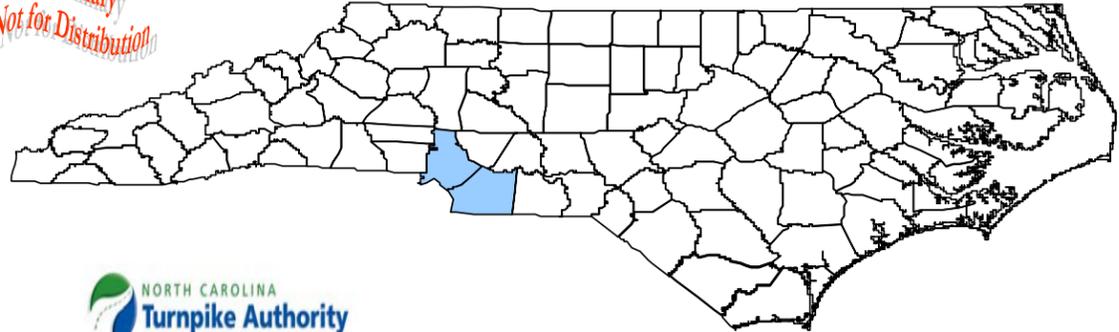
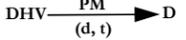
PROJECT
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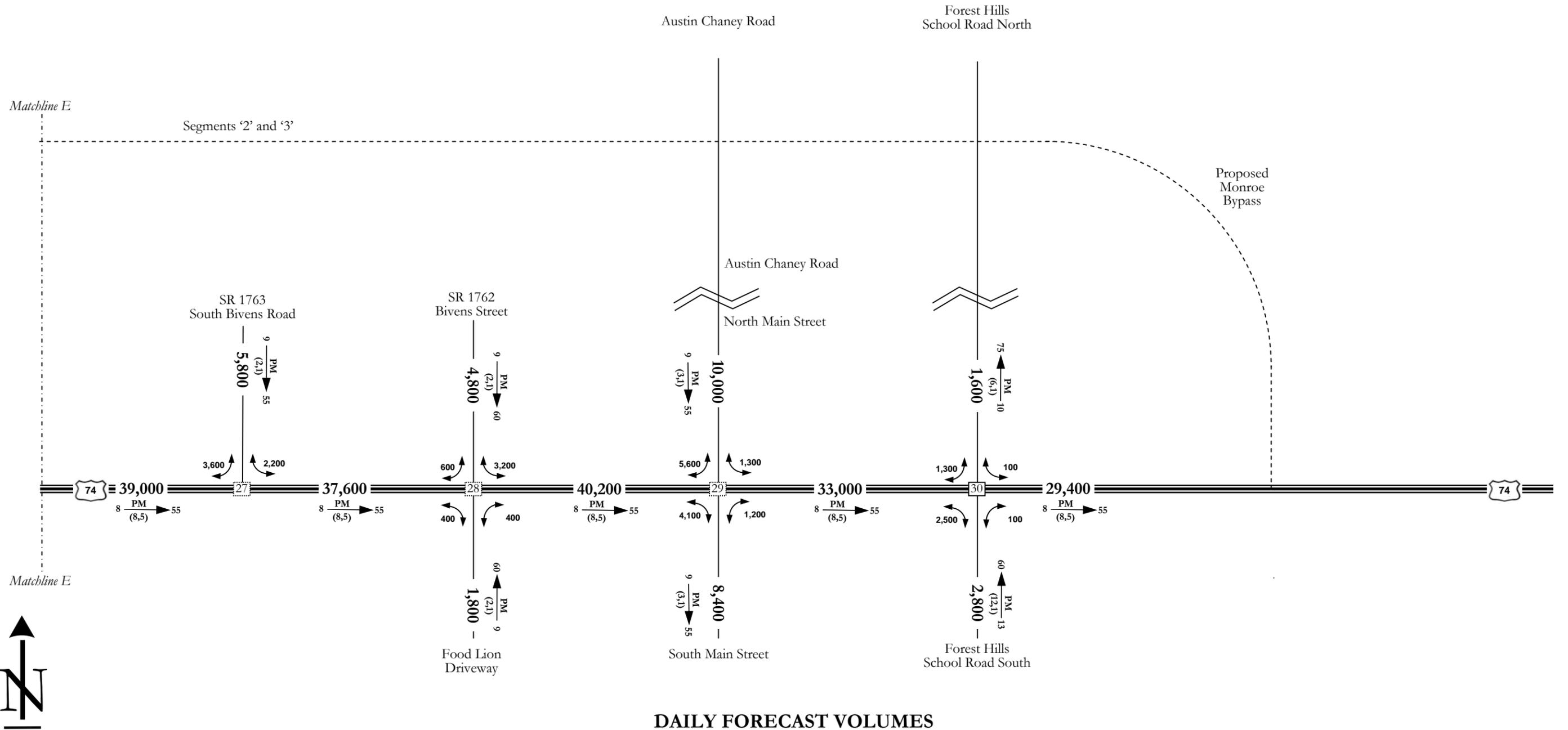
DIAGRAM 2e:
FUTURE YEAR (2030)
NO-BUILD
NON-TOLL
(Alternative 3)

LEGEND
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 PM = PM PEAK PERIOD
 D = DIRECTIONAL SPLIT (%)
 INDICATES DIRECTION OF D
 REVERSE FOR AM PEAK
 (d,t) DUALS, TT-ST'S (%)



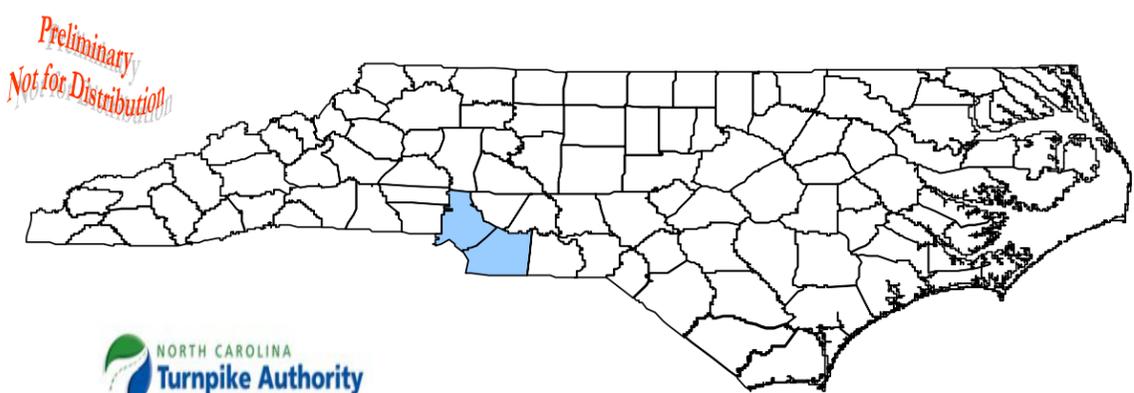
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PROJECT
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 REVERSE FOR AM PEAK
 (d,t) DUALS, TT-ST'S (%)



