

**APPENDIX D**  
**DESIGN CRITERIA FOR THE PRELIMINARY**  
**ENGINEERING DESIGNS**



## PROPOSED DESIGN CRITERIA

STATE PROJECT:

F. A. PROJECT:

COUNTY:

PROJECT DESCRIPTION:

Gaston/Mecklenburg

DIVISION:

10 and 12

East-West Connector between I-85 west of Gastonia in Gaston County to I-485/NC 160 in Mecklenburg County

Section H - WEST

PREPARED BY:

PBS&J

TIP: U-3321

PAGE: 1 of 2

DATE: May 25, 2007  
Revised June 15, 2007

ROUTE LINE	E-W Connector -L-	I-85	US 29/74	SR 1122 Linwood Road Alt. 4 & 5	SR 1122 Linwood Road Alt. 58, 64 & 77
<b>TRAFFIC DATA</b>					
ADT LET YR =					
ADT DESIGN YR = 2030	48,800	136,000	56,400	22,400	4,000
TTST	8%	16%	5%	3%	4%
DUALS	3%	4%	3%	2%	2%
DHV	10%	9%	11%	11%	11%
DIR	60%	60%	55%	55%	55%
<b>CLASSIFICATION</b>	Freeway	Interstate	Rural Arterial	Rural Collector	Rural Collector
<b>TERRAIN TYPE</b>	Rolling	Rolling	Rolling	Rolling	Rolling
<b>DESIGN SPEED km/hr or mph</b>	70 mph	70 mph	60 mph	50 mph	50 mph
<b>POSTED SPEED km/hr or mph</b>	65 mph	65 mph	55 mph	45 mph	45 mph
<b>PROP. R/W WIDTH m or ft</b>	300 ft	300 ft	200 ft	200 ft	200 ft
<b>CONTROL OF ACCESS</b>	Full	Full	Partial	N	N
<b>RUMBLE STRIPS (Y/N)</b>	Y	Y	N	N	N
<b>TYPICAL SECTION TYPE</b>	6-lane divided	6-8 lane divided	4-lane divided	4-lane divided	3-lane shld
<b>LANE WIDTH m or ft</b>	12 ft	12 ft	12 ft	12 ft	12 ft
<b>SIDEWALKS (Y/N)</b>	N	N	N	N	N
<b>BICYCLE LANES (Y/N)</b>	N	N	N	N	N
<b>MEDIAN WIDTH m or ft</b>	46 ft	22 ft	60 ft	23 ft	17.5 ft (note 3)
<b>MED. PROTECT. (GR/BARRIER)</b>	Y/ GR	Y/ BARRIER	N/A	N/A	N/A
<b>SHOULDER WIDTH (total)</b>					
<b>MEDIAN m or ft</b>	12 ft	12 ft	10 ft	1'-6" C&G	1'-6" C&G
<b>OUTSIDE w/o GR m or ft</b>	14 ft	14 ft	10 ft	8 ft	8 ft
<b>OUTSIDE w/ GR m or ft</b>	17 ft	17 ft	13 ft	11 ft	11 ft
<b>PAVED SHOULDER</b>					
<b>OUTSIDE TOTAL/FDPS m or ft</b>	12 ft/ 12 ft	12 ft/ 12 ft	10 ft / 4 ft	4 ft/ 4 ft	2 ft/ 2ft
<b>MEDIAN TOTAL/FDPS m or ft</b>	12 ft/ 12 ft	10 ft/ 10 ft	4 ft/ 4 ft	1'-6" C&G	1'-6" C&G
<b>GRADE</b>					
MAX.	4%	4%	4%	7%	7%
MIN.	0.3%	0.3%	0.3%	0.3%	0.3%
<b>K VALUE</b>					
SAG	181	181	136	96	96
CREST	247	247	151	84	84
<b>HORIZ. ALIGN.</b>					
MAX. SUPER.	8%	10%	8%	8%	8%
MIN. RADIUS m or ft	1,810	1,630	1,200	758	758
<b>SPIRAL (Y/N)</b>	Y	Y	Y	N	N
<b>CROSS SLOPES</b>					
PAVEMENT	2%	2%	2%	2%	2%
PAVED SHOULDER	4% / 2%	4%	4% / 2%	2%	2%
TURF SHOULDER	4%	4%	8%	8%	8%
MEDIAN DITCH	6:1	8:1	8:1	N/A	N/A
<b>DITCH TYPICAL (A,B,C)</b>	A	A	A	B	C
<b>CLEAR ZONE m or ft</b>					
<b>TYPICAL SECTION NO.</b>					

