

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

**OFFICE OF DESIGN POLICY & SUPPORT
INTERDEPARTMENTAL CORRESPONDENCE**

FILE P.I. # 231630 & 231635 **OFFICE** Design Policy & Support
STP00-0046-01(029) &
BHF00-0046-01(030)
GDOT District 2 - Tennille
Newton County **DATE** 12/05/2011
SR 12/US 278 Covington Bypass/Alcovy
& Overflow Bridge Replacement/Roundabout
Intersection Improvement @ SR 12 & SR 142

FROM  for Brent Story, State Design Policy Engineer

TO SEE DISTRIBUTION

SUBJECT APPROVED REVISED CONCEPT REPORT

Attached is the approved Revised Concept Report for the above subject project.

Attachment

DISTRIBUTION:

Genetha Rice-Singleton, Program Control Administrator
Bobby Hilliard, State Program Delivery Engineer
Cindy VanDyke, State Transportation Planning Administrator
Angela Robinson, Financial Management Administrator
Glenn Bowman, State Environmental Administrator
Ben Rabun, State Bridge Engineer
Kathy Zahul, State Traffic Engineer
Georgene Geary, State Materials & Research Engineer
Ron Wishon, State Project Review Engineer
Jeff Baker, State Utilities Engineer
Ken Thompson, Statewide Location Bureau Chief
Michael Henry, Systems & Classification Branch Chief
James Smith, District Engineer
Jamie Lindsey, District Preconstruction Engineer
Lynn Bean, District Utilities Engineer
Jim Kitchings, District Environmentalist
George Brewer, Project Manager
BOARD MEMBER – 7th & 8th Congressional Districts

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA
REVISED PROJECT CONCEPT REPORT

Project Number: STP00-0046-01(029) & BHFO0-0046-01(030)

County: Newton

P.I. Number: 231630 & 231635

Federal Route Number: 278

State Route Number: 12

The project typical section is now being revised to two 12-ft. travel lanes in each direction with a 24-ft. raised grassed median. The existing bridges over the Alcovy River and overflow will be replaced with 88-ft. wide bridges with 24-ft. raised concrete medians. The project scope is revised to construct a round-a-bout at the intersection of State Route 12 and State Route 142. The Speed design is 45 MPH from the Covington City Limits M.P. 7.97 to M.P. 10.43. The project limits are from the Covington City Limits M.P. 7.97 to just east of State Route 142 M.P. 10.43.

Submitted for approval:

DATE 1/21/11

[Signature]
District Engineer

DATE 1/20/2011

[Signature]
District Design Engineer

DATE 1/20/2011

[Signature]
Project Manager

Recommendation for approval:

DATE 8/19/2011

[Signature] *
State Environmental Administrator

DATE 9/27/2011

[Signature] *
State Bridge Design Engineer

DATE 10/14/2011

[Signature] *
State Traffic Engineer

The concept is presented herein and submitted for approval is consistent with that which is included in the Regional Transportation Program (RTP) and/or the Transportation Improvement Program (STP)

DATE 8/22/2011

[Signature] *
State Transportation Planning Administrator

* RECOMMENDATION ON FILE

Need and Purpose: *See Attached Sheets.*

Project Location: *The project is located from the Covington City Limits on State Route 12 (MP. 7.97) to (MP. 10.41). The total project length is 2.44 miles*

Description of the approved concept: *The proposed construction will widen US278/SR12 to provide two 12-ft. lanes in each direction separated by a 44-ft. depressed median with 12-ft. outside rural shoulders (6-ft. paved), 6-ft. inside shoulders (2-ft. paved) and auxiliary lanes as required. The speed design will vary from 45 to 55 MPH. The bridges over the Alcovy River and Overflow will be replaced. Two parallel bridges will also be constructed.*

PDP Classification: Major Minor

Federal Oversight: Full Oversight Exempt State Funded Other

Functional Classification: *Urban Principal Arterial west of the Alcovy River and Rural Minor Arterial east of the Alcovy river*

U.S. Route Number(s): 278

State Route Number(s): 12/142

Traffic (AADT) as shown in the approved concept:

Base Year: 39,600 (2006)

Design Year: 55,000 (2026)

Updated traffic data (AADT):

Base Year: 21,200 (2015)

Design Year: 34,550 (2035)

Approved/Programmed Schedule:

PE: 1999

R/W: 2016

Construction: LR1

VE Study Required: Yes No

Benefit/Cost Ratio: 2.40

Is the project located in an Ozone Non-Attainment area? Yes No

Is the project in a PM2.5 Non-Attainment area? Yes No

The proposed concept will widen the existing roadway from one 12-ft. lane in each direction to two 12-ft. lanes in each direction from the Covington Bypass to State Route 142. The open to traffic year is planned for 2030. This is consistent with the approved TIP.

<p>Approved Features: <i>The typical consists of two 12-ft. travel lanes in each direction separated by a 44-ft. depressed median. The existing bridges over the Alcovy River and overflow will be replaced with new parallel bridges. The speed design is 45 MPH from the Covington Bypass to the City Limits and 55 MPH from the City Limits to State Route 142. This project is from the Covington Bypass M.P. 7.62 to just east of State Route 142 M.P. 10.43.</i></p>	<p>Proposed Features: <i>The typical section now consists of two 12-ft. travel lanes in each direction separated by a 24-ft. raised grassed median with 10-ft. rural outside shoulders (6.5-ft. paved). The existing bridges over the Alcovy River and overflow will be replaced with 88-ft. wide bridges with 24-ft. raised concrete medians in lieu of two sets of parallel bridges. The intersection of State Route 142 with State Route 12 will be reconstructed to be a round-a-bout in lieu of a traffic signal installation. The Speed design is now 45 MPH from the Covington City Limits M.P. 7.97 to M.P. 10.43. The project limits are now from the Covington City Limits M.P. 7.97 to just east of State Route 142 M.P. 10.43.</i></p>
<p>Reason for Change: <i>The median width is being reduced as a cost savings measure for this project as per the VE Study. The round-a-bout is a result of a change to Department Policy in which GDOT considers roundabouts as the preferred safety and operational alternative for intersections on public roads. Specifically, a roundabout shall be considered as an alternative for all intersections where a request for a traffic signal has been made. The decision to construct a roundabout for the intersection of SR 12 at SR 142 was based on the preferred safety and operational improvements a roundabout would offer. The geometrics of the intersection also make this intersection a good candidate for a roundabout. Traffic projections have predicted that this intersection would operate at a level of service A for the base year and level of service C for the design year traffic volumes.</i></p>	

Potential Environmental Impacts of Proposed Revision:

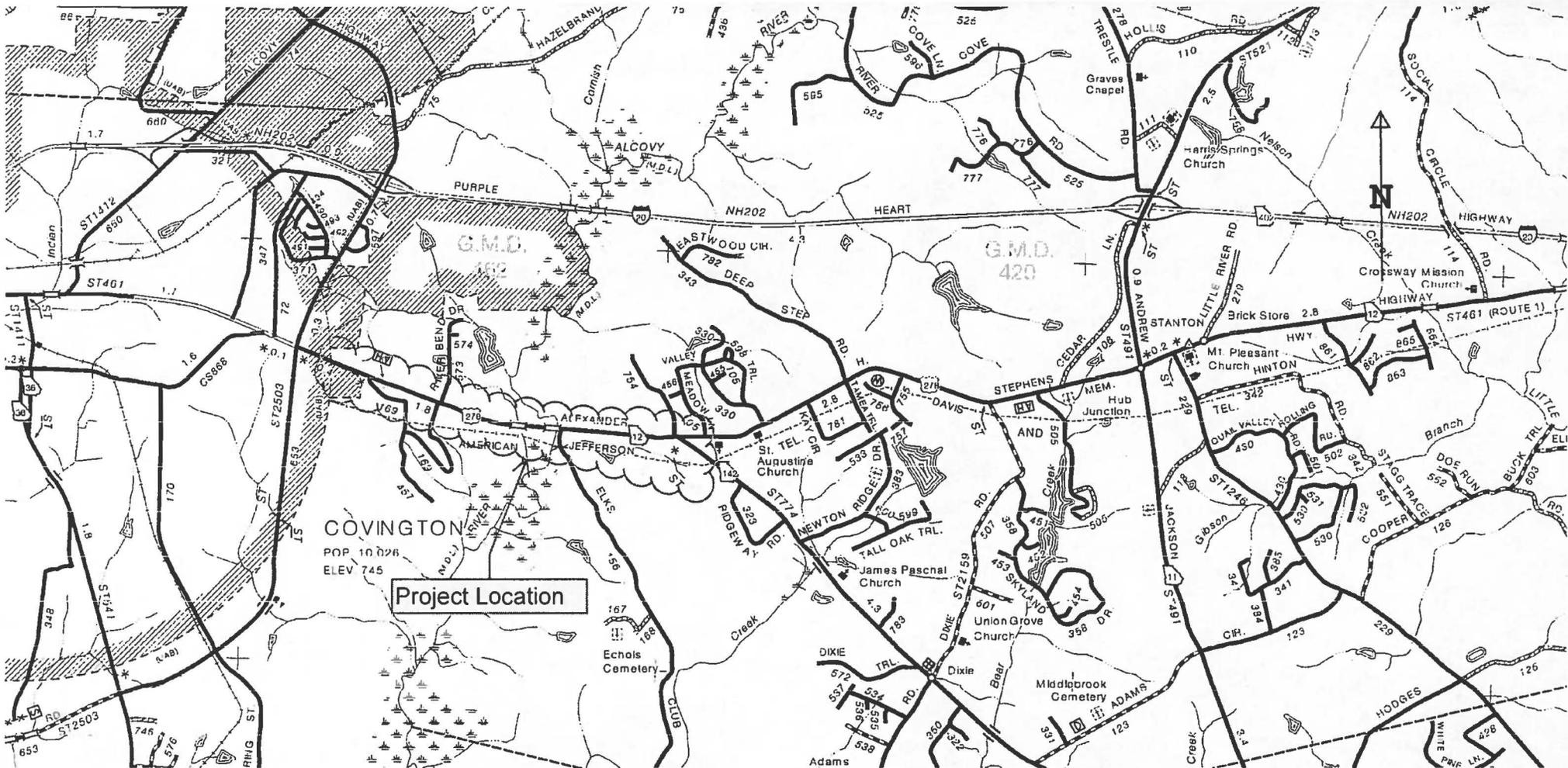
Environmental impacts have been reduced as a result of this revision.

Have Proposed Revisions Been Reviewed by Environmental Staff?

Yes No

Environmental Responsibilities (Studies/Documents/Permits):

Consultant GDOT Local Government



STP00-0046-01 (029) / BHF00-0046-01 (030)

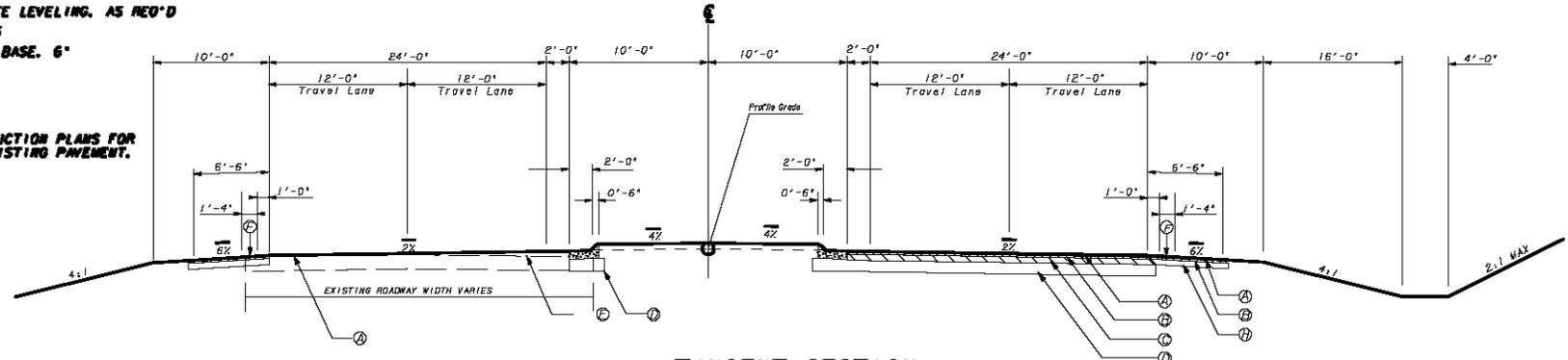
P.I. No. 231630 / 231635

NEWTON COUNTY

- REQUIRED PAVEMENT**
- ① ASPHALTIC CONCRETE, 12.5mm SUPERPAVE, MODIFIED 165 LBS./5. Y.
 - ② ASPHALTIC CONCRETE, 19mm SUPERPAVE, 200 LBS./5. Y.
 - ③ ASPHALTIC CONCRETE BASE, 25mm SUPERPAVE, 440 LBS./5. Y.
 - ④ GRADED AGGREGATE BASE, 10"
 - ⑤ ASPHALTIC CONCRETE LEVELING, AS REQ'D
 - ⑥ 16" RUNDLE STRIPS
 - ⑦ GRADED AGGREGATE BASE, 6"

TYPICAL SECTION #1

NOTE: SEE CONSTRUCTION PLANS FOR TRANSITION TO EXISTING PAVEMENT.



SLOPE CONTROLS		
SLOPE	CUT	FILL
4:1	0-10'	0-10'
2:1	OVER 10'	OVER 10'

*REQUIRES GUARDRAIL

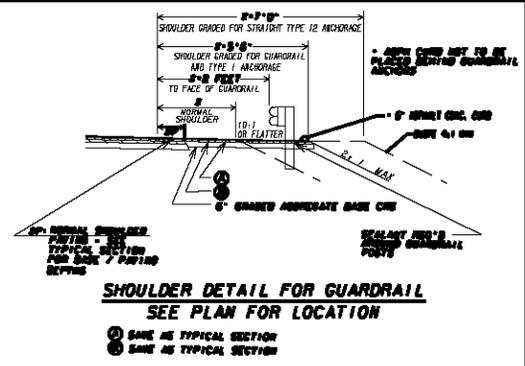
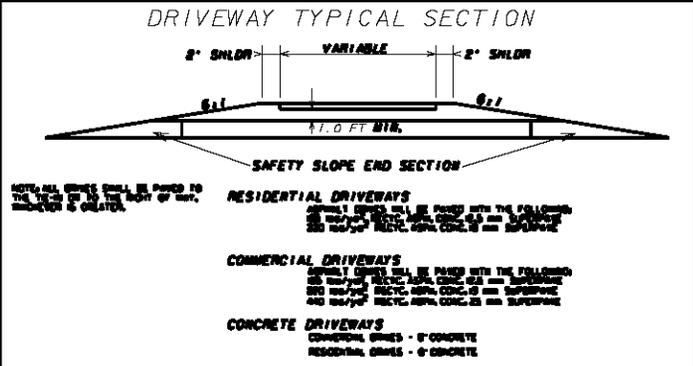
*** EXISTING SLOPE - SLOPE MAY BE VERTICAL - AS DIRECTED BY THE ENGINEER - TO BEST FIT THE EXISTING SLOPE AND FOR SECTION 104 OF THE STANDARD SPECIFICATIONS. SEE "ALLOWABLE SLOPE TABLE" - 603.04.