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DIAGRAM 2f:
FUTURE YEAR (2030)
NO-BUILD
NON-TOLL
 (Alternative 3)



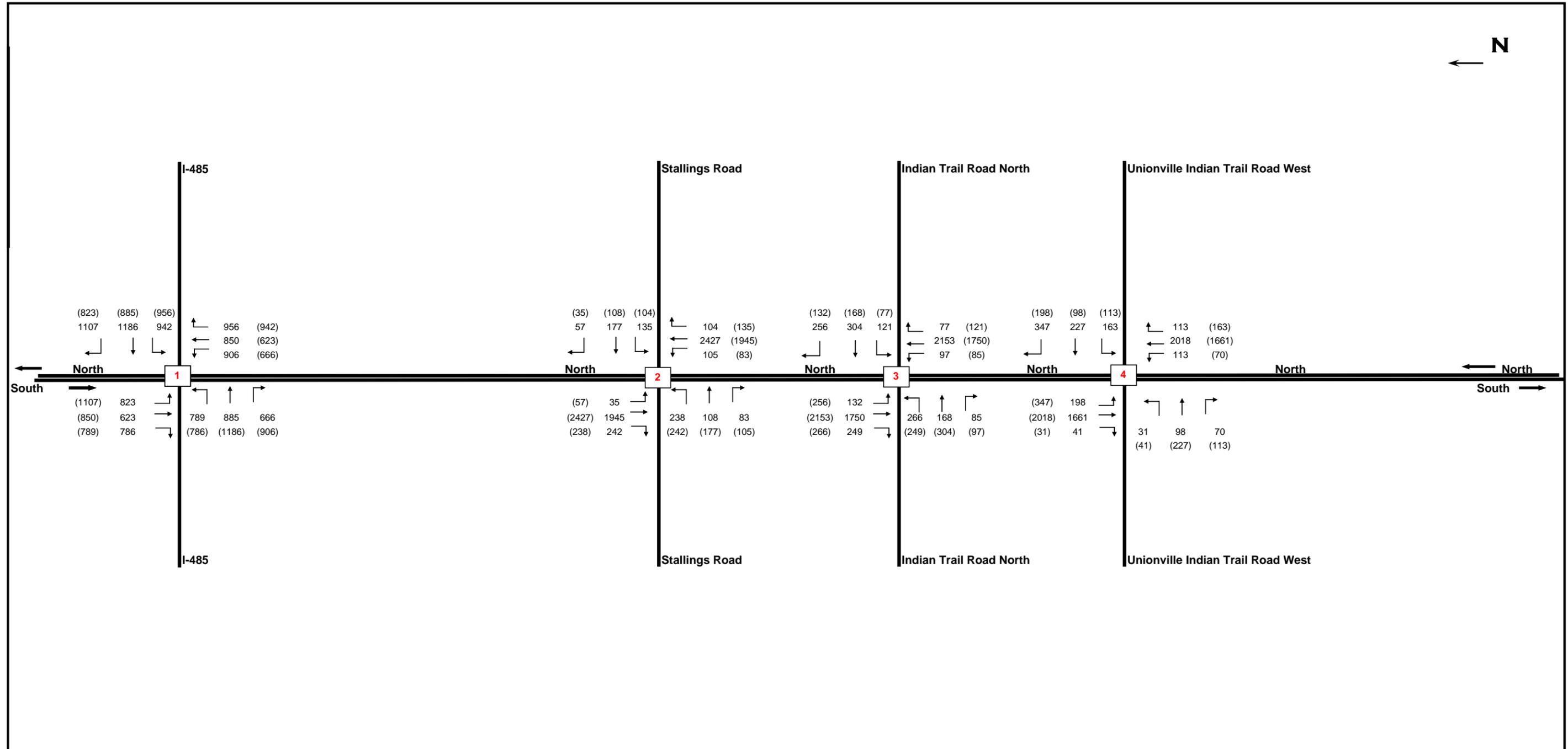


DIAGRAM 3a:
BASE YEAR (2007)
NO-BUILD NON-TOLL
HOURLY FORECAST VOLUMES
(Alternative 1)

PROJECT
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 NCDOT Division 10
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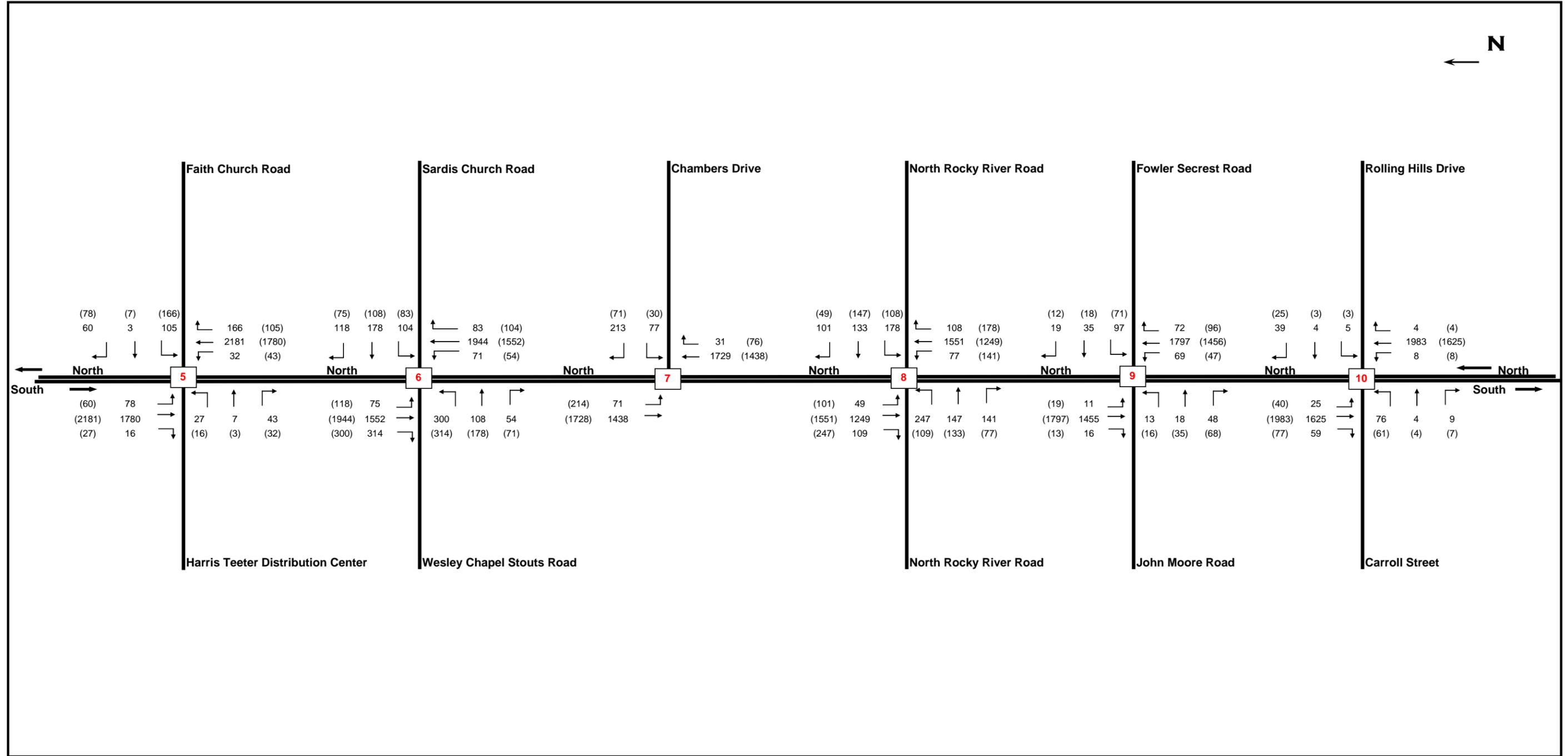