**General Note:** Accommodate for future loops at all diamond interchanges

**Note 3:** The median outside the ramp terminals will transition out in the future to the desirable 23' raised median

## PROPOSED DESIGN CRITERIA

STATE PROJECT:

TIP: U-3321

F. A. PROJECT:

PAGE: 1 of 2

COUNTY:

Gaston/Mecklenburg

DIVISION:

10 and 12

PROJECT DESCRIPTION:

East-West Connector between I-85 west of Gastonia in Gaston County to I-485/NC 160 in Mecklenburg County

DATE:

May 25, 2007

Revised June 15, 2007

Section J - MIDDLE

PREPARED BY:

Gibson Engineers

ROUTE LINE	E-W Connector -L-	US 321	SR 2416 Robinson Rd	SR 2423 Bud Wilson Rd	NC 274 Union Rd
<b>TRAFFIC DATA</b>					
ADT LET YR =					
ADT DESIGN YR = 2030	65,200	35,600	21,400	11,000	19,800
TTST	7%	6%	4%	2%	2%
DUALS	3%	2%	2%	2%	2%
DHV	10%	11%	10%	11%	10%
DIR	60%	55%	55%	55%	55%
<b>CLASSIFICATION</b>	Freeway	Rural Arterial	Rural Collector	Rural Collector	Rural Arterial
<b>TERRAIN TYPE</b>	Rolling	Rolling	Rolling	Rolling	Rolling
<b>DESIGN SPEED km/hr or mph</b>	70 mph	60 mph	50 mph	60 mph	50 mph
<b>POSTED SPEED km/hr or mph</b>	65 mph	45 & 50 mph	45 mph	not posted (55 mph)	45 mph
<b>PROP. R/W WIDTH m or ft</b>	300 ft	200 ft	Variable	Variable	Variable
<b>CONTROL OF ACCESS</b>	Full	Partial	Partial	Partial	Partial
<b>RUMBLE STRIPS (Y/N)</b>	Y	N	N	N	N
<b>TYPICAL SECTION TYPE</b>	6 lane divided	4 lane divided	4 lane divided	2-lane shld	4 lane divided
<b>LANE WIDTH m or ft</b>	12 ft	12 ft	12 ft	12 ft	12 ft
<b>SIDEWALKS (Y/N)</b>	N	N	N	N	N
<b>BICYCLE LANES (Y/N)</b>	N	N	N	N	N
<b>MEDIAN WIDTH m or ft</b>	46 ft	46 ft	17.5' (Note 3)	N/A	23'
<b>MED. PROTECT. (GR/BARRIER)</b>	Y/ GR	N/A	N/A	N/A	N/A
<b>SHOULDER WIDTH (total)</b>					
<b>MEDIAN m or ft</b>	12 ft	6 ft	1'6" C&G	N/A	1'6" C&G
<b>OUTSIDE w/o GR m or ft</b>	14 ft	8 ft	8 ft	8 ft	8 ft
<b>OUTSIDE w/ GR m or ft</b>	17 ft	11 ft	11 ft	11 ft	11 ft
<b>PAVED SHOULDER</b>					
<b>OUTSIDE TOTAL/FDPS m or ft</b>	12 ft/ 12 ft	4 ft/ 4 ft	4 ft/ 4 ft	4 ft/ 4 ft	4 ft/ 4 ft
<b>MEDIAN TOTAL/FDPS m or ft</b>	12 ft/ 12 ft	2 ft/ 2 ft	N/A	N/A	N/A
<b>GRADE</b>					
<b>MAX.</b>	4%	4%	7%	6%	5%
<b>MIN.</b>	0.3%	0.3%	0.3%	0.3%	0.3%
<b>K VALUE</b>					
<b>SAG</b>	181	136	96	136	96
<b>CREST</b>	247	151	84	151	84
<b>HORIZ. ALIGN.</b>					
<b>MAX. SUPER.</b>	8%	8%	8%	8%	8%
<b>MIN. RADIUS m or ft</b>	1,810	1,200	758	1,200	758
<b>SPIRAL (Y/N)</b>	Y	Y	N	N	Y
<b>CROSS SLOPES</b>					
<b>PAVEMENT</b>	2%	2%	2%	2%	2%
<b>PAVED SHOULDER</b>	4%	2%	2%	2%	2%
<b>TURF SHOULDER</b>	4%	8%	8%	8%	8%
<b>MEDIAN DITCH</b>	6:1	6:1	N/A	N/A	N/A
<b>DITCH TYPICAL (A,B,C)</b>	A	A	B	B	B
<b>CLEAR ZONE m or ft</b>					
<b>TYPICAL SECTION NO.</b>					