ALLOWABLE SLOPE TABLE

FOR MORE PRECISE CROSS SLOPES THAN ARE REQUIRED TO "BEST FIT" EXISTING PREVIOUS SLOPES ARE SUBJECT TO THE FOLLOWING LIMITS:

- AS NORMAL, GRADE
- SECTION TO BE GRADED 6:1 OR GREATER
- SECTION TO BE GRADED 4:1 OR LESS
- GRADED FLAT - 100 YDS

- ① SUPERELEVATION RANGE
S.E. RATE SHOWN BY PLANS OR S.E. RATE EXISTING IN FIELD
- ② SUPERELEVATION THROUGH HIGH LENGTH PLANNED FROM FLAT TO FULL S.E. RATE OF CHANGE
CONSTRUCTION APPROVED IN AREA BETWEEN PAVEMENT AND EDGE OF ROADWAY
- ③ SUPERELEVATION THROUGH LOW LENGTH PLANNED FROM FLAT TO FULL S.E. RATE OF CHANGE
CONSTRUCTION APPROVED IN AREA BETWEEN PAVEMENT AND EDGE OF ROADWAY
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CONSTRUCTION APPROVED IN AREA BETWEEN PAVEMENT AND EDGE OF ROADWAY
- ⑦ SUPERELEVATION THROUGH LOW LENGTH PLANNED FROM FLAT TO FULL S.E. RATE OF CHANGE
CONSTRUCTION APPROVED IN AREA BETWEEN PAVEMENT AND EDGE OF ROADWAY



PROPERTY AND EXISTING R/W LINE --- 0 ---

REQUIRED R/W LINE --- 0 ---

CONSTRUCTION LIMITS

EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES

EASEMENT FOR CONSTR OF SLOPES

EASEMENT FOR CONSTR OF DRIVES

PROPERTY AND EXISTING R/W LINE --- 0 ---

REQUIRED R/W LINE --- 0 ---

CONSTRUCTION LIMITS

EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES

EASEMENT FOR CONSTR OF SLOPES

EASEMENT FOR CONSTR OF DRIVES

GEORGIA
 DEPARTMENT OF TRANSPORTATION

NOT TO SCALE

REVISION DATES

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE, DISTRICT 2 DESIGN-TENNILLE

DRAWING NO. 05-001

PROJ. NO.: STP00-0046-01(029)

P.I. NO. 231630

DATE: 10/6/2011

Base Construction Cost	\$	7,191,495.91
E & I	5% \$	359,574.80
Construction Contingency	\$	-
Subtotal Construction Cost	\$	<u>7,551,070.71</u>
Liquid AC Adjustment (50 % cap)	\$	<u>856,291.63</u>
Total Construction Cost	\$	<u>8,407,362.33</u>

PROJ. NO. STP00-0046-01(029)
 P.I. NO. 231630
 DATE 10/6/2011

CALL NO.

INDEX (TYPE)	DATE	INDEX
REG. UNLEADED	Sep-11	\$ 3.582
DIESEL		\$ 3.873
LIQUID AC		\$ 570.00

Link to Fuel and AC Index:
<http://www.dot.ga.gov/doingbusiness/Materials/Pages/asphaltcementindex.aspx>

LIQUID AC ADJUSTMENTS

PA=[((APM-APL)/APL)]xTMTxAPL

Asphalt

Price Adjustment (PA)				836019	\$	836,019.00
Monthly Asphalt Cement Price month placed (APM)	Max. Cap	60%	\$	912.00		
Monthly Asphalt Cement Price month project let (APL)			\$	570.00		
Total Monthly Tonnage of asphalt cement (TMT)				2444.5		

ASPHALT	Tons	%AC	AC ton
Leveling	3000	5.0%	150
12.5 OGFC		5.0%	0
12.5 mm	10768	5.0%	538.4
9.5 mm SP		5.0%	0
25 mm SP	21043	5.0%	1052.15
19 mm SP	14079	5.0%	703.95
	48890		2444.5

BITUMINOUS TACK COAT

Price Adjustment (PA)				\$ 20,272.63	\$	20,272.63
Monthly Asphalt Cement Price month placed (APM)	Max. Cap	60%	\$	912.00		
Monthly Asphalt Cement Price month project let (APL)			\$	570.00		
Total Monthly Tonnage of asphalt cement (TMT)				59.27668782		

Bitum Tack

Gals	gals/ton	tons
13801	232.8234	59.2766878

BITUMINOUS TACK COAT (surface treatment)

Price Adjustment (PA)				0	\$	-
Monthly Asphalt Cement Price month placed (APM)	Max. Cap	60%	\$	912.00		
Monthly Asphalt Cement Price month project let (APL)			\$	570.00		
Total Monthly Tonnage of asphalt cement (TMT)				0		

Bitum Tack	SY	Gals/SY	Gals	gals/ton	tons
Single Surf. Trmt.		0.20	0	232.8234	0
Double Surf.Trmt.		0.44	0	232.8234	0
Triple Surf. Trmt		0.71	0	232.8234	0

TOTAL LIQUID AC ADJUSTMENT \$ **856,291.63**

DETAILED COST ESTIMATE



Job: 231630 LM

JOB NUMBER: 231630_LM

FED/STATE PROJECT NUMBER

SPEC YEAR: 01

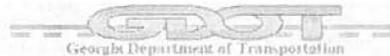
DESCRIPTION: SR 12/US 278 FROM CR 653/COVINGTON BYPASS TO SR 142

ITEMS FOR JOB 231630 LM

0010 - ROADWAY

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0005	150-1000	1.000	LS	\$90,850.00	TRAFFIC CONTROL - STP00-0046-01(029)	\$90,850.00
0010	153-1300	1.000	EA	\$83,410.45	FIELD ENGINEERS OFFICE TP 3	\$83,410.45
0015	201-1500	1.000	LS	\$374,650.00	CLEARING & GRUBBING - STP00-0046-01(029)	\$374,650.00
0020	205-0001	143000.000	CY	\$4.04	UNCLASS EXCAV	\$577,720.00
0025	206-0002	80300.000	CY	\$3.50	BORROW EXCAV, INCL MATL	\$281,050.00
0030	310-1101	63651.000	TN	\$15.42	GR AGGR BASE CRS, INCL MATL	\$981,266.73
0035	318-3000	5000.000	TN	\$17.09	AGGR SURF CRS	\$85,449.65
0040	402-1812	3000.000	TN	\$68.13	RECYL AC LEVELING, INC BM&HL	\$204,390.00
0045	402-3112	14079.000	TN	\$61.53	RECYL AC 19MM SP, GP 1/2, BM&HL	\$866,280.87
0050	402-3121	21043.000	TN	\$59.94	RECYL AC 25MM SP, GP1/2, BM&HL	\$1,261,317.42
0055	402-4510	10768.000	TN	\$66.75	RECYL AC 12.5 MM SP, GP2ONLY, INC P-MBM&HL	\$718,764.00
0060	413-1000	13801.000	GL	\$2.71	BITUM TACK COAT	\$37,410.78
0405	441-6740	18000.000	LF	\$8.65	CONC CURB & GUTTER/ 8"X30" TP7	\$155,692.80
0410	456-2015	5.000	GLM	\$1,361.30	INDENT. RUMB. STRIPS - GRND-IN-PL (SKIP)	\$6,806.51
0065	500-3800	500.000	CY	\$674.19	CL A CONC, INCL REINF STEEL	\$337,095.14
0070	550-1180	2271.000	LF	\$29.64	STM DR PIPE 18".H 1-10	\$67,309.12
0075	550-1240	574.000	LF	\$36.78	STM DR PIPE 24".H 1-10	\$21,111.70
0080	550-1360	253.000	LF	\$62.49	STM DR PIPE 36".H 1-10	\$15,811.03
0085	550-1480	186.000	LF	\$72.96	STM DR PIPE 48".H 1-10	\$13,571.00
0090	550-2180	1151.000	LF	\$22.85	SIDE DR PIPE 18".H 1-10	\$26,299.26
0095	550-2240	399.000	LF	\$25.71	SIDE DR PIPE 24".H 1-10	\$10,257.80
0100	550-3618	56.000	EA	\$578.29	SAFETY END SECTION 18",SD,6:1	\$32,384.11
0105	550-3624	18.000	EA	\$636.24	SAFETY END SECTION 24",SD,6:1	\$11,452.38
0110	550-3636	8.000	EA	\$2,364.45	SAFETY END SECTION 36",SD,6:1	\$18,915.58
0115	550-4118	27.000	EA	\$450.79	FLARED END SECT 18 IN, SIDE DR	\$12,171.21
0120	550-4124	6.000	EA	\$530.82	FLARED END SECT 24 IN, SIDE DR	\$3,184.89
0125	550-4218	10.000	EA	\$511.08	FLARED END SECT 18 IN, ST DR	\$5,110.79
0130	550-4224	4.000	EA	\$533.91	FLARED END SECT 24 IN, ST DR	\$2,135.62
0135	550-4236	6.000	EA	\$989.84	FLARED END SECT 36 IN, ST DR	\$5,939.07
0140	550-4242	2.000	EA	\$1,472.58	FLARED END SECT 42 IN, ST DR	\$2,945.15
0145	573-2006	5000.000	LF	\$11.80	UNDDR PIPE INCL DRAIN AGGR 6"	\$59,005.00
0415	632-0003	2.000	EA	\$11,372.11	CHANGEABLE MESS SIGN, PORT, TP 3	\$22,744.21
0150	634-1200	107.000	EA	\$84.99	RIGHT OF WAY MARKERS	\$9,093.54
0155	641-1200	370.000	LF	\$18.15	GUARDRAIL, TP W	\$6,715.78
0160	641-5001	1.000	EA	\$658.99	GUARDRAIL ANCHORAGE, TP 1	\$658.99
0165	654-1001	85.000	EA	\$4.11	RAISED PVMT MARKERS TP 1	\$349.38
0170	654-1003	500.000	EA	\$3.35	RAISED PVMT MARKERS TP 3	\$1,675.61
0420	668-1100	8.000	EA	\$2,045.29	CATCH BASIN, GP 1	\$16,362.28
0175	668-2100	40.000	EA	\$1,660.93	DROP INLET, GP 1	\$66,437.21
0180	668-2110	20.000	LF	\$188.72	DROP INLET, GP 1, ADDL DEPTH	\$3,774.47
0185	668-5000	8.000	EA	\$1,788.36	JUNCTION BOX	\$14,306.91
SUBTOTAL FOR ROADWAY:						\$6,511,876.42

DETAILED COST ESTIMATE



Job: 231630_LM

0020 - EROSION CONTROL

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0190	163-0240	1260.000	TN	\$145.25	MULCH	\$183,012.15
0195	603-2018	950.000	SY	\$28.44	STN DUMPED RIP RAP. TP 1, 18"	\$27,017.77
0200	603-7000	950.000	SY	\$3.72	PLASTIC FILTER FABRIC	\$3,529.69
0205	700-6910	70.000	AC	\$547.29	PERMANENT GRASSING	\$38,310.12
0210	700-7000	140.000	TN	\$38.72	AGRICULTURAL LIME	\$5,420.54
0215	700-7010	175.000	GL	\$20.01	LIQUID LIME	\$3,501.12
0220	700-8000	115.000	TN	\$490.15	FERTILIZER MIXED GRADE	\$56,367.19
0225	700-8100	4050.000	LB	\$2.09	FERTILIZER NITROGEN CONTENT	\$8,470.21
0230	715-2100	3000.000	SY	\$1.80	BITUM TRTD ROVING, SLOPES	\$5,409.51
0235	716-2000	33182.000	SY	\$1.03	EROSION CONTROL MATS, SLOPES	\$34,048.05
SUBTOTAL FOR EROSION CONTROL:						\$365,086.35

0030 - TEMPORARY EROSION CONTROL

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0240	163-0232	210.000	AC	\$171.87	TEMPORARY GRASSING	\$36,093.35
0245	163-0300	22.000	EA	\$960.38	CONSTRUCTION EXIT	\$21,128.45
0250	163-0503	43.000	EA	\$381.11	CONSTR AND REMOVE SILT CONTROL GATE, TP 3	\$16,387.74
0255	163-0520	1000.000	LF	\$14.22	CONSTR AND REMOVE TEMP PIPE SLOPE DRAIN	\$14,218.46
0260	163-0522	775.000	EA	\$66.12	CONSTR AND REM TEMP DCH CK - TP A SLT FN	\$51,241.81
0265	163-0530	1000.000	LF	\$3.54	CONSTR AND REMOVE BALED STRW EROSION CHK	\$3,540.68
0270	163-0550	28.000	EA	\$151.15	CONS & REM INLET SEDIMENT TRAP	\$4,232.07
0275	165-0030	7000.000	LF	\$0.63	MAINT OF TEMP SILT FENCE, TP C	\$4,399.50
0280	165-0040	775.000	EA	\$33.83	MAINT OF EROSION CTRL CHKDAMS/DITCH CHKS	\$26,217.53
0285	165-0070	9000.000	LF	\$0.76	MAINT OF BALED STRAW EROSION CHECK	\$6,801.48
0290	165-0071	500.000	LF	\$1.07	MAINT OF SEDIMENT BARRIER - BALED STRAW	\$534.08
0295	165-0101	22.000	EA	\$329.05	MAINT OF CONST EXIT	\$7,239.05
0300	167-1000	2.000	EA	\$396.06	WATER QUALITY MONITORING AND SAMPLING	\$792.11
0305	167-1500	18.000	MO	\$577.51	WATER QUALITY INSPECTIONS	\$10,395.21
0310	171-0030	14000.000	LF	\$2.79	TEMPORARY SILT FENCE, TYPE C	\$39,037.88
SUBTOTAL FOR TEMPORARY EROSION CONTROL:						\$242,259.40

0040 - TRAFFIC SIGNS AND MARKINGS

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0315	636-1029	280.000	SF	\$15.59	HWY SGN, TP2 MATL, REFL SH TP 3	\$4,364.58
0320	636-1033	620.000	SF	\$18.24	HWY SIGNS, TP1MAT, REFL SH TP 9	\$11,308.21
0325	636-2070	1270.000	LF	\$7.50	GALV STEEL POSTS, TP 7	\$9,528.78
0330	652-2501	3.000	LM	\$466.58	SOLID TRAF STRIPE, 5 IN, WHITE	\$1,399.73
0335	652-2502	3.000	LM	\$372.50	SOLID TRAF STRIPE, 5 IN, YELLO	\$1,117.51
0340	652-6501	440.000	GLF	\$0.05	SKIP TRAF STRIPE, 5 IN, WHITE	\$22.81
0345	653-0120	52.000	EA	\$68.76	THERM PVMT MARK, ARROW, TP 2	\$3,575.74
0350	653-0170	3.000	EA	\$109.97	THERM PVMT MARK, ARROW, TP 7	\$329.91
0355	653-1704	320.000	LF	\$3.54	THERM SOLID TRAF STRIPE, 24", WH	\$1,132.32
0360	653-1804	687.000	LF	\$1.81	THERM SOLID TRAF STRIPE, 8", WH	\$1,241.46
0365	653-2501	5.000	LM	\$1,383.93	THERMO SOLID TRAF ST, 5 IN, WH	\$6,919.65
0370	653-2502	4.000	LM	\$1,287.29	THERMO SOLID TRAF ST, 5 IN YE	\$5,149.16
0375	653-4501	5.000	GLM	\$694.88	THERMO SKIP TRAF ST, 5 IN, WHI	\$3,474.41
0380	653-6004	5943.000	SY	\$2.65	THERM TRAF STRIPING, WHITE	\$15,735.04
0385	653-6006	1845.000	SY	\$2.68	THERM TRAF STRIPING, YELLOW	\$4,951.44
0390	654-1001	85.000	EA	\$4.11	RAISED PVMT MARKERS TP 1	\$349.38
0395	654-1003	500.000	EA	\$3.35	RAISED PVMT MARKERS TP 3	\$1,675.61
SUBTOTAL FOR TRAFFIC SIGNS AND MARKINGS:						\$72,273.74

TOTALS FOR JOB 231630_LM

ITEMS COST:	\$7,191,495.91
COST GROUP COST:	\$0.00
ESTIMATED COST:	\$7,191,495.91
CONTINGENCY PERCENT:	0.00
ENGINEERING AND INSPECTION:	0.00
ESTIMATED COST WITH CONTINGENCY AND E&I:	\$7,191,495.91

PROJ. NO.: BHF00-0046-01(030)

P.I. NO. 231635

DATE: 10/6/2011

Base Construction Cost	\$	8,088,441.81
E & I	5% \$	404,422.09
Construction Contingency	\$	-
Subtotal Construction Cost	\$	<u>8,492,863.90</u>
Liquid AC Adjustment (50 % cap)	\$	<u>129,511.03</u>
Total Construction Cost	\$	<u>8,622,374.93</u>

PROJ. NO. BHF00-0046-01(030)
 P.I. NO. 231635
 DATE 10/6/2011

CALL NO.