DIAGRAM 3b:
BASE YEAR (2007)
NO-BUILD NON-TOLL
HOURLY FORECAST VOLUMES
(Alternative 1)

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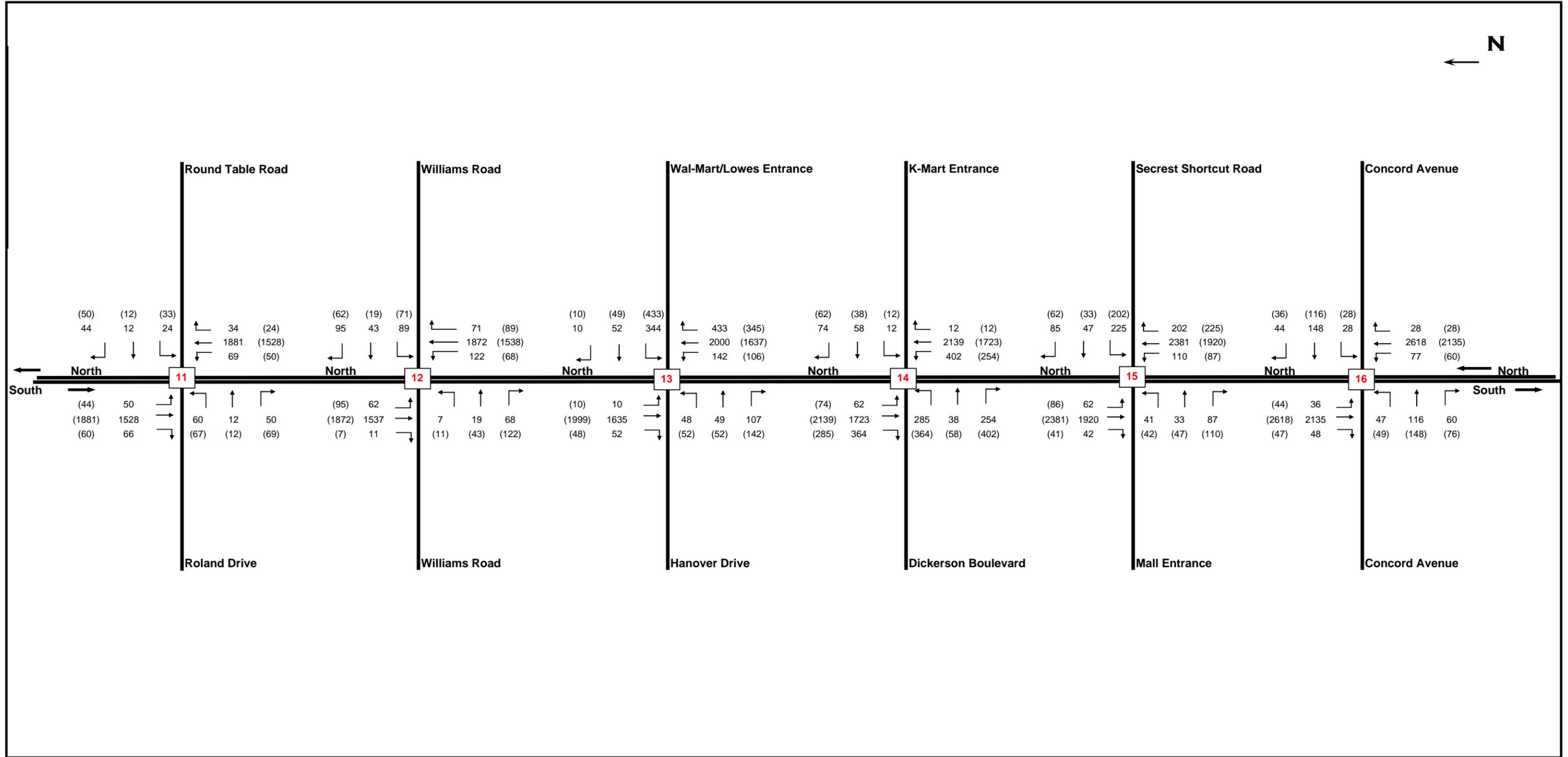


DIAGRAM 3c:
BASE YEAR (2007)
NO-BUILD NON-TOLL
HOURLY FORECAST VOLUMES
(Alternative 1)