**General Note:** Accommodate for future loops at all diamond interchanges

**Note 3:** The median outside the ramp terminals will transition out in the future to the desirable 23' raised median

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F. A. PROJECT:

COUNTY:

PROJECT DESCRIPTION:

Gaston/Mecklenburg

DIVISION:

10 and 12

East-West Connector between I-85 west of Gastonia in Gaston County to I-485/NC 160 in Mecklenburg County

Section K - EAST

PBS&J

TIP: U-3321

PAGE: 1 of 2

DATE: May 25, 2007  
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PREPARED BY:

ROUTE LINE	E-W Connector -L-	NC 279	NC 273	SR 1155 Dixie River Road	I-485
<b>TRAFFIC DATA</b>					
ADT LET YR =					
ADT DESIGN YR = 2030	110,800	29,400	39,800	22,400	125,200
TTST	6%	2%	3%	5%	5%
DUALS	2%	2%	2%	3%	2%
DHV	10%	10%	11%	10%	11%
DIR	60%	55%	55%	60%	55%
<b>CLASSIFICATION</b>	Freeway	Rural Arterial	Rural Arterial	Rural Collector	Interstate
<b>TERRAIN TYPE</b>	Rolling	Rolling	Rolling	Rolling	Rolling
<b>DESIGN SPEED km/hr or mph</b>	70 mph	50 mph	50 mph	50 mph	70 mph
<b>POSTED SPEED km/hr or mph</b>	65 mph	45 mph	45 mph	45 mph	65 mph
<b>PROP. R/W WIDTH m or ft</b>	300 ft	200 ft	200 ft	300 ft	300 ft
<b>CONTROL OF ACCESS</b>	Full	N	N	N	Full
<b>RUMBLE STRIPS (Y/N)</b>	Y	N	N	N	Y
<b>TYPICAL SECTION TYPE</b>	6 lane divided	4-lane divided	4-lane divided	4-lane divided	6 lane divided
<b>LANE WIDTH m or ft</b>	12 ft	12 ft	12 ft	12 ft	12 ft
<b>SIDEWALKS (Y/N)</b>	N	N	N	N	N
<b>BICYCLE LANES (Y/N)</b>	N	N	N	N	N
<b>MEDIAN WIDTH m or ft</b>	46 ft	17.5 ft (note 3)	17.5 ft (note 3)	23 ft	46 ft
<b>MED. PROTECT. (GR/BARRIER)</b>	Y/ GR	N/A	N/A	N/A	N/A
<b>SHOULDER WIDTH (total)</b>					
<b>MEDIAN m or ft</b>	12 ft	1'-6" C & G	1'-6" C & G	1'-6" C & G	12 ft
<b>OUTSIDE w/o GR m or ft</b>	14 ft	8 ft	8 ft	8 ft	14 ft
<b>OUTSIDE w/ GR m or ft</b>	17 ft	11 ft	11 ft	11 ft	17 ft
<b>PAVED SHOULDER</b>					
<b>OUTSIDE TOTAL/FDPS m or ft</b>	12 ft/ 12 ft	4 ft/ 4 ft	4 ft/ 4 ft	4 ft/ 4 ft	12 ft/ 12 ft
<b>MEDIAN TOTAL/FDPS m or ft</b>	12 ft/ 12 ft	1'-6" C & G	1'-6" C & G	1'-6" C & G	12 ft/ 12 ft
<b>GRADE</b>					
MAX.	4%	5%	5%	7%	4%
MIN.	0.3%	0.3%	0.3%	0.3%	0.3%
<b>K VALUE</b>					
SAG	181	96	96	96	181
CREST	247	84	84	84	247
<b>HORIZ. ALIGN.</b>					
MAX. SUPER.	8%	8%	8%	8%	10%
MIN. RADIUS m or ft	1,810	758	758	758	1,630
<b>SPIRAL (Y/N)</b>	Y	Y	Y	N	Y
<b>CROSS SLOPES</b>					
PAVEMENT	2%	2%	2%	2%	2%
PAVED SHOULDER	4%	2%	2%	2%	4%
TURF SHOULDER	4%	8%	8%	8%	4%
MEDIAN DITCH	6:1	N/A	N/A	N/A	8:1
<b>DITCH TYPICAL (A,B,C)</b>	A	B	B	B	A
<b>CLEAR ZONE m or ft</b>					
<b>TYPICAL SECTION NO.</b>					

**General Note:** Accommodate for future loops at all diamond interchanges

**Note 3:** The median outside the ramp terminals will transition out in the future to the desirable 23' raised median