INDEX (TYPE)	DATE	INDEX
REG. UNLEADED	Sep-11	\$ 3.582
DIESEL		\$ 3.873
LIQUID AC		\$ 570.00

Link to Fuel and AC Index:
<http://www.dot.ga.gov/doingbusiness/Materials/Pages/asphaltcementindex.aspx>

LIQUID AC ADJUSTMENTS

PA=[((APM-APL)/APL)]xTMTxAPL

Asphalt

Price Adjustment (PA)			126369	\$	126,369.00
Monthly Asphalt Cement Price month placed (APM)	Max. Cap	60%	\$	912.00	
Monthly Asphalt Cement Price month project let (APL)			\$	570.00	
Total Monthly Tonnage of asphalt cement (TMT)					369.5

ASPHALT	Tons	%AC	AC ton
Leveling	350	5.0%	17.5
12.5 OGFC		5.0%	0
12.5 mm	1645	5.0%	82.25
9.5 mm SP		5.0%	0
25 mm SP	3180	5.0%	159
19 mm SP	2215	5.0%	110.75
	7390		369.5

BITUMINOUS TACK COAT

Price Adjustment (PA)			\$	3,142.03	\$	3,142.03
Monthly Asphalt Cement Price month placed (APM)	Max. Cap	60%	\$	912.00		
Monthly Asphalt Cement Price month project let (APL)			\$	570.00		
Total Monthly Tonnage of asphalt cement (TMT)						9.187220872

Bitum Tack

Gals	gals/ton	tons
2139	232.8234	9.18722087

BITUMINOUS TACK COAT (surface treatment)

Price Adjustment (PA)				0	\$	-
Monthly Asphalt Cement Price month placed (APM)	Max. Cap	60%	\$	912.00		
Monthly Asphalt Cement Price month project let (APL)			\$	570.00		
Total Monthly Tonnage of asphalt cement (TMT)						0

Bitum Tack	SY	Gals/SY	Gals	gals/ton	tons
Single Surf. Trmt.		0.20	0	232.8234	0
Double Surf. Trmt.		0.44	0	232.8234	0
Triple Surf. Trmt		0.71	0	232.8234	0

TOTAL LIQUID AC ADJUSTMENT \$ **129,511.03**

DETAILED COST ESTIMATE



Job: 231635 LM

JOB NUMBER: 231635_LM

FED/STATE PROJECT NUMBER

SPEC YEAR: 01

DESCRIPTION: SR 12/US 278 @ ALCOVY RIVER & OVERFLOW 2.5 MI E OF COVINGTON

ITEMS FOR JOB 231635 LM

0010 - ROADWAY

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0005	150-1000	1.000	LS	\$40,225.00	TRAFFIC CONTROL - BHF00-0046-01(030)	\$40,225.00
0010	201-1500	1.000	LS	\$256,790.00	CLEARING & GRUBBING - BHF00-0046-01(030)	\$256,790.00
0015	310-1101	9512.000	TN	\$25.36	GR AGGR BASE CRS, INCL MATL	\$241,224.32
0020	318-3000	150.000	TN	\$19.78	AGGR SURF CRS	\$2,966.98
0025	402-1812	350.000	TN	\$68.13	RECYL AC LEVELING.INC BM&HL	\$23,845.50
0030	402-3121	3180.000	TN	\$59.94	RECYL AC 25MM SP,GP1/2,BM&HL	\$190,609.20
0035	402-3190	2215.000	TN	\$61.53	RECYL AC 19 MM SP,GP 1 OR 2 ,INC BM&HL	\$136,288.95
0040	402-4510	1645.000	TN	\$66.75	RECYL AC 12.5 MM SP,GP2ONLY,INC P-MBM&HL	\$109,803.75
0045	413-1000	2139.000	GL	\$3.25	BITUM TACK COAT	\$6,952.93
0050	433-1200	1144.000	SY	\$130.82	REF CONC APPR SL/1 SLOPED EDGE	\$149,662.30
0055	441-0301	8.000	EA	\$1,691.56	CONC SPILLWAY, TP 1	\$13,532.48
0290	441-6740	5000.000	LF	\$14.28	CONC CURB & GUTTER/ 8"X30" TP7	\$71,421.20
0295	456-2015	1.000	GLM	\$5,608.47	INDENT. RUMB. STRIPS - GRND-IN-PL (SKIP)	\$5,608.47
0060	500-3200	27.000	CY	\$339.16	CL B CONC	\$9,157.45
0065	500-3800	500.000	CY	\$674.19	CL A CONC, INCL REINF STEEL	\$337,095.14
0070	511-1000	394.000	LB	\$0.91	BAR REINF STEEL	\$359.10
0075	576-1018	164.000	LF	\$33.68	SLOPE DRAIN PIPE, 18 IN	\$5,523.73
0080	634-1200	35.000	EA	\$90.84	RIGHT OF WAY MARKERS	\$3,179.23
0085	641-1100	336.000	LF	\$62.49	GUARDRAIL, TP T	\$20,995.71
0090	641-1200	4300.000	LF	\$13.98	GUARDRAIL, TP W	\$60,103.59
0095	641-5001	2.000	EA	\$591.19	GUARDRAIL ANCHORAGE, TP 1	\$1,182.38
0100	641-5012	5.000	EA	\$1,804.85	GUARDRAIL ANCHORAGE, TP 12	\$9,024.26
0105	654-1003	155.000	EA	\$4.15	RAISED PVMT MARKERS TP 3	\$642.73
SUBTOTAL FOR ROADWAY:						\$1,696,194.40

0020 - EROSION CONTROL

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0110	163-0240	216.000	TN	\$194.05	MULCH	\$41,914.78
0115	603-2024	2200.000	SY	\$43.65	STN DUMPED RIP RAP, TP 1, 24"	\$96,031.74
0120	603-2181	142.000	SY	\$43.02	STN DUMPED RIP RAP, TP 3, 18"	\$6,108.91
0125	603-7000	2342.000	SY	\$3.70	PLASTIC FILTER FABRIC	\$8,659.03
0130	700-6910	12.000	AC	\$759.98	PERMANENT GRASSING	\$9,119.72
0135	700-7000	20.000	TN	\$50.74	AGRICULTURAL LIME	\$1,014.72
0140	700-7010	25.000	GL	\$21.69	LIQUID LIME	\$542.16
0145	700-8000	11.000	TN	\$473.39	FERTILIZER MIXED GRADE	\$5,207.30
0150	700-8100	550.000	LB	\$2.79	FERTILIZER NITROGEN CONTENT	\$1,537.09
0155	716-2000	8865.000	SY	\$1.10	EROSION CONTROL MATS, SLOPES	\$9,790.59
SUBTOTAL FOR EROSION CONTROL:						\$179,926.04

0030 - TEMPORARY EROSION CONTROL

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0160	163-0232	36.000	AC	\$367.28	TEMPORARY GRASSING	\$13,222.06
0165	163-0300	1.000	EA	\$1,100.44	CONSTRUCTION EXIT	\$1,100.44
0170	163-0529	3160.000	LF	\$2.87	CONST/REM TEMP SED BAR OR BLD STRW CK DM	\$9,073.88
0175	163-0550	3.000	EA	\$171.02	CONS & REM INLET SEDIMENT TRAP	\$513.07
0180	165-0030	1250.000	LF	\$0.80	MAINT OF TEMP SILT FENCE, TP C	\$998.20
0185	165-0071	1580.000	LF	\$0.88	MAINT OF SEDIMENT BARRIER - BALED STRAW	\$1,396.45
0190	165-0101	6.000	EA	\$579.97	MAINT OF CONST EXIT	\$3,479.85
0195	167-1000	1.000	EA	\$396.06	WATER QUALITY MONITORING AND SAMPLING	\$396.06
0200	167-1500	18.000	MO	\$627.06	WATER QUALITY INSPECTIONS	\$11,287.07
0205	171-0030	2500.000	LF	\$3.12	TEMPORARY SILT FENCE, TYPE C	\$7,797.75
0210	715-2100	7000.000	SY	\$1.80	BITUM TRTD ROVING, SLOPES	\$12,622.19
SUBTOTAL FOR TEMPORARY EROSION CONTROL:						\$61,887.02

DETAILED COST ESTIMATE



Job: 231635_LM

0040 - TRAFFIC SIGNS AND MARKINGS

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0215	647-1000	1.000	LS	\$48,257.00	TRAF SIGNAL INSTALLATION NO - BHF00-0046-01(030)	\$48,257.00
0220	653-1501	4200.000	LF	\$0.42	THERMO SOLID TRAF ST 5 IN WHI	\$1,778.07
0225	653-1502	3500.000	LF	\$0.39	THERMO SOLID TRAF ST, 5 IN YEL	\$1,378.65
0230	653-1704	120.000	LF	\$3.69	THERM SOLID TRAF STRIPE 24",WH	\$442.47
0235	653-3501	3600.000	GLF	\$0.28	THERMO SKIP TRAF ST, 5 IN, WHI	\$1,019.84
0240	653-6004	960.000	SY	\$2.93	THERM TRAF STRIPING, WHITE	\$2,811.88
0245	653-6006	60.000	SY	\$3.29	THERM TRAF STRIPING, YELLOW	\$197.61
0250	657-1054	1500.000	LF	\$3.81	PRF PL SD PVMT MKG.5",WH,TP PB	\$5,715.81
0255	657-3054	1500.000	GLF	\$2.68	PRF PL SK PVMT MKG.5",WH,TP PB	\$4,019.28
0260	657-6054	1500.000	LF	\$3.96	PRF PL SD PVMT MKG.5",YW,TP PB	\$5,944.74
SUBTOTAL FOR TRAFFIC SIGNS AND MARKINGS:						\$71,565.35

0050 - BRIDGE NO. 1 LT & RT (ALCOVY RIVER OVERFL)

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0265	540-1101	1.000	LS	\$486,540.00	REM OF EX BR, STA NO - 570+84(10812SFX\$45)	\$486,540.00
0269	543-9000	1.000	LS	\$3,344,000.00	CONSTR OF BRIDGE COMPLETE - 569+65(35200SFX\$95)	\$3,344,000.00
SUBTOTAL FOR BRIDGE NO. 1 LT & RT (ALCOVY RIVER OVERFLOW):						\$3,830,540.00

0060 - BRIDGE NO. 2 LT & RT (ALCOVY RIVER)

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0275	540-1101	1.000	LS	\$235,620.00	REM OF EX BR, STA NO - 583+73(5236SFX\$45)	\$235,620.00
0280	543-9000	1.000	LS	\$2,006,400.00	CONSTR OF BRIDGE COMPLETE - 582+47(21120SFX\$95)	\$2,006,400.00
SUBTOTAL FOR BRIDGE NO. 2 LT & RT (ALCOVY RIVER):						\$2,242,020.00

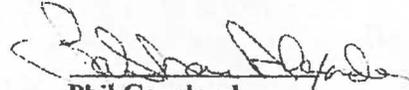
Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0300	668-1100	3.000	EA	\$2,103.00	CATCH BASIN, GP 1	\$6,309.00
SUBTOTAL FOR :						\$6,309.00

TOTALS FOR JOB 231635_LM

ITEMS COST:	\$8,088,441.81
COST GROUP COST:	\$0.00
ESTIMATED COST:	\$8,088,441.81
CONTINGENCY PERCENT:	0.00
ENGINEERING AND INSPECTION:	0.00
ESTIMATED COST WITH CONTINGENCY AND E&I:	\$8,088,441.81

Cost Estimate - After VE study and round-a-bout

Preliminary Right of Way Cost Estimate



Phil Copeland
Right of Way Administrator
By: LaShone Alexander

Date: November 4, 2010
Project: STP-046-1(29) & BHF00-0046-01(030) Newton
Existing/Required R/W: Varies/Varies
Project Termini : SR 12 Widening Project
Project Description: SR 12 Widening Projects

P.I. Number: 231630 & 231635
No. Parcels: 56

Land:

Commercial: 7.11 acres @ \$ 210,000/acre	\$	1,493,100
Residential: 5.67 acres @ \$ 40,000/acre	\$	226,800
Commercial Easement: 0.216 acres @ \$ 210,000/acre@50%	\$	<u>45,360</u>
		1,765,260

Improvements : 1 residence, misc. site improvements 130,000

Relocation: Commercial (0)	\$	0	
Residential (1)		<u>40,000</u>	40,000

Damage : Cost to Cure (1)	\$	25,000		
Proximity (2)		40,000		
Consequential Damages (3)		<u>90,000</u>	\$	<u>155,000</u>

Net Cost \$ 2,090,260

Net Cost	\$	2,090,260
Scheduling Contingency 55 %		1,149,643
Adm/Court Cost 60		<u>1,943,941</u>
	\$	5,183,844

Total Cost \$5,184,000

Note: The Market Appreciation (40%) is not included in the updated Preliminary Cost Estimate.

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

INTERDEPARTMENT CORRESPONDENCE

FILE STP00-0046-01(029) – Newton County
P.I. No. 231630

OFFICE Tennille - Utilities

FROM Jack (Gus) D. Cooper, Jr.
District Utilities Engineer

DATE January 14, 2011

TO

ATTN

SUBJECT CONCEPT UTILITY COST ESTIMATE

As requested by your office, we are furnishing you with a Preliminary Utility Cost estimates for each utility with facilities potentially located within the project limits.

FACILITY OWNER	NON- REIMBURSABLE	REIMBURSABLE
CITY OF COVINGTON POWER		\$ 24,500.00
Total		\$ 24,500.00

Total non-reimbursable cost for the above project is \$0000000. The reimbursable cost for the above project is \$24,500.00.

If you have any questions, please contact Jeanie Wheeler at 478-552-4638.

JDC/JW

cc: Jeff Baker, State Utilities Engineer

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

INTERDEPARTMENTAL CORRESPONDENCE

FILE P.I. #s 231630 & 231635 **OFFICE** Environmental Services
DC
FROM Doug Chamblin, Ecologist **DATE** October 7, 2011
TO File
SUBJECT Estimate of mitigation costs for revised concept report
231630 & 231635; STP00-0046-01(029) & BHF00-0046-01(030), Newton County:

The purpose of this memo is to provide an estimate of the expected cost of mitigation for the referenced project; the mitigation is required under Section 404 of the Clean Water Act.

Based on the most recent ecology survey, conducted in 2006, the project is expected to impact 0.98 ac of wetland and 180 linear feet of stream, requiring 7.45 wetland and 536.5 stream mitigation credits. An estimate of the funds needed to purchase those credits is provided in the table below. The per credit cost in the table is the cost for credits purchase in the same watershed (Upper Ocmulgee, HUC # 03070103) for a different project on approximately 10/1/2011. However, the actual cost for the subject project could end up being significantly different from this estimate. The reason is that per credit costs fluctuate widely depending on the market; also, the ecological impacts may change based on an ecology addendum that will be completed prior to the let date.

Credits needed	Credit type	Estimated cost per credit	Cost
536.5	Stream	\$ 30.00	\$ 16,095.00
7.45	Wetland	\$ 18,000.00	\$ 134,100.00

ESTIMATED TOTAL MITIGATION COST= \$ 150,195.00

DC

cc: Foster Grimes, GDOT District 2 Design
George Brewer, GDOT PM

NEED AND PURPOSE
PROJECT STP-046-1 (29) NEWTON COUNTY
PI NO. 231630

SR 12/US 278 FROM THE COVINGTON BYPASS/CR 653 TO SR 142

Project STP-046-1 (29) consists of the widening and improvement of SR 12/US 278 from the Covington Bypass/CR 653 (S2503) to SR 142 (S774). SR 12/US 278 from SR 142 (S2503) to SR 142 (S774) is to be widened from a two-lane section to a four-lane divided section. This 2.5 mile section of SR 12 is functionally classified as the following: an urban minor arterial from SR 142 (S2503) to the Alcovy River; and a rural minor arterial from the Alcovy River to SR 142 (S774).

The 1998 AADT from SR 142 (S2503) to SR 142 (S774) was 13,500, resulting in a LOS of "E". The projected (2026) AADT from SR 142 (S2503) to SR 142 (S774) ranges from 36,600 to 43,000 with a projected LOS of "F". Widening SR 12/US 278 will improve the projected LOS to "C" as well as reduce congestion and driver discomfort.