PROJECT
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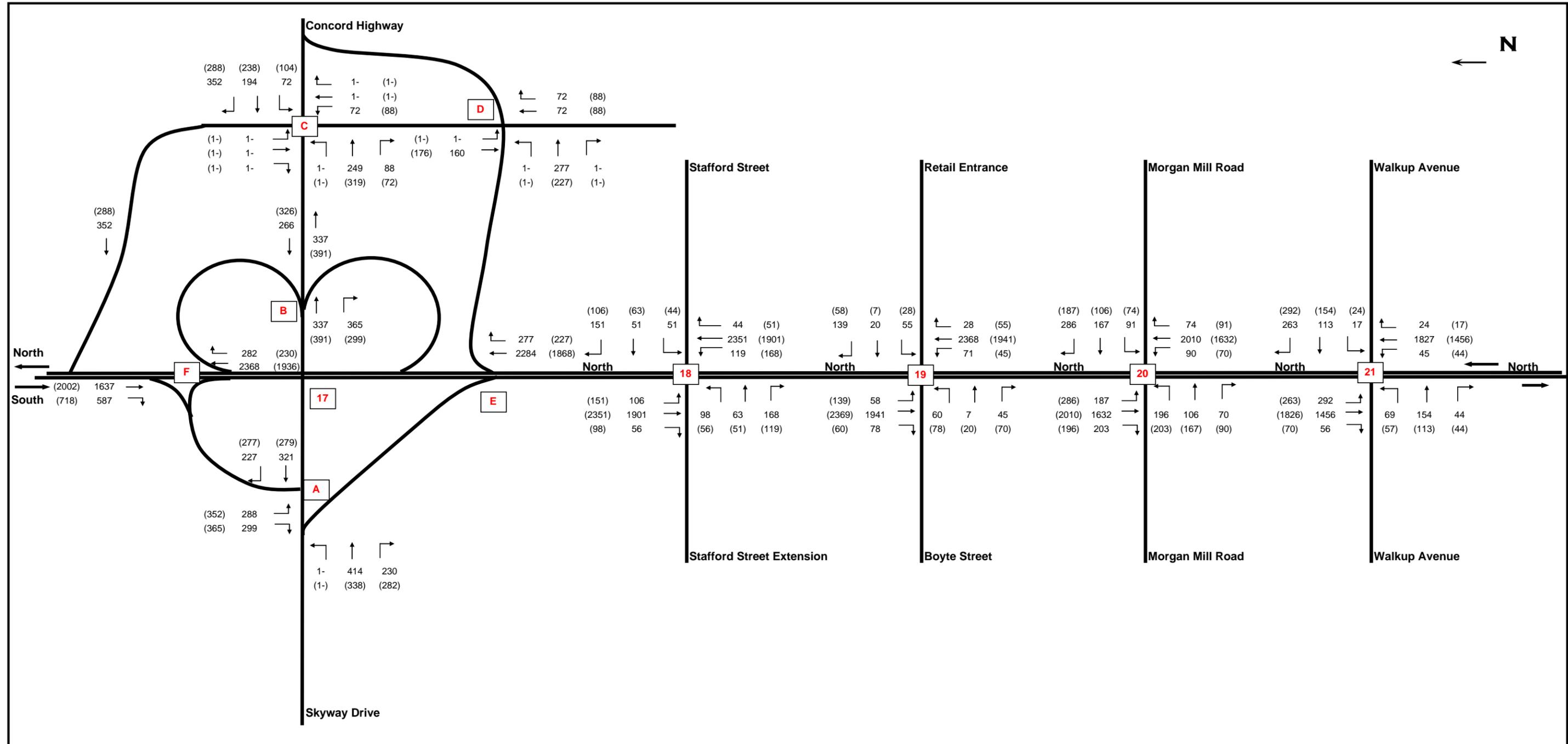


DIAGRAM 3d:
BASE YEAR (2007)
NO-BUILD NON-TOLL
HOURLY FORECAST VOLUMES
(Alternative 1)

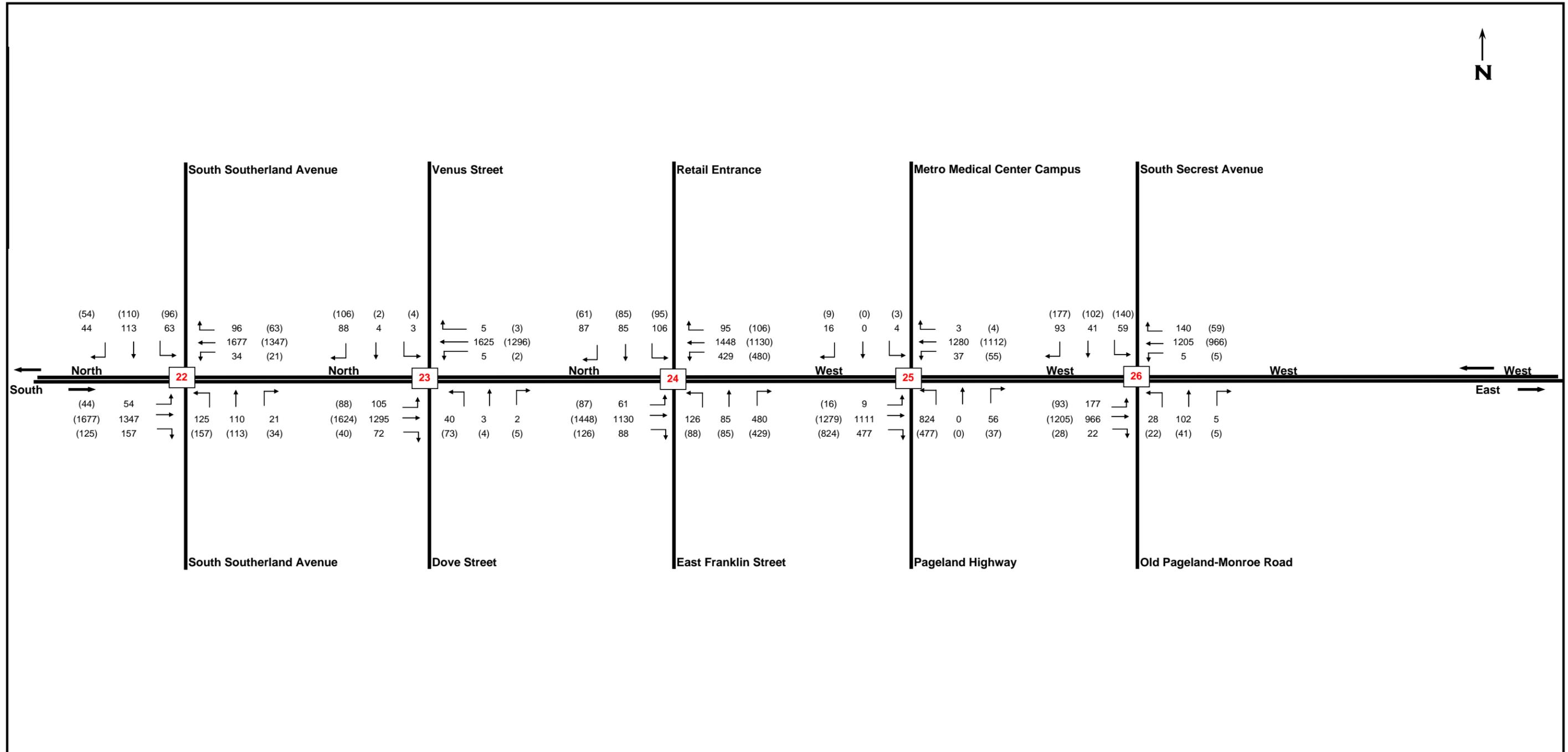


DIAGRAM 3e:
BASE YEAR (2007)
NO-BUILD NON-TOLL
HOURLY FORECAST VOLUMES
(Alternative 1)