In 1997, there were 15 accidents along the section of SR 12 from SR 142 (S2503) to the Alcovy River, 13 in 1996 and 17 in 1995. The resulting accident rates for this section were 215 accidents per 100 MMVT in 1997, 200 accidents per 100 MMVT in 1996 and 275 accidents per 100 MMVT in 1995. These rates are below the statewide average for an urban minor arterial for all three years. In 1997, there were 44 accidents along the section of SR 12 from the Alcovy River to SR 142 (S774), 33 in 1996 and 41 in 1995. The accident rates along this section of SR 12 are extremely high for a rural minor arterial: 1268 accidents per 100 MMVT in 1997, 1024 accidents per 100 MMVT in 1996 and 1334 accidents per 100 MMVT in 1995. The statewide averages for a rural minor arterial were 210 in 1997, 224 in 1996 and 200 in 1995. In 1997, 29 of the 44 accidents occurred at the intersection of SR 12 and SR 142 (S774). In 1996, 23 of the 33 accidents occurred at the intersection of SR 12 and SR 142 (S774) and in 1995, 29 of the 41 accidents occurred at the intersection of SR 12 and SR 142 (S774).

Two bridges are located along this section of SR 12, one over the Alcovy River and one over the Alcovy River overflow. Both bridges have a sufficiency rating of 79.8 and are acceptable to be widened.

The land use along SR 12/US 278 is industrial and commercial in use towards the Covington (western) termini of the project but begins changing to rural and residential as you approach the SR 142 (S774) terminus. The western terminus of project STP-046-1(29) ties into an existing multi-lane section just east of SR 142 (S2503). The eastern terminus is SR 142 (S774). Traffic volumes along SR 12 east of the SR 142(S774) intersection decreased to 3,250 AADT from 13,500 AADT west of the intersection in 1998. The 1998 volume along SR 142 south of SR12 is approximately 6,000 AADT. This section of SR 142 is residential in use and is rapidly developing.

Other projects in the area include STP-000S(14), programmed to widen SR 142 ((S2503) from south of the intersection with SR 12 to Interstate 20. Project STP-1418(3) will multi-lane SR 142 north of the I-20 interchange and project IM-20-2(141) will widen and improve the interchange itself. Project NH-20-2(167) is programmed to add an additional lane east and west on I-20 from the Alcovy Road interchange to the SR 142 interchange. The combination of these projects and project STP-046-1 (29) will improve the access between the residential areas of Newton County to the more commercial and industrial areas as well as improve access to the interstate.

**Benefit Cost Analysis Work Sheet
CONGESTION Projects**

PROJECT NUMBER STP00-0046-01(029) & BHF00-0046-01(030)

P.I. Number 231630 & 231635

NEWTON COUNTY

STATE ROUTE 12/ US 278 WIDENING

Congestion Benefit = Tb + CMb + Fb

Person Time Savings Benefit (Tb)

*Db (hrs)	0.03
ADT	28,545.00
Tb (\$s)	\$29,437,031.25

Commercial or Truck Time Savings Benefit (CMb)

Db (hrs)	0.03
% Truck Traffic	0.09
ADT	28,545.00
CMb	\$13,998,111.19

Fuel Savings Benefit (Fb)

ADT	28,545.00
Fb (\$s)	\$10,258,359.38

Total Congestion Benefit	\$53,693,501.81
Total Project Cost	\$22,331,667.26
B/C Ratio	2.40

STP00-0046-01(029) & BHF00-0046-01(030) Newton County
P.I. No: 231630 & 231635
Implementation of Value Engineering Study Alternatives

BRIDGE #1 – Alcovy River Overflow				
B-1	Reduce bridge #1 width from 38 feet to 36 feet.	\$ 243,000	No	Does not apply since B-3 will be implemented.
B-2	Reduce bridge #1 length by 80 feet.	\$ 568,000	No	Does not apply since B-3 will be implemented.
B-3	Reduce bridge #1 width and length as described above in B-1 and B-2.	\$ 783,000	Yes	This should be done.
AC PAVEMENT				
C-1	Maintain US 278/SR12 @ SR 142 configuration and tie US 278/SR 12 in sooner.	\$ 2,190,000	No	Does not apply since C-2 will be implemented.
C-2	Reconfigure intersection of US 278 @ SR 142.	\$ 2,758,000	Yes	This should be done.
C-3	Reduce lane widths from 12 feet to 11 feet.	\$ 1,000,000	No	According to current ASHTO Policy "lane widths on Arterials with traffic above 2000 ADT should be 24 feet." The current ADT traffic on this route is 26,800 vpd in 2008 and 43,000 vpd in 2028. The reduction in lane width on this roadway could increase the potential for traffic accidents.
C-4	Reduce the paved portion of the outside shoulder width from 6.5 to 2.0 feet.	\$354,900	No	According to the current version of ASHTO, "Arterials with sufficient traffic volume to justify the construction of four lanes also justify the provision of full-width shoulders. The width of usable outside shoulders should be at least 8 feet and be usable during all seasons. Paving the usable width of shoulder is preferred." The current ADT traffic on this route is 26,800 vpd in 2008 and 43,000 vpd in 2028.

STP00-0046-01(029) & BHF00-0046-01(030) Newton County
P.I. No: 231630 & 231635
Implementation of Value Engineering Study Alternatives

BRIDGE #2 – Alcovy River				
D-1	Reduce the bridge width for bridge #2 over the Alcovy River from 38 feet to 36 feet.	\$131,000	Yes	This should be done.

The Office of Engineering Services concurs with the Project Manager's responses.

Approved: Gerald M. Ross Date: 5/13/09
Gerald M. Ross, P. E., Chief Engineer

REW / DMF

Attachments

- c: Genetha Rice Singleton
- George Brewer
- Alan Smith
- Foster Grimes
- Larry Morris
- Paul Liles
- Bill Ingalsbe
- Bill DuVall
- Jack Muirhead
- Jim Kitchings
- James Magnus
- Rusty Merritt
- Ken Werho
- Lisa Myers
- Douglas Fadool
- General Files

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

INDICATION OF ROUNDABOUT SUPPORT

To the Georgia Department of Transportation:

Attn: Kedrick Collins
District Traffic Operations Manager
801 HWY 15 South
Tennille, Georgia 31089

Location

The Board of Commissioners in Newton County supports the consideration of a roundabout at the location specified below.

Local Street Names: N/A

State/County Route Numbers: SR 12 (US 278) at SR 142

Associated Conditions

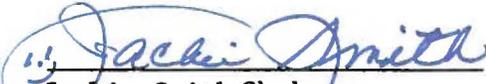
The undersigned agrees to participate in the following maintenance of the intersection in the event that the roundabout is selected as the preferred concept alternative:

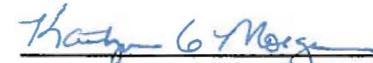
- The full and entire cost of the electric energy used for any lighting installed (if needed)
- Any maintenance costs associated with the landscaping (after construction is complete)

We agree to participate in a formal Local Government Lighting Project Agreement during the preliminary design phase. This indication of support is submitted and all of the conditions are hereby agreed to. The undersigned are duly authorized to execute this agreement.

This is the 5th day of July, 2011

Attest:


Jackie Smith Clerk

By: 
Kathryn G. Morgan
Title: Chairman

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

INTERDEPARTMENT CORRESPONDENCE

FILE STP00-0046-01(029) & BHF00-0046-01(030)
Newton County 231630 & 231635

OFFICE Traffic Operations
District 2

FROM: Kedrick Collins, Assistant District Traffic Operations Engineer

TO: Foster Grimes, District Design Squad Leader

SUBJECT Revised Concept Recommendations

Submitted for your further review and consideration is a list of recommendations for intersection improvements along the project corridor. Major intersections that have projected volumes that rise to the threshold of being considered for signalization as well as existing signalized intersections have been evaluated. Our recommendations are as follows:

- State Route 12 at Elks Club Road (CR 156) – Signal improvement
- State Route 12 at State Route 142 – Roundabout

If any further assistance is needed, please contact Kedrick Collins at (478) 552-4622.

KC:

GDOT ROUNDABOUT DESIGN CHECKLIST - CONCEPT DEVELOPMENT

Notes:

- 1) This checklist is specifically written for a standalone intersection project. Some minor adjustments may be needed for a consultant designed roundabout with respect to roles. For linear or interchange reconstruction projects much of the concept development effort can be accomplished during the preliminary design. Additional items should be added as necessary to define/document the design. The preparation of a roundabout design may be terminated at any time during the process, if a decision is made to eliminate a roundabout from further consideration. In this case, documentation should be organized and retained to support this decision.
- 2) This checklist includes work items which are specific to the roundabout project and does not include many items which would be common to all conventional intersection projects. The level of detail and timing of some tasks will vary with the complexities of the roundabout and site constraints.
- 3) The checklist is meant to combine certain categories of information and is not meant to reflect a precise sequence of performance. Any items which do not apply to a specific project can be marked as "N/A" (i.e. not applicable).

PI Number:	231630	County:	Newton
Design Phase Leader:	Foster Grimes	Design Office:	District 2 Design - Tennille
Description:	State Route 12/US 278 from CR 653/Covington Bypass East to State Route 142		

No.	Completed	Action By	Item	Commentary <small>(Can modify text to replace with project specific info, will show in bold letters.)</small>
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1. Operations - Planning Level Assessment - See DPM Section 8.2.1

1	<input checked="" type="checkbox"/>	<input type="text" value="DZ"/>	Vicinity Map	Map showing roadways within approximately 1 mile +/- of each direction from the roundabout.
2	<input checked="" type="checkbox"/>	<input type="text" value="DZ"/>	Intersection Layout	Show layout of existing intersection including site constraints such as property, access buildings. A recent aerial photo from any source is sufficient.
3	<input checked="" type="checkbox"/>	<input type="text" value="DZ"/>	Letter of support from local government	Letter of support is required from local government for project to proceed as a roundabout - See DPM figure 8.1.
4	<input checked="" type="checkbox"/>	<input type="text" value="DZ"/>	Crash history	Send request to Norm Cressman of GDOT Crash Reporting Unit.
5	<input checked="" type="checkbox"/>	<input type="text" value="DZ"/>	Pedestrian and bike activity	Estimate level of activity. Sources may include site inspection, local GDOT and government offices.
6	<input checked="" type="checkbox"/>	<input type="text" value="DZ"/>	Estimate current traffic volumes	May obtain from GDOT transportation Data Viewer or TPAS.
7	<input checked="" type="checkbox"/>	<input type="text" value="DZ"/>	Estimate design year traffic volumes	Important if significant growth is anticipated.
8	<input checked="" type="checkbox"/>	<input type="text" value="DZ"/>	Percent traffic on major roads	Traffic volume entering roundabout from the major road should be no more than 90% of total volume entering the roundabout.
9	<input checked="" type="checkbox"/>	<input type="text" value="DZ"/>	Number of circulatory lanes	Single lane - ADT < 25,000, Two-lane - ADT < 45,000. See exhibit 3-12 of NCHRP.
10	<input checked="" type="checkbox"/>	<input type="text" value="DZ"/>	Favorable conditions	See section 8.2.1 Planning Level Assessments for list of conditions where roundabouts tend to be advantageous.
11	<input checked="" type="checkbox"/>	<input type="text" value="DZ"/>	Unfavorable conditions	See section 8.2.1 Planning Level Assessments for list of conditions which may be unfavorable for roundabouts.
12	<input checked="" type="checkbox"/>	<input type="text" value="DZ"/>	Purpose of roundabout	Clearly define what "need" the roundabout addresses.
13	<input checked="" type="checkbox"/>	<input type="text" value="DZ"/>	Roundabout sketch	Hand drawn sketch showing location and configuration envisioned.

PI Number:	231630	County:	Newton
Design Phase Leader:	Foster Grimes	Design Office:	District 2 Design - Tennille
Description:	State Route 12/US 278 from CR 653/Covington Bypass East to State Route 142		

No.	Completed	Action By	Item	Commentary <small>(Can modify text to replace with project specific info, will show in bold letters.)</small>
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2. Design - Gather information for concept - for existing intersection and for base & design years

1	<input checked="" type="checkbox"/>	DZ	Vicinity Map	Map showing roadways within approximately 1 mile +/- of each direction from the roundabout.
2	<input checked="" type="checkbox"/>	DZ	Approach speeds	Identify posted speeds for approach roadways - Obtain from existing speed limit signs or GDOT Transportation Data Viewer. For county and local roads it is recommended to contact the local district traffic operations office to request from local enforcement agency.
3	<input checked="" type="checkbox"/>	DZ	Grades	Generally not desirable to locate roundabouts with grades through the roundabout greater than 4%. Can continue with a roundabout but should consider truck volumes and potential for truck overturning.
4	<input checked="" type="checkbox"/>	DZ	Functional classification	Identify for each approach roadway using GDOT Transportation Data Viewer. As a secondary source may use Office of Transportation Data functional classification maps.
5	<input checked="" type="checkbox"/>	DZ	Current year traffic volumes	Send email request to Office of Planning (ADT and am/pm DHV), attn Abby Ebodaghe.
6	<input checked="" type="checkbox"/>	DZ	Base year traffic projections	Be sure to obtain growth rates for traffic projections where evaluating capacity during interim years may be required.
7	<input checked="" type="checkbox"/>	DZ	Design year traffic projections	
8	<input checked="" type="checkbox"/>	DZ	Future projects	Identify any planned roadway project in vicinity.
9	<input checked="" type="checkbox"/>	DZ	Desirable LOS	Refer to DPM Section 6.14, Summary of Design Criteria for Cross Section Elements.

3. Design - Roundabout Feasibility Study, Part 1 - Alternate comparison and selection

1	<input type="checkbox"/>		Intersection base map	Show layout of existing intersection including site constraints such as right-of-way, access, buildings, and environmental resources. A recent aerial photo from any source is sufficient.
2	<input type="checkbox"/>		Signal Warrant Study	This will define whether or not a signal is a possible alternate and will be prepared by the local District Traffic Operations Office.
3	<input type="checkbox"/>		Identify/sketch alternative intersection forms	See DPM Section 8.2.2 - bullet for Section 3. Sketch to the level at which alternates can be adequately compared. May include single and multilane roundabout layouts.
4	<input type="checkbox"/>		Safety assessment	See DPM Section 8.2.2 - bullet for Section 2.
5	<input type="checkbox"/>		Number of entry lanes for each approach leg	May use turning movements to estimate of lane requirements at each entry. See exhibits 3-14 and 4-3 of NCHRP 672.
6	<input type="checkbox"/>		Operational Analyses	See DPM Section 8.2.2 - bullet for Section 4.
7	<input type="checkbox"/>		Cost Comparison	See DPM Section 8.2.2 - bullet for Section 5. Not required if roundabout is to address severe crash history.
8	<input type="checkbox"/>		Select most favorable alternate	See DPM Section 8.2.2 - bullet for Section 6. A tabulated comparison of alternates recommended.