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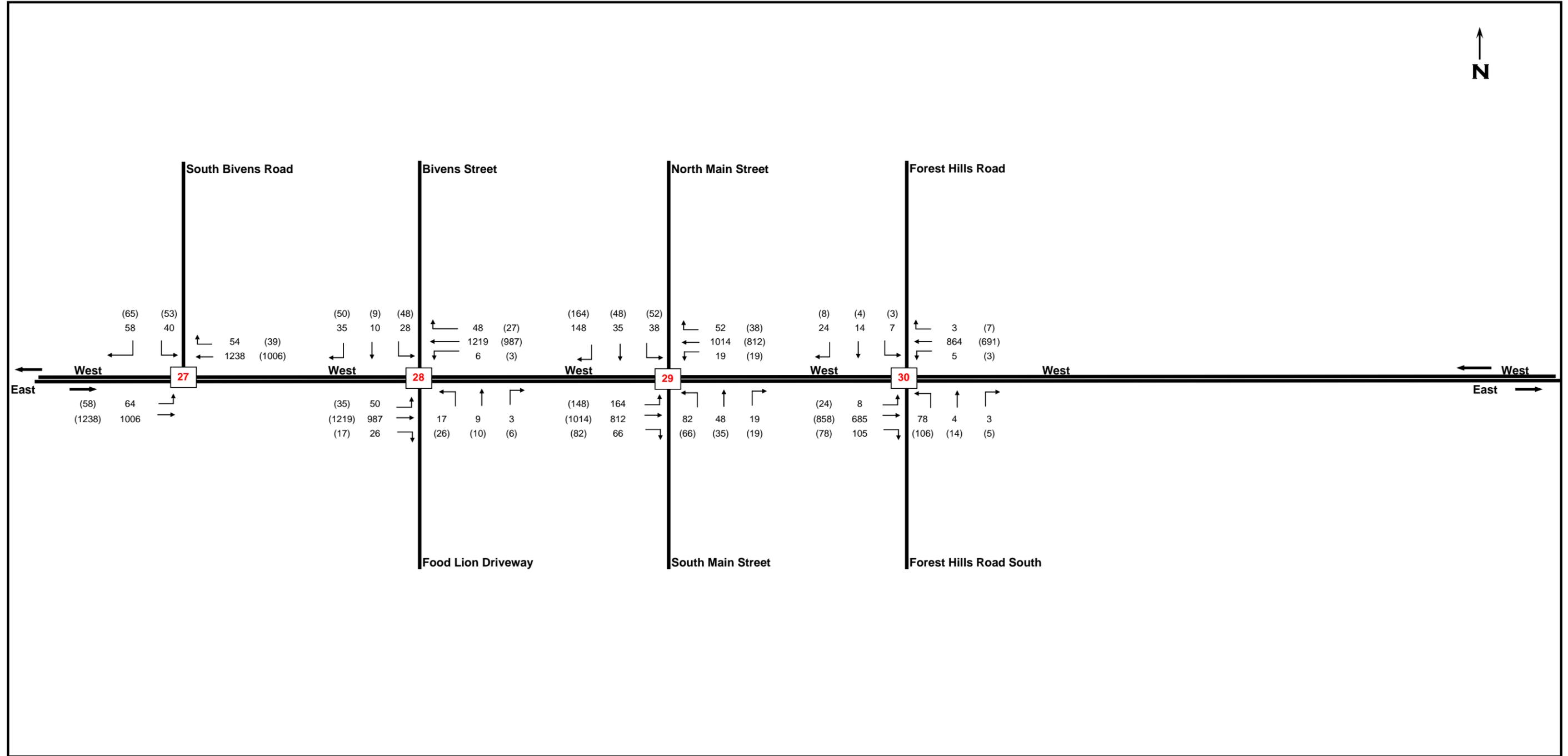


DIAGRAM 3f:
BASE YEAR (2007)
NO-BUILD NON-TOLL
HOURLY FORECAST VOLUMES
(Alternative 1)

PROJECT
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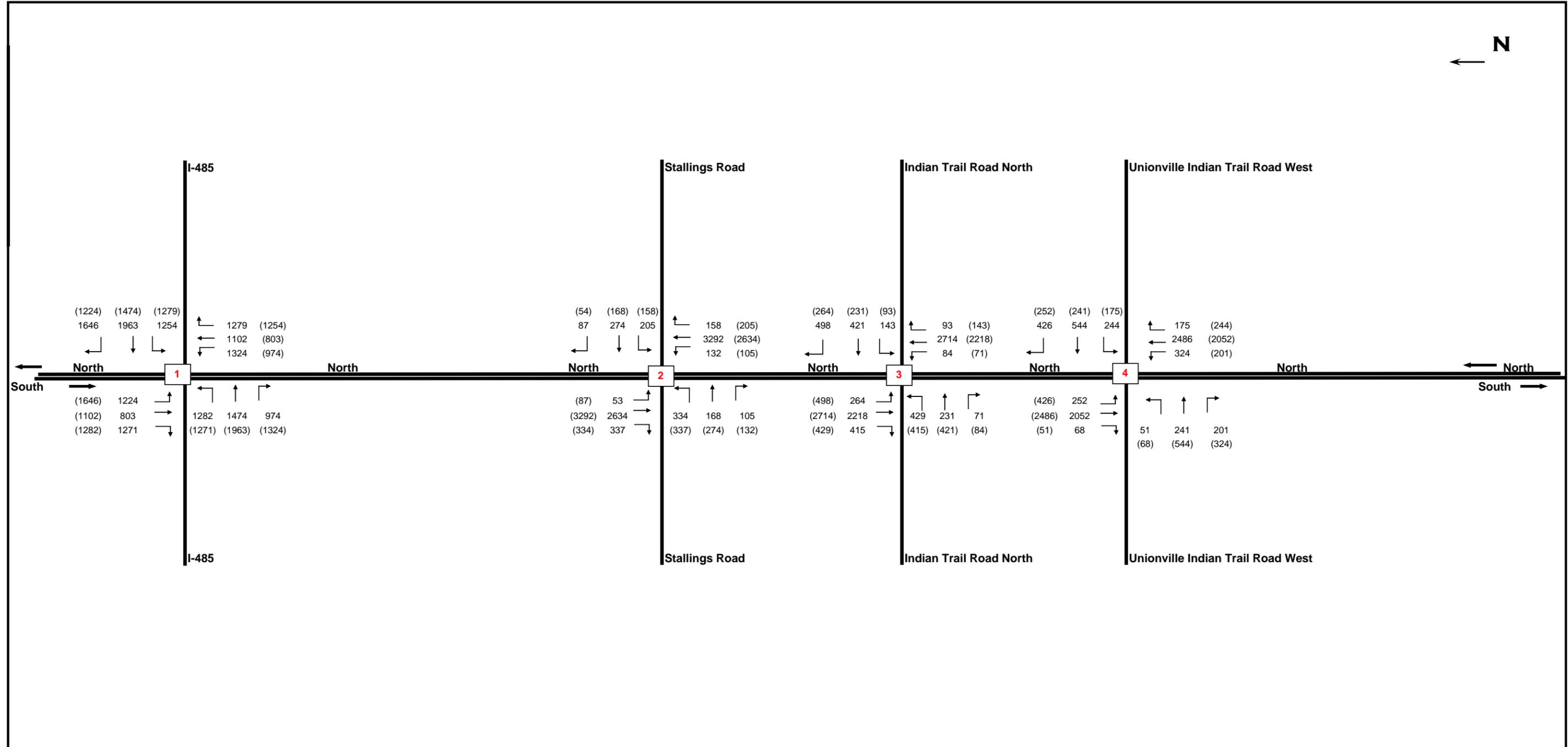