PI Number: 231630 County: Newton
 Design Phase Leader: Foster Grimes Design Office: District 2 Design - Tennille
 Description: State Route 12/US 278 from CR 653/Covington Bypass East to State Route 142

No.	Completed	Action By	Item	Commentary <small>(Can modify text to replace with project specific info, will show in bold letters.)</small>
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4. Design - Roundabout Feasibility Study, Part 2 - Roundabout layout (as required to define the footprint)

1	<input type="checkbox"/>	<input type="checkbox"/>	Design alternate roundabout layouts	<i>The identification of the most favorable layout may require the development and consideration of multiple roundabout layouts/locations.</i>
2	<input type="checkbox"/>	<input type="checkbox"/>	Identify likely impacts	<i>Identify potential conflicts with underground utilities and likely property and environmental resource impacts, etc.</i>
3	<input type="checkbox"/>	<input type="checkbox"/>	Fastest paths	<i>Document fastest paths on concept layouts, indicate speeds and speed differentials. (May require update during preliminary design for requirements to layout.)</i>
4	<input type="checkbox"/>	<input type="checkbox"/>	Design vehicle	<i>See DPM Section 8.3.2, Design Vehicle and Section 3.2. Greater consideration should be given to selecting a larger design vehicle - even if roundabout may be infrequently used by that size vehicle.</i>
5	<input type="checkbox"/>	<input type="checkbox"/>	Design vehicle swept path	<i>Document all movements. (May require update during preliminary design for requirements to layout.)</i>
6	<input type="checkbox"/>	<input type="checkbox"/>	Stopping sight distance	<i>Evaluate stopping sight distance to roundabout yield line, for each approach.</i>
7	<input type="checkbox"/>	<input type="checkbox"/>	Staging improvements	<i>If multilane is required in the design year evaluate whether or not a single-lane will be adequate through the base plan 10 years. If so, construct as a single lane which allows for future expansion to a multilane footprint without reconstruction.</i>
8	<input type="checkbox"/>	<input type="checkbox"/>	Finalize concept layout	<i>Prepare a concept layout of the proposed roundabout. May be CAD or hand drawn, but should be to scale. Should show central island, splitter islands, sidewalks, crosswalks and truck apron. Note or list dimensions for ICD, circulatory roadway width, truck apron widths, angles between approach centerlines. Will be helpful to include preliminary striping for multilane roundabouts. Show scale and North arrow.</i>

5. Design - Other information - required for concept report

1	<input type="checkbox"/>	<input type="checkbox"/>	Typical section	<i>Required for concept reports.</i>
2	<input type="checkbox"/>	<input type="checkbox"/>	Construction sequencing	<i>Briefly describe expected staging for construction, e.g. built under traffic, off-site detour, new location...</i>
3	<input type="checkbox"/>	<input type="checkbox"/>	Lighting	<i>Include in cost estimate. Define if need is to address high speeds on approaches, pedestrian activity and if approaches are lighted.</i>
4	<input type="checkbox"/>	<input type="checkbox"/>	Landscaping requirements	<i>Include in cost estimate. Will normally be required. This is particularly the case for high speed approaches to enhance visibility of the roundabout from a distance.</i>
5	<input type="checkbox"/>	<input type="checkbox"/>	Pavement Type	<i>Will normally match major road pavement. Asphalt commonly provides for easier staging for construction at existing intersections.</i>

6. Design - Implement program of local government coordination and public involvement

1	<input type="checkbox"/>	<input type="checkbox"/>	Presentation layouts	<i>Prepare exhibits for meetings.</i>
2	<input type="checkbox"/>	<input type="checkbox"/>	Meeting with local officials	<i>An initial meeting with local government officials (and their support of the roundabout) will be helpful in gaining support at a PIOH.</i>
3	<input type="checkbox"/>	<input type="checkbox"/>	Public outreach	<i>Required in most cases, often in the form of a PIOH. See DPM Section 8.2.5 Public Involvement for helpful advice regarding visual aids. This should occur after the feasibility study is complete.</i>

PI Number: <u>231630</u>	County: <u>Newton</u>
Design Phase Leader: <u>Foster Grimes</u>	Design Office: <u>District 2 Design - Tennille</u>
Description: <u>State Route 12/US 278 from CR 653/Covington Bypass East to State Route 142</u>	

No.	Completed	Action By	Item	Commentary <small>(Can modify text to replace with project specific info, will show in bold letters.)</small>
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7. Complete quality assurance reviews - occurs at various points in the process

1	<input type="checkbox"/>	<input type="checkbox"/>	QA review by design process	Feasibility studies should be reviewed within the originating design office, in accordance with the Department's QC/QA manual (located on ROADS).
2	<input type="checkbox"/>	<input type="checkbox"/>	Informal review by GDOT roundabout SME	Upon request, a GDOT SME will, (prior to peer review), perform an informal review of a feasibility study or any in-progress work products. Contact either Scott Zehngraff (szehngraff@dot.ga.gov) of the Office of Traffic Operations or Daniel Pass (dpass@dot.ga.gov) of the Office of Design Policy and Support.
3	<input type="checkbox"/>	<input type="checkbox"/>	Peer Review by Consultant peer reviewer	See Daniel Pass for a list of approved roundabout peer reviewers and a scope of work for a peer review task order. Peer review can be accomplished either in discrete events or incrementally from start of concept to letting. Should be completed prior to the concept team meeting where a complex roundabout is proposed. See DPM Section 8.2.3. Review of Feasibility Studies.

Notes:

- 1) Key objectives during concept development includes identifying the best solution that addresses the project need and defining a layout which best considers geometric, operational and other project-specific constraints. Defining an "accurate" footprint is particularly important for projects with significant site constraints and for roundabouts of greater complexity (complex roundabouts). Complex roundabouts include multilane roundabouts and single land roundabouts which addresses difficult conditions such as bad skews or significant geometric or operational constraints.
- 2) It should be recognized that unlike conventional intersection forms (e.g., signalization, stop control, etc.) the configuration and layout of a roundabout can be dramatically affected by the results of capacity, fastest path, and truck turning template studies and thus often requires higher level of engineering during the concept phase.
- 3) Include a completed checklist with the submittal package to the peer reviewer and with submission of the concept report for review and approval. Any peer review recommended changes not implemented must be coordinated with the peer reviewer and/or the Office of Design Policy and Support. The peer review report should also be included in the concept report if any recommended changes are to be made after concept development. At minimum, make all changes which affect impacts, cost, required R/W, basic operation of the roundabout leg, elimination of a bypass lane, etc. prior to submitting the concept report for review and approval.

List of Acronyms:

- SME - Subject Matter Expert
- DPM - Design Policy Manual
- ICD - Inscribed Diameter
- TPAS - Traffic Polling and Analysis System

18228-0221

DATE
10/11/11

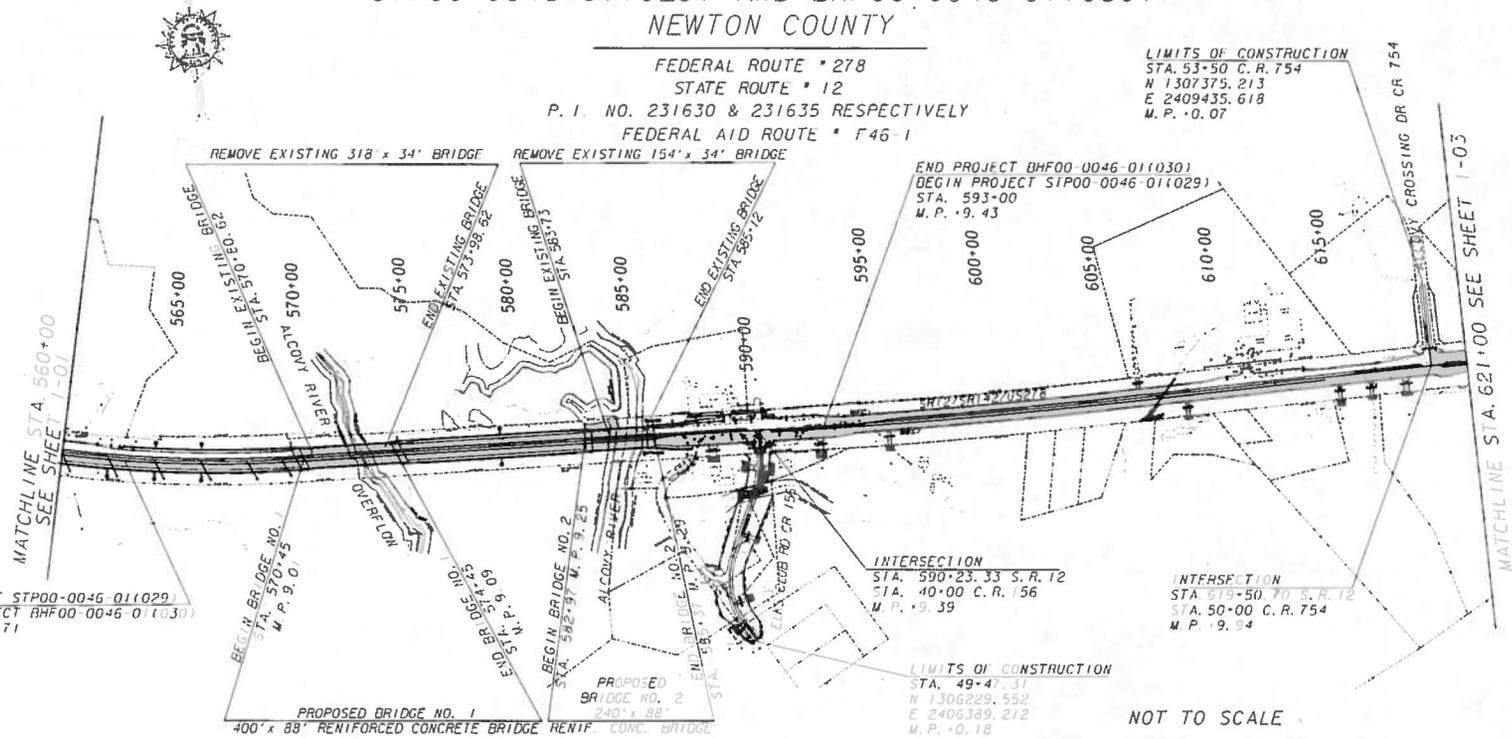
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GA	STP00-0046-01(029) & BHF00-0046-01(030)		

DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA

PLAN AND PROFILE OF PROPOSED
WIDENING OF S.R.12/U.S.278 FROM WEST OF MILL
STREET TO EAST OF S.R.142
BRIDGE REPLACEMENT ON S.R.12 OVER THE
ALCOVY RIVER AND OVERFLOW
FEDERAL AID PROJECT
STP00-0046-01(029) AND BHF00-0046-01(030)
NEWTON COUNTY

FEDERAL ROUTE * 278
STATE ROUTE * 12
P. I. NO. 231630 & 231635 RESPECTIVELY
FEDERAL AID ROUTE * F46-1

LIMITS OF CONSTRUCTION
STA. 53+50 C. R. 754
N 1307375.213
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M. P. +0.07



END PROJECT STP00-0046-01(029)
BEGIN PROJECT BHF00-0046-01(030)
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END PROJECT BHF00-0046-01(030)
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INTERSECTION
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STA. 40+00 C. R. 156
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INTERSECTION
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LIMITS OF CONSTRUCTION
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NOT TO SCALE

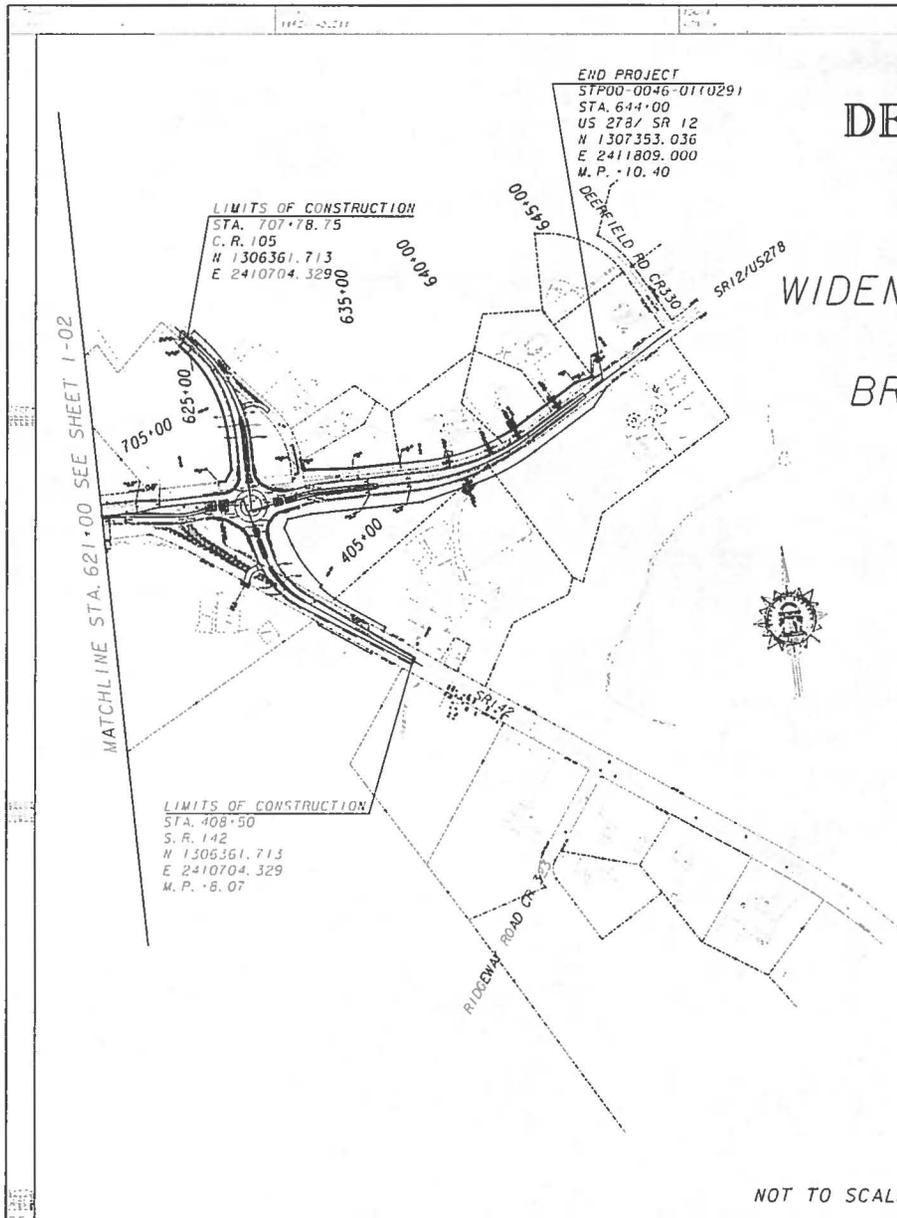
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DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA

PLAN AND PROFILE OF PROPOSED
WIDENING OF S.R.12/U.S.278 FROM WEST OF MILL
STREET TO EAST OF S.R.142
BRIDGE REPLACEMENT ON S.R.12 OVER THE
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FEDERAL AID PROJECT
STP00-0046-01(029) AND BHF00-0046-01(030)
NEWTON COUNTY

FEDERAL ROUTE * 278
STATE ROUTE * 12
P. I. NO. 231630 & 231635 RESPECTIVELY
FEDERAL AID ROUTE * F46-1



NOT TO SCALE

ACCIDENT RATE CALCULATION for year(s) 2006,2007,2008

Year	County	Rt Type	Route Num	Low Milelog	High Milelog	ADT	Distance	Vehicle Miles
2006	Newton	1	001200	7.98	8.56	16,430	0.58	9,529
2006	Newton	1	001200	8.56	10	14,970	1.44	21,557
2006	Newton	1	001200	10	10.40	4,000	0.40	1,600

Total Vehicle Miles: 32,686	Total Accidents: 33	Accident Rate: 277
Average ADT: 13,507	Total Injuries: 19	Injury Rate: 159
Length in Miles: 2.42	Total Fatalities: 1	Fatality Rate: 8.38

NOTE: Rates are per 100 Million Vehicle Miles

Year	County	Rt Type	Route Num	Low Milelog	High Milelog	ADT	Distance	Vehicle Miles
2007	Newton	1	001200	7.98	8.56	17,080	0.58	9,906
2007	Newton	1	001200	8.56	10	15,820	1.44	22,781
2007	Newton	1	001200	10	10.40	4,270	0.40	1,708

Total Vehicle Miles: 34,395	Total Accidents: 36	Accident Rate: 287
Average ADT: 14,213	Total Injuries: 22	Injury Rate: 175
Length in Miles: 2.42	Total Fatalities: 0	Fatality Rate: 0.00

NOTE: Rates are per 100 Million Vehicle Miles

Year	County	Rt Type	Route Num	Low Milelog	High Milelog	ADT	Distance	Vehicle Miles
2008	Newton	1	001200	7.98	8.56	17,080	0.58	9,906
2008	Newton	1	001200	8.56	10	15,820	1.44	22,781
2008	Newton	1	001200	10	10.40	4,270	0.40	1,708

Total Vehicle Miles: 34,395	Total Accidents: 25	Accident Rate: 199
Average ADT: 14,213	Total Injuries: 15	Injury Rate: 119
Length in Miles: 2.42	Total Fatalities: 1	Fatality Rate: 7.97