DIAGRAM 4a:
FUTURE YEAR (2030)
NO-BUILD NON-TOLL
HOURLY FORECAST VOLUMES
(Alternative 3)

PROJECT
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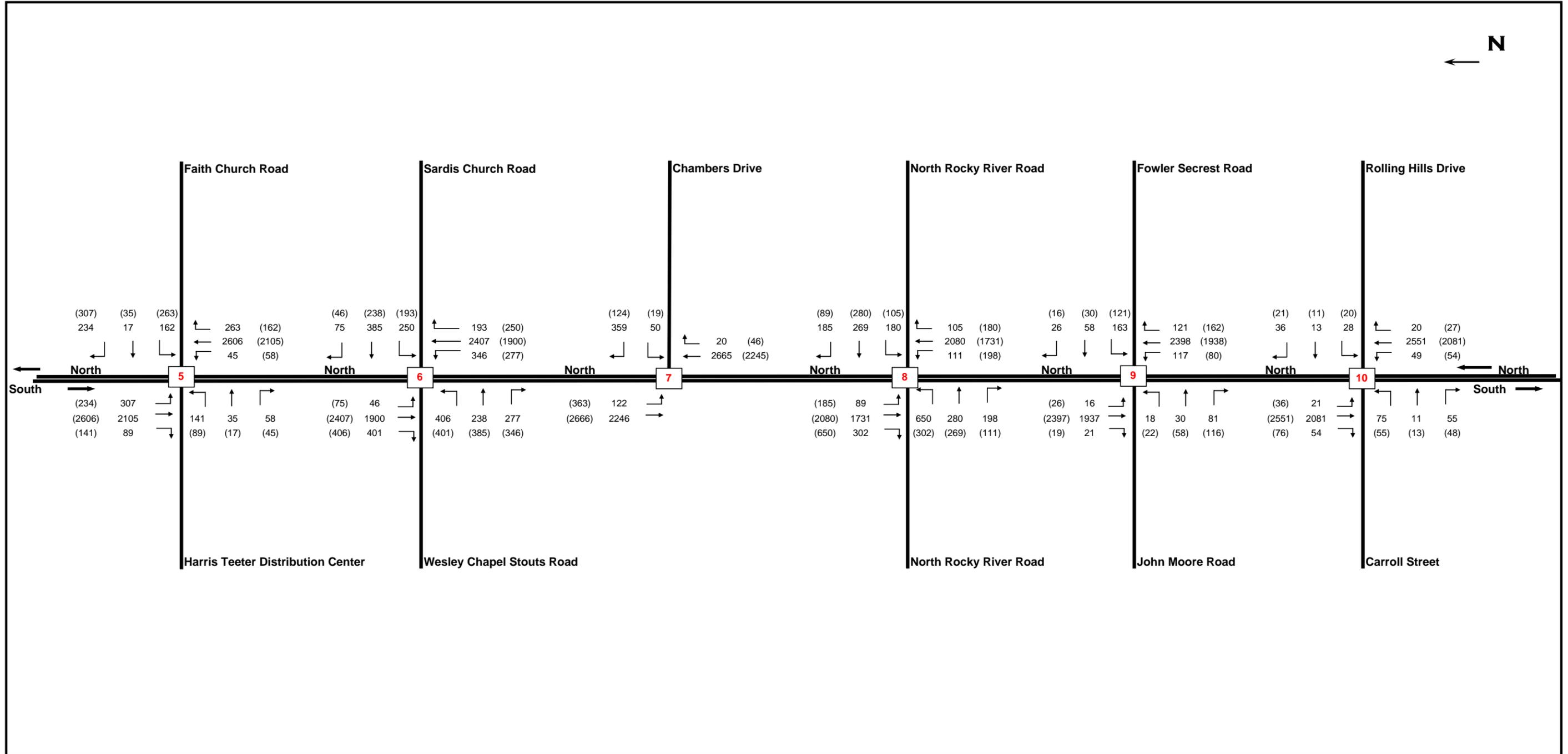


DIAGRAM 4b:
FUTURE YEAR (2030)
NO-BUILD NON-TOLL
HOURLY FORECAST VOLUMES
(Alternative 3)

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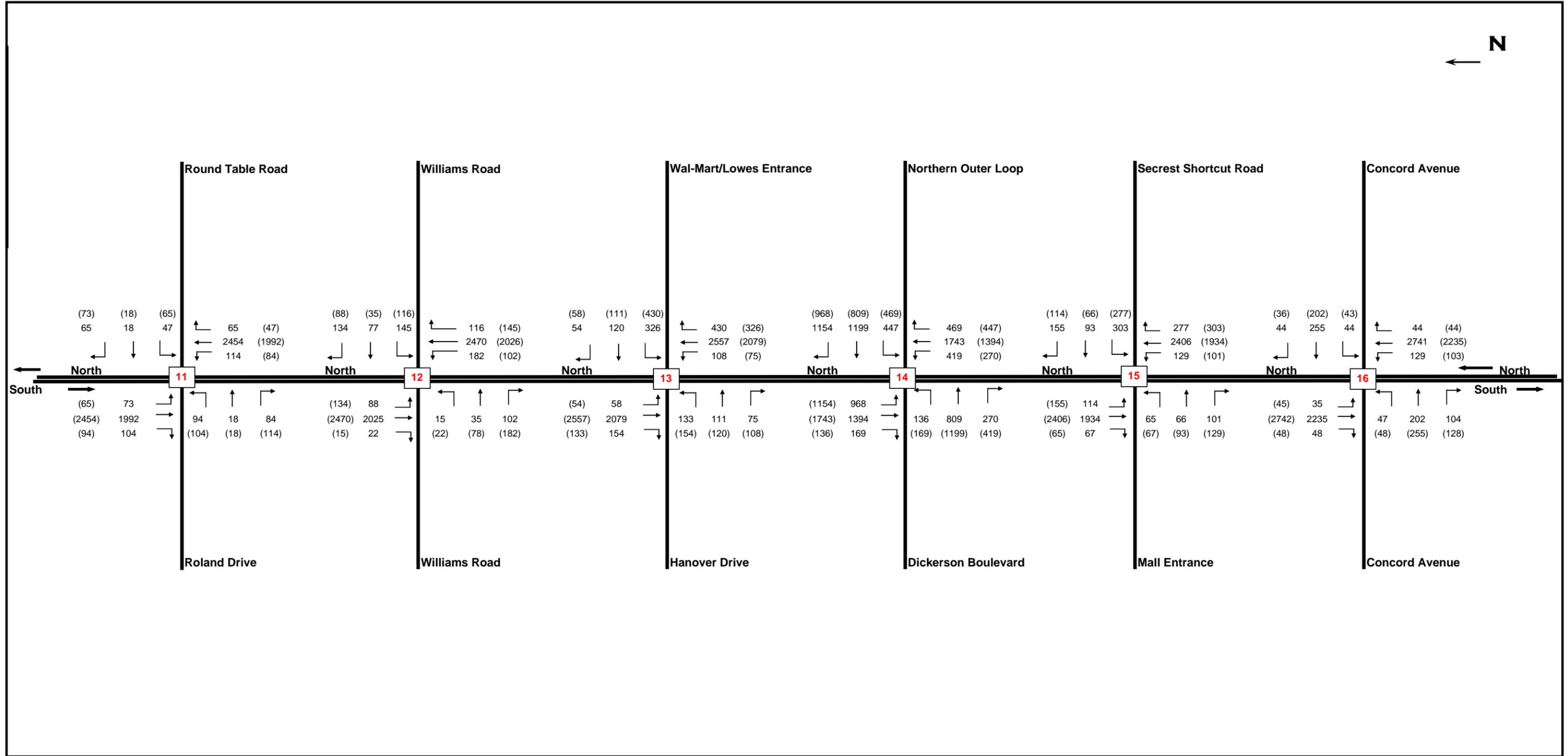


DIAGRAM 4c:
FUTURE YEAR (2030)
NO-BUILD NON-TOLL
HOURLY FORECAST VOLUMES
(Alternative 3)

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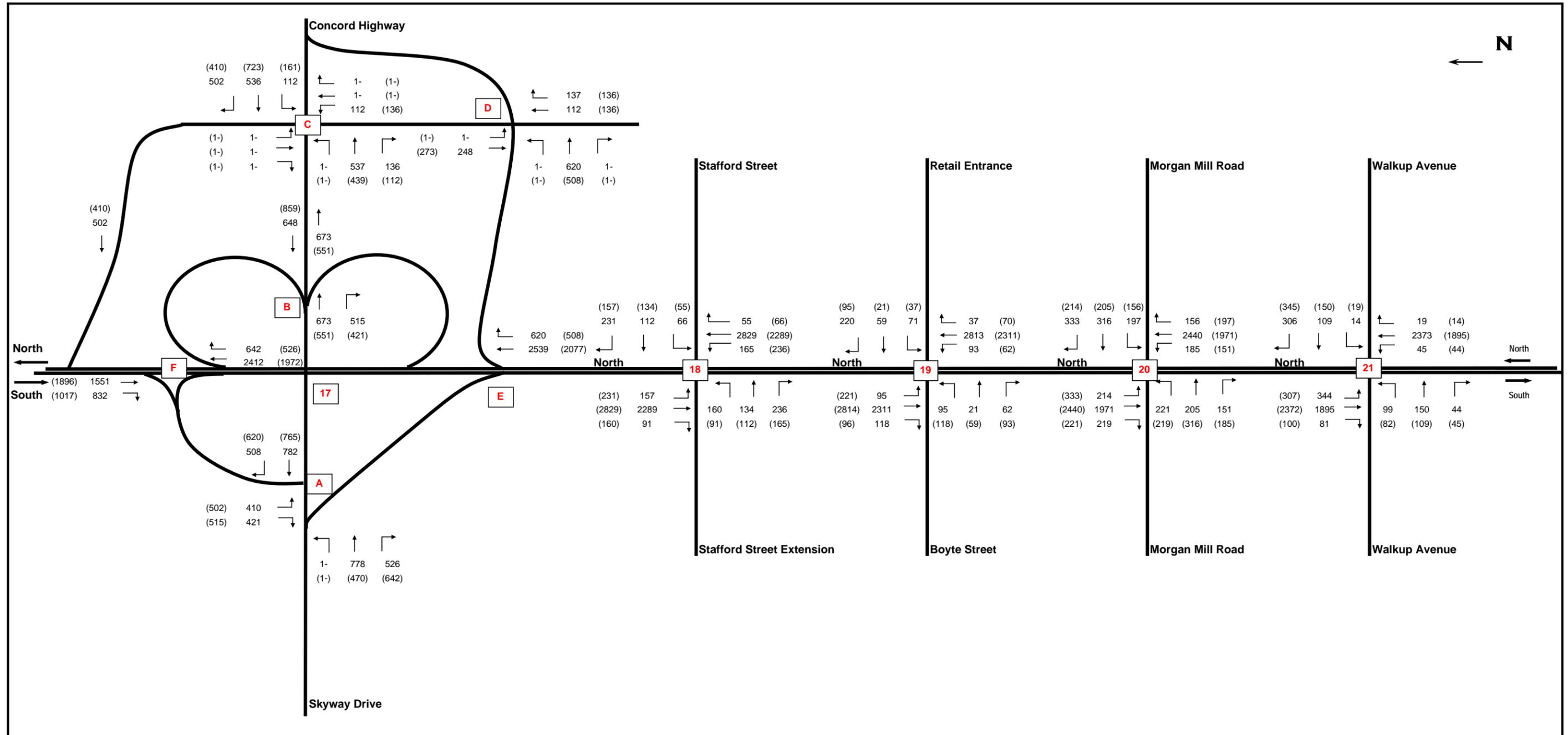


DIAGRAM 4d:
FUTURE YEAR (2030)
NO-BUILD NON-TOLL
HOURLY FORECAST VOLUMES
(Alternative 3)