NOTE: Rates are per 100 Million Vehicle Miles

Analysis Report 1

Total Accidents: 94 Total Vehicles: 171 Total Injuries: 56 Total Fatalities: 2

Accident Analysis Report 1

AccidentId	Date	Time	County	Rt TP	Rt No	Mile	IntRt TP	InterRt	Ramp	Inj	Fatal	Collision	Loc Impact	Harmful Event	Light	Surf	D1	D2	VMI	VM2
63130134	08/14/2006	03:59:PM	Newton	State	001200	8.00				0	0	3-Rear End	1-On Roadway	11-Motor Vehicle in	1-Daylight	Dry	E	E	05	04
62240177	06/17/2006	09:23:PM	Newton	State	001200	8.07	3	089401		0	0	6-Not A Collision	1-On Roadway	09-Animal	5-Dark-Not Lighte	Dry	W		05	
62410544	07/03/2006	11:40:PM	Newton	State	001200	8.07	3	089401		0	0	6-Not A Collision	1-On Roadway	27-Culvert	5-Dark-Not Lighte	Dry	S		02	
62290095	03/03/2006	08:06:AM	Newton	State	001200	8.23				0	0	3-Rear End	1-On Roadway	11-Motor Vehicle in	1-Daylight	Dry	W	W	05	04
60780374	02/20/2006	08:30:AM	Newton	State	001200	8.35				0	0	3-Rear End	1-On Roadway	11-Motor Vehicle in	1-Daylight	Wet	W	W	05	05
65660085	12/21/2006	04:56:AM	Newton	State	001200	8.59	2	057300		1	0	4-Sideswipe - Sam	1-On Roadway	11-Motor Vehicle in	5-Dark-Not Lighte	Dry	N	E	09	01
60190117	01/21/2006	12:38:PM	Newton	State	001200	8.63	2	057300		2	0	3-Rear End	1-On Roadway	11-Motor Vehicle in	1-Daylight	Wet	E	E	05	04
65410291	12/03/2006	02:38:AM	Newton	State	001200	8.76				1	0	6-Not A Collision	3-Off Roadway	33-Tree	5-Dark-Not Lighte	Dry	W		05	
61750700	04/15/2006	04:56:PM	Newton	State	001200	8.80				0	0	3-Rear End	1-On Roadway	11-Motor Vehicle in	1-Daylight	Dry	E	E	05	01
65400412	10/20/2006	03:27:PM	Newton	State	001200	8.80				0	0	3-Rear End	1-On Roadway	11-Motor Vehicle in	1-Daylight	Dry	E	E	05	04
62290058	03/13/2006	02:25:PM	Newton	State	001200	9.28				0	0	3-Rear End	1-On Roadway	11-Motor Vehicle in	1-Daylight	Dry	W	W	05	04
60780390	02/16/2006	11:20:AM	Newton	State	001200	9.30	2	015600		1	0	1-Angle	1-On Roadway	11-Motor Vehicle in	1-Daylight	Dry	N	E	01	05
60190109	01/19/2006	07:50:AM	Newton	State	001200	9.30	2	015600		2	0	1-Angle	1-On Roadway	11-Motor Vehicle in	1-Daylight	Dry	N	E	01	05
65410287	12/04/2006	06:13:PM	Newton	State	001200	9.30	2	015600		0	0	1-Angle	1-On Roadway	11-Motor Vehicle in	5-Dark-Not Lighte	Dry	N	E	01	05
65410004	12/16/2006	07:06:PM	Newton	State	001200	9.30	2	015600		0	0	3-Rear End	1-On Roadway	11-Motor Vehicle in	5-Dark-Not Lighte	Wet	W	W	05	01
62990274	03/24/2006	12:34:PM	Newton	State	001200	9.30	2	015600		0	0	4-Sideswipe - Sam	1-On Roadway	11-Motor Vehicle in	1-Daylight	Dry	N	S	10	10
60190524	02/02/2006	06:24:PM	Newton	State	001200	9.30	2	015600		3	0	1-Angle	1-On Roadway	11-Motor Vehicle in	2-Dusk	Wet	N	E	01	05
63200192	07/26/2006	04:37:AM	Newton	State	001200	9.30	2	015600		1	0	6-Not A Collision	3-Off Roadway	29-Ditch	5-Dark-Not Lighte	Dry	N		01	
60680005	01/19/2006	07:50:AM	Newton	State	001200	9.30	2	015600		1	1	1-Angle	1-On Roadway	11-Motor Vehicle in	1-Daylight	Dry	N	E	01	05
60780439	02/05/2006	07:14:PM	Newton	State	001200	9.60				0	0	1-Angle	2-On Shoulder	11-Motor Vehicle in	2-Dusk	Dry	N	W	01	05
61780203	04/02/2006	12:45:PM	Newton	State	001200	9.82				0	0	1-Angle	1-On Roadway	11-Motor Vehicle in	1-Daylight	Dry	E	W	12	05
65400352	11/02/2006	08:12:PM	Newton	State	001200	9.87	2	075400		0	0	3-Rear End	1-On Roadway	11-Motor Vehicle in	5-Dark-Not Lighte	Dry	E	E	05	01
64430172	11/09/2006	01:18:AM	Newton	State	001200	9.92	2	075400		2	0	3-Rear End	1-On Roadway	11-Motor Vehicle in	5-Dark-Not Lighte	Dry	E	E	05	05
64430173	11/09/2006	01:19:AM	Newton	State	001200	9.92	2	075400		4	0	2-Head On	1-On Roadway	11-Motor Vehicle in	5-Dark-Not Lighte	Dry	E	W	04	05
65410295	12/02/2006	07:19:PM	Newton	State	001200	9.98				0	0	6-Not A Collision	4-Median	14-Deer	1-Daylight	Dry	E		05	
60060241	01/09/2006	06:12:PM	Newton	State	001200	10.00	1	014200		1	0	3-Rear End	1-On Roadway	11-Motor Vehicle in	3-Dawn	Dry	S	S	05	04

5-Dark-

Accident Analysis Report 1

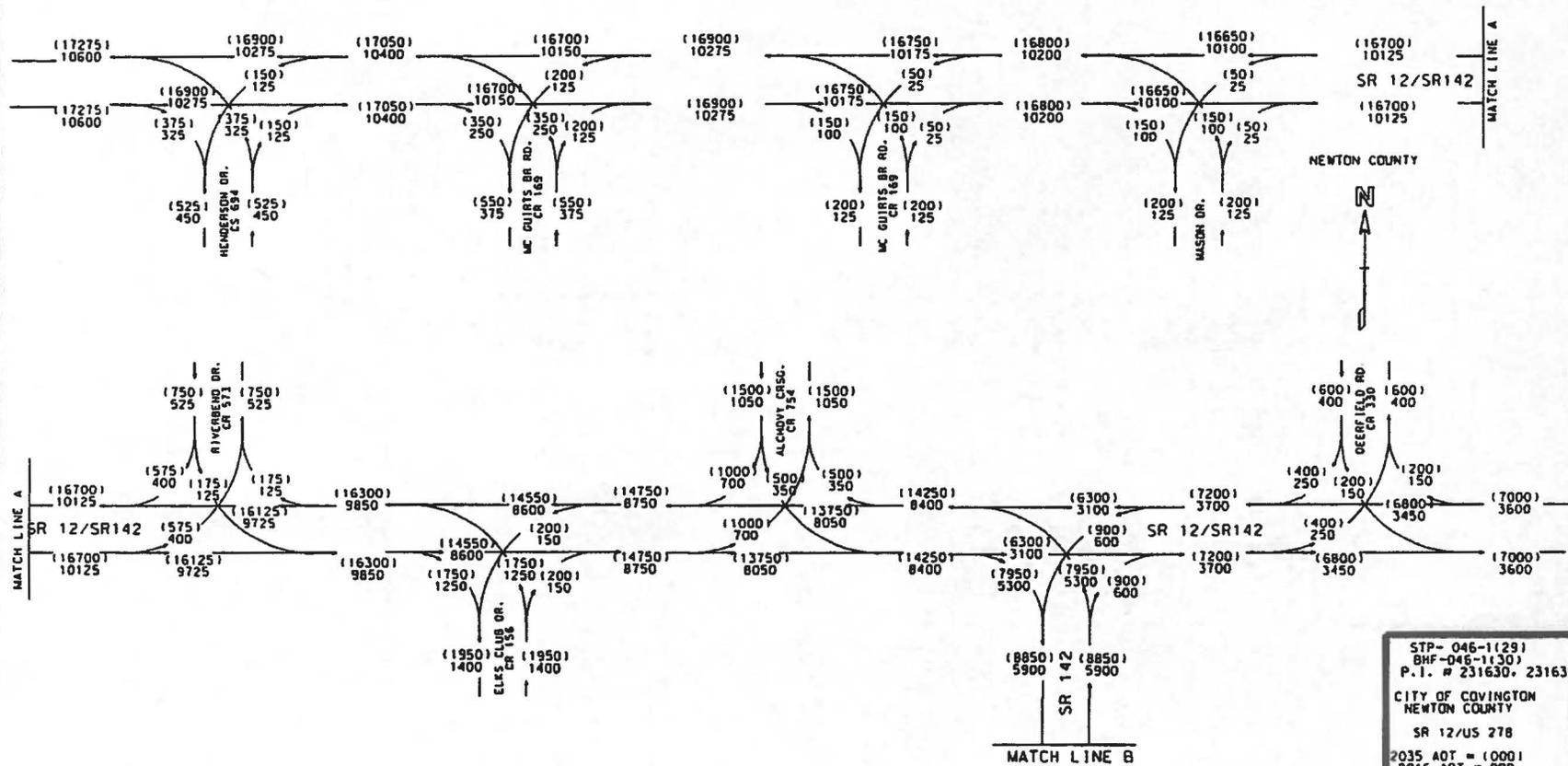
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60380375	01/04/2006	11:46:AM	Newton	State	001200	10.00	1	014200		0	0	1-Angle	1-On Roadway	11-Motor Vehicle in	1-Daylight	Dry	N	W	01	05
60780361	02/22/2006	03:31:PM	Newton	State	001200	10.40				0	0	3-Rear End	1-On Roadway	11-Motor Vehicle in	1-Daylight	Wet	W	W	05	01
73480523	07/10/2007	10:03:AM	Newton	State	001200	8.01				1	0	1-Angle	1-On Roadway	11-Motor Vehicle in	1-Daylight	Dry	N	N	01	05
71590113	01/03/2007	12:27:PM	Newton	State	001200	8.04				1	0	3-Rear End	1-On Roadway	11-Motor Vehicle in	1-Daylight	Dry	E	E	05	04
73480624	06/08/2007	09:05:AM	Newton	State	001200	8.04				1	0	3-Rear End	1-On Roadway	11-Motor Vehicle in	1-Daylight	Dry	W	W	05	04
71540599	02/12/2007	06:50:PM	Newton	State	001200	8.04				0	0	6-Not A Collision	1-On Roadway	14-Deer	5-Dark-Not Lighte	Dry	E		05	
74920138	03/12/2007	05:25:PM	Newton	State	001200	8.05				0	0	3-Rear End	1-On Roadway	11-Motor Vehicle in	1-Daylight	Dry	E	E	05	04
71510277	03/12/2007	04:43:PM	Newton	State	001200	8.05				0	0	3-Rear End	1-On Roadway	11-Motor Vehicle in	1-Daylight	Dry	W	W	05	04
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75880087	11/16/2007	03:59:PM	Newton	State	001200	8.25				0	0	3-Rear End	1-On Roadway	11-Motor Vehicle in	1-Daylight	Dry	E	E	05	04
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74250417	10/04/2007	08:57:AM	Newton	State	001200	8.59	2	057300		2	0	2-Head On	1-On Roadway	11-Motor Vehicle in	1-Daylight	Wet	E	E	05	04
76090264	10/02/2007	11:38:AM	Newton	State	001200	8.59	2	057300		0	0	3-Rear End	1-On Roadway	11-Motor Vehicle in	1-Daylight	Dry	W	W	05	04
74400112	09/08/2007	02:32:PM	Newton	State	001200	8.77				0	0	6-Not A Collision	1-On Roadway	14-Deer	1-Daylight	Dry	E		05	
76090246	10/07/2007	05:08:PM	Newton	State	001200	8.92				0	0	3-Rear End	1-On Roadway	11-Motor Vehicle in	1-Daylight	Dry	W	W	05	05
73480487	07/19/2007	06:49:AM	Newton	State	001200	9.25				0	0	6-Not A Collision	1-On Roadway	05-Other Non-Collis	3-Dawn	Dry	W		05	
73420340	07/28/2007	10:47:AM	Newton	State	001200	9.26	2	015600		1	0	6-Not A Collision	1-On Roadway	11-Motor Vehicle in	1-Daylight	Dry	W		05	
71510221	03/23/2007	07:45:PM	Newton	State	001200	9.26	2	015600		0	0	3-Rear End	1-On Roadway	11-Motor Vehicle in	1-Daylight	Dry	W	N	05	05
71540596	02/12/2007	07:00:PM	Newton	State	001200	9.26	2	015600		0	0	6-Not A Collision	1-On Roadway	14-Deer	5-Dark-Not Lighte	Dry	E		05	
72320415	05/06/2007	11:04:PM	Newton	State	001200	9.26	2	015600		0	0	1-Angle	1-On Roadway	11-Motor Vehicle in	5-Dark-Not Lighte	Dry	N	E	01	05
75880258	11/03/2007	01:34:PM	Newton	State	001200	9.26	2	015600		0	0	6-Not A Collision	1-On Roadway	14-Deer	5-Dark-Not Lighte	Dry	E		05	
74060205	08/09/2007	08:02:AM	Newton	State	001200	9.35				0	0	3-Rear End	1-On Roadway	11-Motor Vehicle in	1-Daylight	Dry	W	W	05	04
71540498	02/28/2007	06:51:PM	Newton	State	001200	9.86				1	0	3-Rear End	1-On Roadway	11-Motor Vehicle in	2-Dusk	Dry	E	E	05	05
71590061	01/12/2007	05:11:PM	Newton	State	001200	9.87	2	075400		0	0	6-Not A Collision	1-On Roadway	14-Deer	1-Daylight	Dry	E		05	
73480603	06/15/2007	10:50:AM	Newton	State	001200	9.87	2	075400		0	0	3-Rear End	1-On Roadway	11-Motor Vehicle in	1-Daylight	Wet	E	E	05	04