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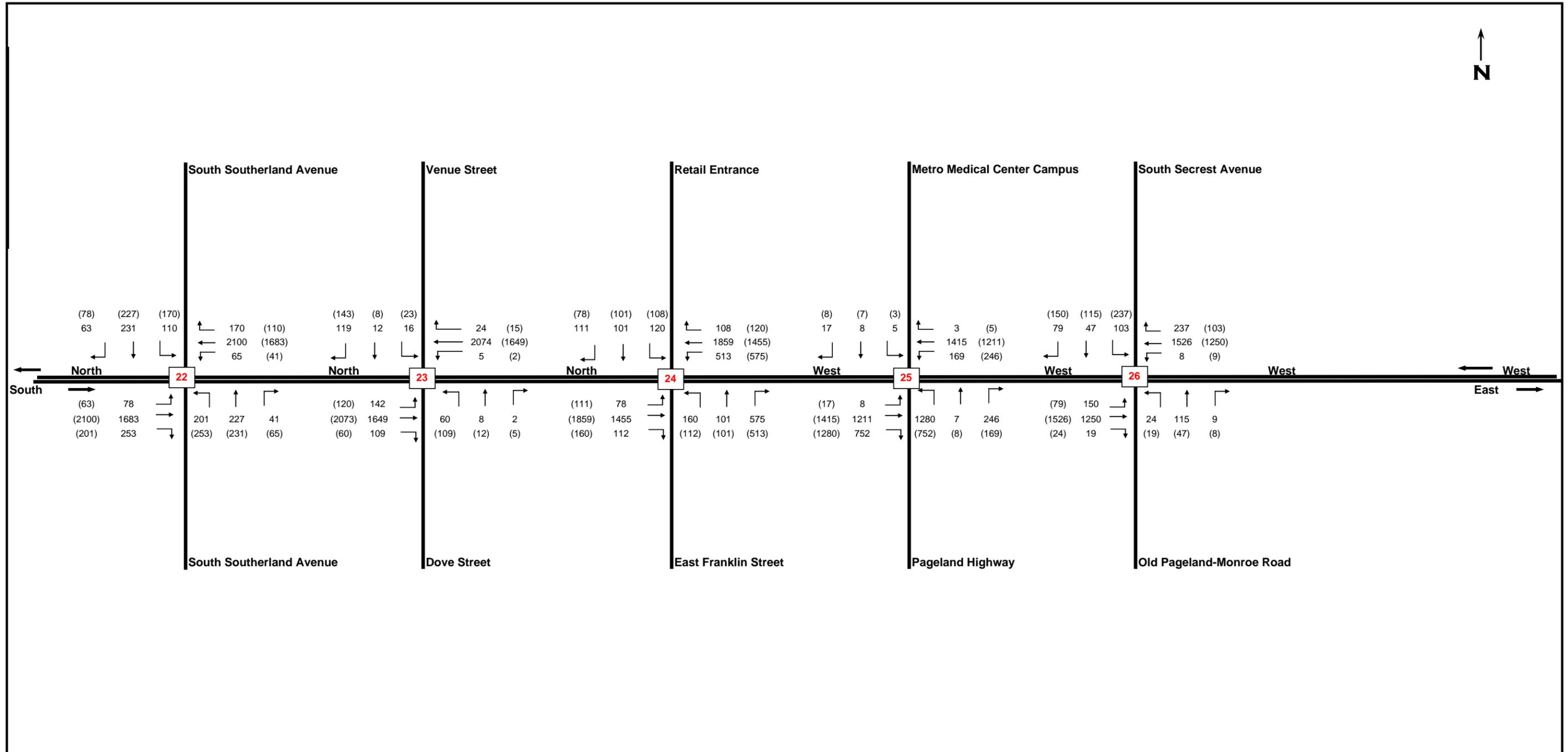


DIAGRAM 4e:
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NO-BUILD NON-TOLL
HOURLY FORECAST VOLUMES
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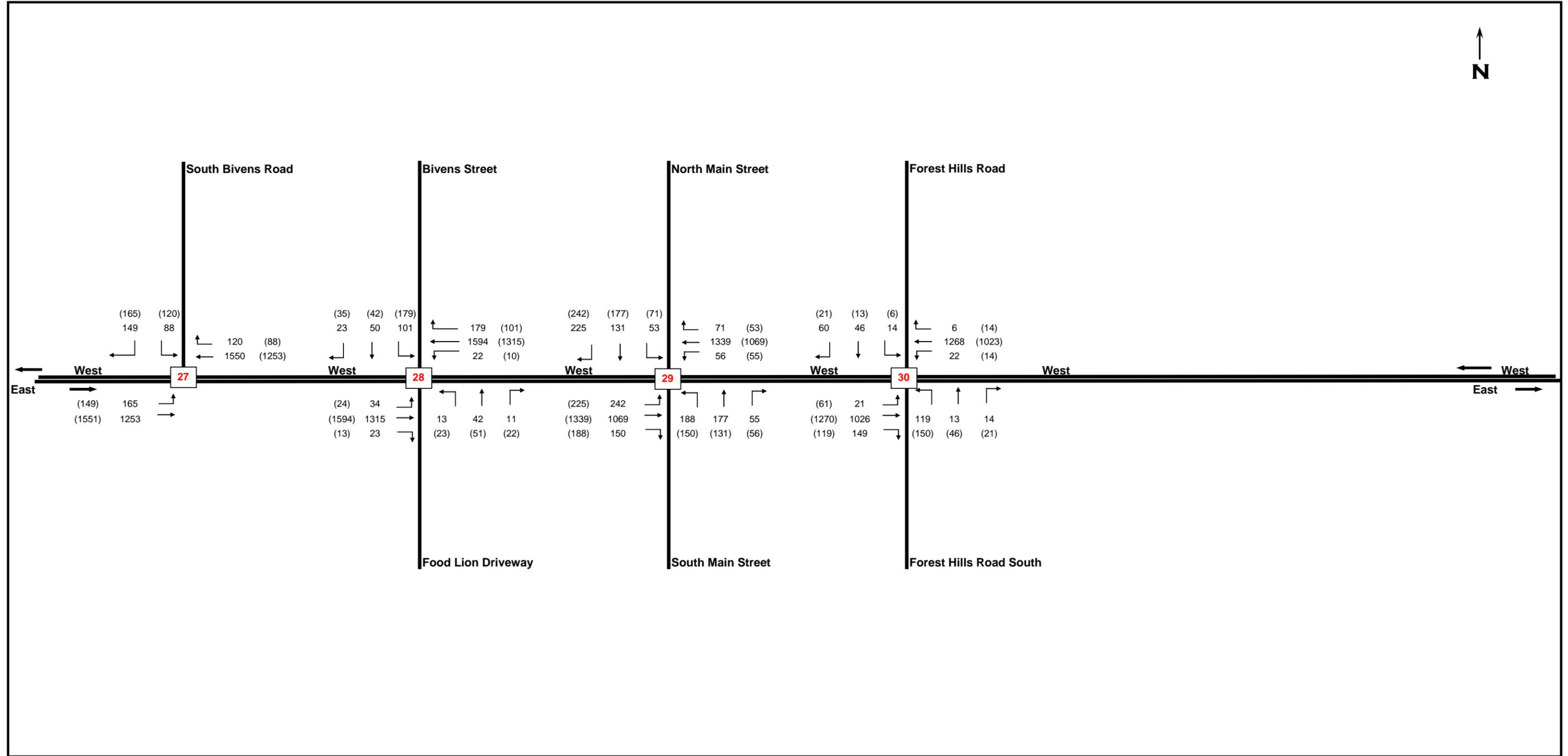


DIAGRAM 4f:
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HOURLY FORECAST VOLUMES
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