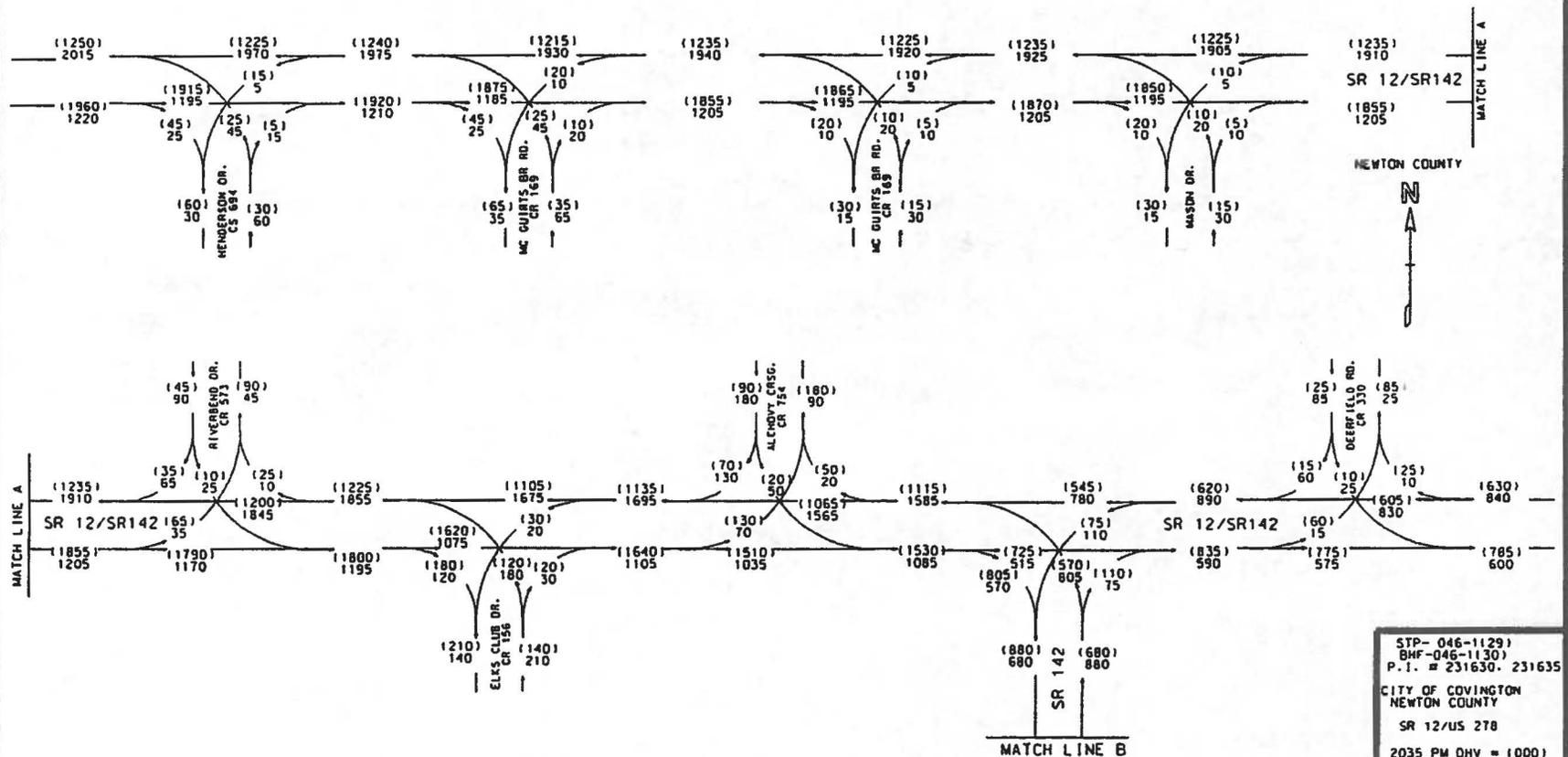
Accident Analysis Report 1

AccidentId	Date	Time	County	Rt TP	Rt No	Mile	IntRt TP	InterRt	Ramp	Inj	Fatal	Collision	Loc Impact	Harmful Event	Light	Surf	D1	D2	VM1	VM2
71510239	03/20/2007	08:14:AM	Newton	State	001200	9.87	2	075400		0	0	3-Rear End	1-On Roadway	11-Motor Vehicle in	1-Daylight	Dry	S	S	05	04
71270191	04/10/2007	04:46:PM	Newton	State	001200	9.92	2	075400		0	0	3-Rear End	1-On Roadway	11-Motor Vehicle in	1-Daylight	Dry	E	E	05	04
70550228	03/01/2007	07:20:PM	Newton	State	001200	9.96	1	014200		5	0	1-Angle	1-On Roadway	11-Motor Vehicle in	5-Dark-Not Lighte	Wet	N	W	01	05
72980180	07/10/2007	10:26:PM	Newton	State	001200	9.96	1	014200		0	0	3-Rear End	1-On Roadway	11-Motor Vehicle in	4-Dark-Lighted	Dry	N	N	02	02
73320335	08/04/2007	05:16:PM	Newton	State	001200	9.96	1	014200		0	0	3-Rear End	1-On Roadway	11-Motor Vehicle in	1-Daylight	Dry	N	N	02	02
73480514	07/12/2007	03:51:PM	Newton	State	001200	9.96	1	014200		0	0	3-Rear End	1-On Roadway	11-Motor Vehicle in	1-Daylight	Dry	N	N	05	04
71610276	04/21/2007	06:44:PM	Newton	State	001200	9.96	1	014200		0	0	2-Head On	1-On Roadway	11-Motor Vehicle in	1-Daylight	Dry	N	S	01	05
74400021	09/27/2007	08:06:AM	Newton	State	001200	9.96	1	014200		0	0	3-Rear End	1-On Roadway	11-Motor Vehicle in	1-Daylight	Dry	W	W	05	05
74060140	08/24/2007	10:36:PM	Newton	State	001200	9.96	1	014200		4	0	1-Angle	1-On Roadway	11-Motor Vehicle in	5-Dark-Not Lighte	Wet	W	E	01	05
73320312	07/31/2007	08:40:PM	Newton	State	001200	9.98				1	0	6-Not A Collision	1-On Roadway	06-Pedestrian	1-Daylight	Dry	E			05
72410475	06/08/2007	03:27:PM	Newton	State	001200	10.06	2	103500		3	0	3-Rear End	1-On Roadway	11-Motor Vehicle in	1-Daylight	Dry	E	E	05	04
71540519	02/25/2007	09:59:PM	Newton	State	001200	10.26				0	0	6-Not A Collision	3-Off Roadway	29-Ditch	5-Dark-Not Lighte	Dry	E			10
85390485	12/22/2008	12:36:PM	Newton	State	001200	8.04				0	0	3-Rear End	1-On Roadway	11-Motor Vehicle in	1-Daylight	Dry	W	W	05	04
84630455	11/09/2008	12:00:PM	Newton	State	001200	8.05				0	0	6-Not A Collision	1-On Roadway	14-Deer	1-Daylight	Dry	W			05
83190172	07/18/2008	11:25:PM	Newton	State	001200	8.05	2	045700		0	0	6-Not A Collision	1-On Roadway	09-Animal	5-Dark-Not Lighte	Dry	E			05
82540087	06/24/2008	05:45:PM	Newton	State	001200	8.06				0	0	6-Not A Collision	3-Off Roadway	33-Tree	1-Daylight	Dry	E			05
82540127	06/15/2008	07:28:PM	Newton	State	001200	8.56	2	016900		2	0	3-Rear End	1-On Roadway	11-Motor Vehicle in	1-Daylight	Dry	E	E	05	04
80300121	01/09/2008	11:30:AM	Newton	State	001200	8.58				0	0	3-Rear End	1-On Roadway	11-Motor Vehicle in	1-Daylight	Dry	S	S	05	04
84470079	10/25/2008	11:35:PM	Newton	State	001200	8.87				1	0	6-Not A Collision	2-On Shoulder	20-Guardrail End	5-Dark-Not Lighte	Dry	E			05
83110230	07/18/2008	05:31:PM	Newton	State	001200	9.01				0	0	3-Rear End	1-On Roadway	11-Motor Vehicle in	1-Daylight	Dry	E	E	05	04
82060396	05/23/2008	04:25:PM	Newton	State	001200	9.24				0	0	3-Rear End	1-On Roadway	11-Motor Vehicle in	1-Daylight	Wet	W	W	05	04
82330543	06/01/2008	09:20:PM	Newton	State	001200	9.25				0	0	6-Not A Collision	1-On Roadway	14-Deer	2-Dusk	Dry	E			05
83330399	08/25/2008	04:50:PM	Newton	State	001200	9.25				0	0	3-Rear End	1-On Roadway	11-Motor Vehicle in	1-Daylight	Wet	E	E	05	05
83330398	08/25/2008	03:50:PM	Newton	State	001200	9.25				0	0	3-Rear End	1-On Roadway	11-Motor Vehicle in	1-Daylight	Wet	E	E	05	05
81270121	03/04/2008	07:43:PM	Newton	State	001200	9.46				0	0	6-Not A Collision	1-On Roadway	14-Deer	5-Dark-Not Lighte	Dry	W			05
82060445	05/15/2008	07:54:AM	Newton	State	001200	9.87	2	075400		0	0	1-Angle	1-On Roadway	11-Motor Vehicle in	1-Daylight	Dry	W	W	02	05
84230332	10/11/2008	11:30:AM	Newton	State	001200	9.87	2	075400		1	0	3-Rear End	1-On Roadway	11-Motor Vehicle in	1-Daylight	Dry	E	E	05	04
85470094	12/26/2008	06:51:PM	Newton	State	001200	9.87	2	075400		3	1	1-Angle	1-On Roadway	11-Motor Vehicle in	4-Dark-Lighted	Dry	S	W	01	05
83890379	09/20/2008	06:45:PM	Newton	State	001200	9.91				0	0	1-Angle	1-On Roadway	11-Motor Vehicle in	1-Daylight	Dry	E	E	04	05
84150098	09/30/2008	12:06:PM	Newton	State	001200	9.96	1	014200		0	0	3-Rear End	1-On Roadway	11-Motor Vehicle in	1-Daylight	Dry	N	N	05	04
80590040	02/28/2008	10:21:AM	Newton	State	001200	9.96	1	014200		2	0	2-Head On	1-On Roadway	11-Motor Vehicle in	1-Daylight	Dry	W	E	01	05

Accident Analysis Report 1

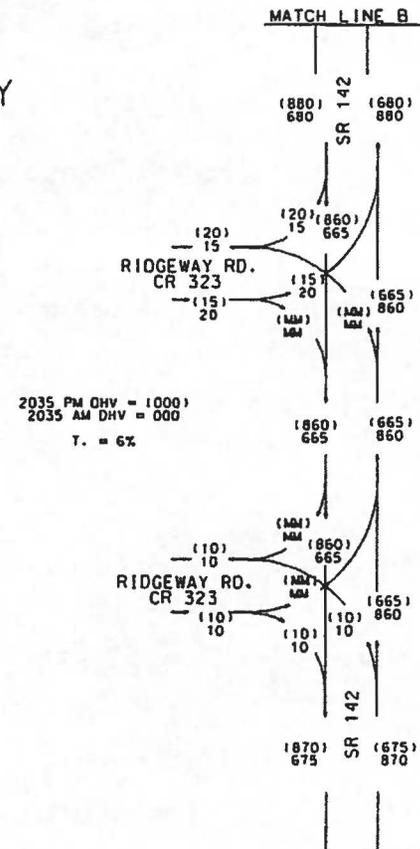
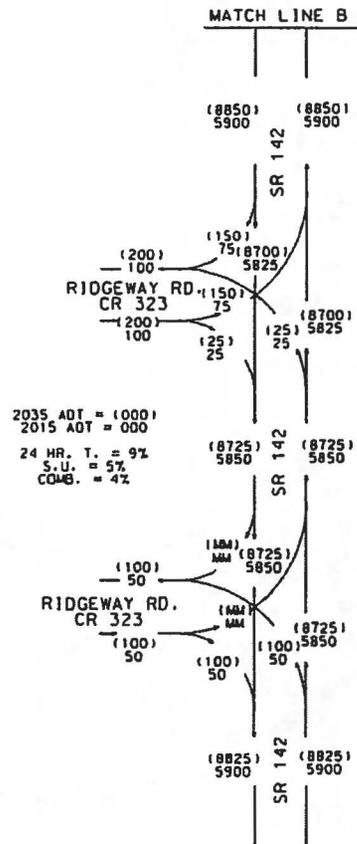
AccidentId	Date	Time	County	Rt TP	Rt No	Mile	IntRt TP	InterRt	Ramp	Inj	Fatal	Collision	Loc Impact	Harmful Event	Light	Surf	D1	D2	VM1	VM2
<u>83110255</u>	07/12/2008	05:13:PM	Newton	State	001200	9.96	1	014200		0	0	1-Angle	1-On Roadway	11-Motor Vehicle in	1-Daylight	Dry	N	N	05	04
<u>80350250</u>	01/18/2008	12:01:AM	Newton	State	001200	10.16				0	0	6-Not A Collision	3-Off Roadway	22-Highway Traffic	1-Daylight	Dry	E		10	
<u>82130416</u>	05/26/2008	07:02:AM	Newton	State	001200	10.20				1	0	6-Not A Collision	3-Off Roadway	29-Ditch	1-Daylight	Dry	W		10	
<u>80790420</u>	02/22/2008	03:58:PM	Newton	State	001200	10.26				1	0	1-Angle	3-Off Roadway	11-Motor Vehicle in	1-Daylight	Wet	W	E	10	05
<u>84780504</u>	11/18/2008	10:33:PM	Newton	State	001200	10.40				1	0	6-Not A Collision	1-On Roadway	14-Deer	5-Dark-Not Lighte	Dry	W		05	
<u>83130133</u>	08/20/2008	08:02:PM	Newton	State	001200	10.40	2	033000		3	0	1-Angle	1-On Roadway	11-Motor Vehicle in	4-Dark-Lighted	Dry	N	W	01	05





STP-046-1129)
BHP-046-1130)
P.I. = 231630, 231635
CITY OF COVINGTON
NEWTON COUNTY
SR 12/US 278
2035 PM DHV = 1000
2035 AM DHV = 000
T. = 6%
RFN
06/10

NEWTON COUNTY



STP-046-11291
BHF-046-11301
P.L. # 231630, 231635
CITY OF COVINGTON
NEWTON COUNTY
SR 12/US 278
RFN
08/10

Welcome to GDOT's Roundabout Analysis Tool. This tool is designed for the user to determine the functionality of a proposed roundabout. The analysis is based on NCHRP Report 572 and the FHWA's Roundabout Design Guide (2000) standards. Please read the notes in the [Instructions](#) tab before using the spreadsheet.

Analyst:	Foster Grimes
Agency/Company:	District 2 Design
Date:	7/26/2011
Project Name or PI#:	231630 & 231635
Year, Peak Period:	2015 - AM
County/District:	Newton County District 2
Intersection:	SR 12 at SR 142

Insert Project Information Here in the BLUE SPACE. This information is linked to the Single Lane and Multi Lane Worksheets.

Roundabout Considerations Worksheet

Roundabouts may not operate well if there is too much traffic entering the intersection or if the percentage of traffic on the major road is too high. Candidate intersections shall be analyzed to determine whether a roundabout will perform acceptably. Shown below are thresholds to determine if a roundabout capacity analysis is required:

# of circulatory lanes	ADTs (current/ build year)	% traffic on Major Road
Single Lane	less than 25,000	less than 90%
Multi-Lane	less than 45,000	less than 90%

Other things to consider when evaluating roundabouts as an alternative are Right of Way, sight distance, environmental impacts, and access to adjacent properties.

Volume Information (for Analysis Time Period)

1 Enter the Major/Minor Street ADT Volumes in the Chart below:

	Volumes	Split
Major Street	21,250	69%
Minor Street	9,450	31%
Total volumes	30,700	

Proximity to Other Intersections

2 How close is the nearest signal (miles or feet)?

3 Is the proposed intersection located within a coordinated signal network?

Go up to next section...

Proposed Design Configuration Chart

Directions for this Section only: (see Instructions Tab for other sections)

1. **Select** the type of roundabout you are analyzing.
2. **Key in** the number of approaches and the street names at the proposed intersections.
3. Complete the Approach Characteristics Chart:
 - a. **Select** the Street Name from the pulldown menu for each approach leg
 - b. **Select** the Lane Type for each entry approach lane
 *The first box is the inner lane, the second box is the outer lane
 - c. **Select** Yes or No if a right turn bypass will be added to each approach leg

Roundabout Characteristics

Roundabout Type:

of Approaches:

Name of Streets:

Chart Key:

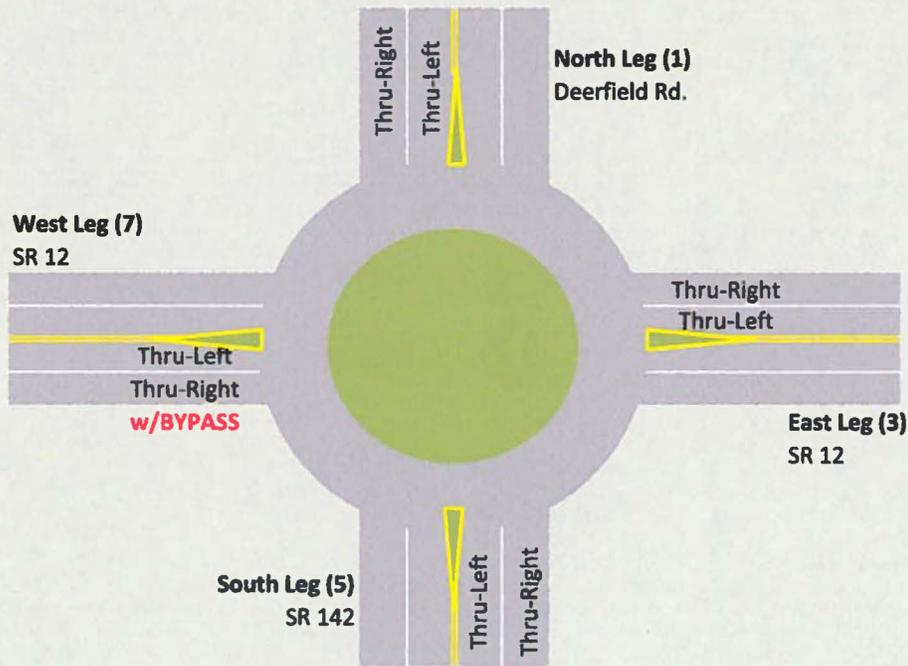
Single Lane	Street Name	
	All	
	Bypass?	
Multi-lane	Street Name	
	Inner Ln	Outer Ln
	Bypass?	

Approach Leg Characteristics:

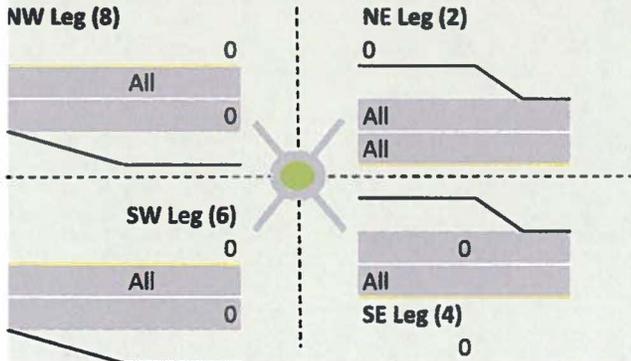
	North Leg (1)		NE Leg (2)		East Leg (3)		SE Leg (4)	
Street Name:	Deerfield Rd.				SR 12			
Entry Lane Config	Thru-Left	Thru-Right	All	All	Thru-Left	Thru-Right	All	
Bypass to Adj Leg?								
	South Leg (5)		SW Leg (6)		West Leg (7)		NW Leg (8)	
Street Name:	SR 142				SR 12			
Entry Lane Config	Thru-Left	Thru-Right	All		Thru-Left	Thru-Right	All	
Bypass to Adj Leg?					Yes			

Additior

Preliminary Roundabout Rendering**



Cardinal Legs



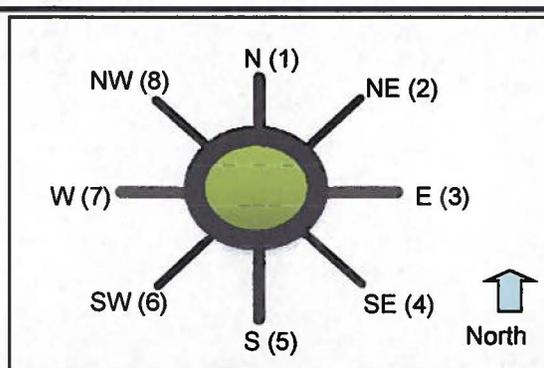
****Note**

This roundabout sketch does not include the secondary cardinal direction legs due to restrictions in the Excel software. For complex roundabouts, a separate sketch is recommended by the designer.

Roundabout Analysis Tool
Multi-Lane

8/2/2011
Version 1.3

General & Site Information	
Analyst:	Foster Grimes
Agency/Company:	District 2 Design
Date:	7/26/2011
Project Name or PI#:	231630 & 231635
Year, Peak Hour:	2015 - AM
County/District:	Newton County District 2
Intersection:	SR 12 at SR 142



Volumes Entry Legs (FROM)

	N1 (1)	N2 (1)	NE1 (2)	NE2 (2)	E1 (3)	E2 (3)	SE1 (4)	SE2 (4)
N (1), vph						8		
Exit NE (2), vph								
Legs (TO) E (3), vph	19							
SE (4), vph								
S (5), vph					73			
SW (6), vph								
W (7), vph		38			159	224		
NW (8), vph								
Entry Volume, vph	19	38	0	0	232	232	0	0
	S1 (5)	S2 (5)	SW1 (6)	SW2 (6)	W1 (7)	W2 (7)	NW1 (8)	NW2 (8)
N (1), vph					9			
NE (2), vph								
E (3), vph		50			253			
SE (4), vph								
S (5), vph					59			
SW (6), vph								
W (7), vph	268	218						
NW (8), vph								
Entry Volume, vph	268	268	0	0	321	0	0	0

Critical Lane Volumes

	N	NE	E	SE	S	SW	W	NW
N (1), vph	0	0	0	0	0	0	9	0
NE (2), vph	0	0	0	0	0	0	0	0
E (3), vph	0	0	0	0	0	0	253	0
SE (4), vph	0	0	0	0	0	0	0	0
S (5), vph	0	0	73	0	0	0	59	0
SW (6), vph	0	0	0	0	0	0	0	0
W (7), vph	38	0	159	0	268	0	0	0
NW (8), vph	0	0	0	0	0	0	0	0
Entry Volume, vph	38	0	232	0	268	0	321	0

No. of Conflict Flow Lanes to	2	2	2	2	2	2	2	2

Roundabout Analysis Tool
Multi-Lane

8/2/2011
Version 1.3

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	100%	100%	91%	100%	91%	100%	91%	100%
% S.U./ Bus	0%	0%	5%	0%	5%	0%	5%	0%
% Trucks/ Combin.	0%	0%	4%	0%	4%	0%	4%	0%
% Bicycles	0%	0%	0%	0%	0%	0%	0%	0%
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
F _{hv}	1.000	1.000	0.939	1.000	0.939	1.000	0.939	1.000

Entry/Conflicting Flows	N	NE	E	SE	S	SW	W	NW
Flow to N (1), pcu/h	0	0	9	0	0	0	10	0
Leg # NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	21	0	0	0	58	0	293	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	0	0	85	0	0	0	68	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	41	0	443	0	563	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Conflicting flow, pcu/h	1090	0	573	0	324	0	105	0

Results: Approach Measures of Effectiveness

NCHRP-572 Model	N	NE	E	SE	S	SW	W	NW
Crit. Entry Capacity pcu/h	527	NA	757	NA	901	NA	1050	NA
Crit. Lane Entry Flow pcu/h	41	0	269	0	310	0	372	0
V/C ratio	0.08		0.35		0.34		0.35	
Control Delay, sec/pcu	7.4		7.4		6.1		5.3	
LOS	A		A		A		A	
95th % Queue (ft)	6		43		41		43	

UK Model**	N	NE	E	SE	S	SW	W	NW
Crit. Entry Capacity pcu/h	1643	NA	2014	NA	2192	NA	2349	NA
Entry Flow pcu/h	62	0	537	0	620	0	372	0
V/C ratio	0.04		0.27		0.28		0.16	
Control Delay, sec/pcu	2.3		2.4		2.3		1.8	
LOS	A		A		A		A	
95th % Queue (ft)	3		29		31		15	

Notes:

Unit Legend:

vph = vehicles per hour
PHF = peak hour factor
F_{HV} = heavy vehicle factor
pcu = passenger car unit

Bypass Lane Merge Point Analysis (if applicable)						
Bypass Characteristics	Bypass #1	Bypass #2	Bypass #3	Bypass #4	Bypass #5	Bypass #6
Select Entry Leg from Bypass (FROM)	W (7)					
Select Exit Leg for Bypass (TO)	S (5)					
Volumes						
Entry Leg: Insert Right Turn Volume	321					
Exit Leg: (Select Input Method)	Default					
Critical Lane Flow (Default) in Exit Leg***	153					
Sum of inner circulatory flow lane to exit leg (leg bypass merges into)	N/A	N/A	N/A	N/A	N/A	N/A
Sum of outer circulatory flow lane to exit leg (leg bypass merges into)	N/A	N/A	N/A	N/A	N/A	N/A
Critical Lane Flow (Manual) in Exit Leg***						
Volume Characteristics						
PHF (Entry Leg)	0.92					
F _{HV} (Entry Leg)	0.94					
PHF (Exit Leg)***	N/A	N/A	N/A	N/A	N/A	N/A
F _{HV} (Exit Leg)***	N/A	N/A	N/A	N/A	N/A	N/A
***Volume Characteristics are already taken into account for Default method ONLY. Insert Values above if Manual method.						
Entry/Conflicting Flows						
Entry Flow	372					
Conflicting Critical Flow	153					
Bypass Lane Results (NCHRP-572 Method)						
Entry Capacity at bypass merge point, pcu/hr	970					
V/C ratio	0.38					
Control Delay, sec/pcu	6.0					
LOS	A					
95th % Queue (ft)	48					

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Agency/Company:	District 2 Design
Date:	7/26/2011
Project Name or PI#:	231630 & 231635
Year, Peak Period:	2015 - PM
County/District:	Newton County District 2
Intersection:	SR 12 at SR 142

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of Approaches:

Name of Streets:

Chart Key:

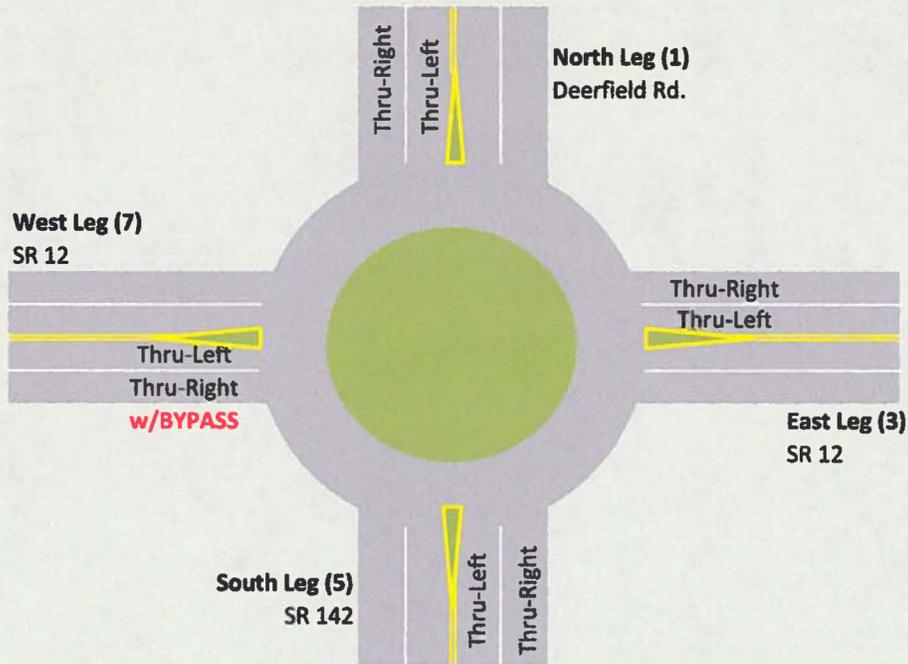
Single Lane	Street Name	
	All	
	Bypass?	
Multi-lane	Street Name	
	Inner Ln	Outer Ln
	Bypass?	

Approach Leg Characteristics:

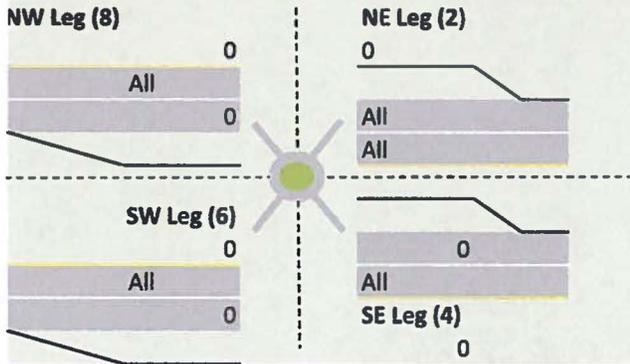
	North Leg (1)		NE Leg (2)		East Leg (3)		SE Leg (4)	
Street Name:	Deerfield Rd.				SR 12			
Entry Lane Config	Thru-Left	Thru-Right	All	All	Thru-Left	Thru-Right	All	
Bypass to Adj Leg?								
	South Leg (5)		SW Leg (6)		West Leg (7)		NW Leg (8)	
Street Name:	SR 142				SR 12			
Entry Lane Config	Thru-Left	Thru-Right	All		Thru-Left	Thru-Right	All	
Bypass to Adj Leg?					Yes			

Additior

Preliminary Roundabout Rendering**



Partial Legs



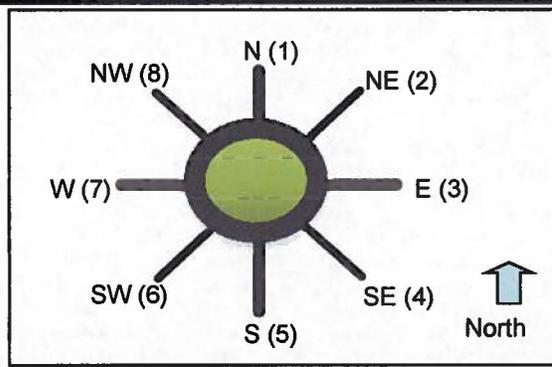
****Note**

This roundabout sketch does not include the secondary cardinal direction legs due to restrictions in the Excel software. For complex roundabouts, a separate sketch is recommended by the designer.

Roundabout Analysis Tool
Multi-Lane

8/2/2011
Version 1.3

General & Site Information	
Analyst:	Foster Grimes
Agency/Company:	District 2 Design
Date:	7/26/2011
Project Name or PI#:	231630 & 231635
Year, Peak Hour:	2015 - PM
County/District:	Newton County District 2
Intersection:	SR 12 at SR 142



	Entry Legs (FROM)							
	N1 (1)	N2 (1)	NE1 (2)	NE2 (2)	E1 (3)	E2 (3)	SE1 (4)	SE2 (4)

N (1), vph						19		
Exit NE (2), vph								
Legs E (3), vph	8							
(TO) SE (4), vph								
S (5), vph					50			
SW (6), vph								
W (7), vph		9			118	150		
NW (8), vph								
Entry Volume, vph	8	9	0	0	168	169	0	0
	S1 (5)	S2 (5)	SW1 (6)	SW2 (6)	W1 (7)	W2 (7)	NW1 (8)	NW2 (8)
N (1), vph					38			
NE (2), vph								
E (3), vph		73			357			
SE (4), vph								
S (5), vph					71			
SW (6), vph								
W (7), vph	227	153						
NW (8), vph								
Entry Volume, vph	227	226	0	0	466	0	0	0

Critical Lane Volumes	N	NE	E	SE	S	SW	W	NW
-----------------------	---	----	---	----	---	----	---	----

N (1), vph	0	0	19	0	0	0	38	0
NE (2), vph	0	0	0	0	0	0	0	0
E (3), vph	0	0	0	0	0	0	357	0
SE (4), vph	0	0	0	0	0	0	0	0
S (5), vph	0	0	0	0	0	0	71	0
SW (6), vph	0	0	0	0	0	0	0	0
W (7), vph	9	0	150	0	227	0	0	0
NW (8), vph	0	0	0	0	0	0	0	0
Entry Volume, vph	9	0	169	0	227	0	466	0

No. of Conflict Flow Lanes to	2	2	2	2	2	2	2	2
-------------------------------	---	---	---	---	---	---	---	---

Roundabout Analysis Tool
Multi-Lane

8/2/2011
Version 1.3

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	100%	100%	91%	100%	91%	100%	91%	100%
% S.U./ Bus	0%	0%	5%	0%	5%	0%	5%	0%
% Trucks/ Combin.	0%	0%	4%	0%	4%	0%	4%	0%
% Bicycles	0%	0%	0%	0%	0%	0%	0%	0%
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
F _{hv}	1.000	1.000	0.939	1.000	0.939	1.000	0.939	1.000

Entry/Conflicting Flows	N	NE	E	SE	S	SW	W	NW
Flow to N (1), pcu/h	0	0	22	0	0	0	44	0
Leg # NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	9	0	0	0	85	0	413	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	0	0	58	0	0	0	82	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	10	0	310	0	440	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Conflicting flow, pcu/h	808	0	484	0	466	0	67	0

Results: Approach Measures of Effectiveness

NCHRP-572 Model	N	NE	E	SE	S	SW	W	NW
Crit. Entry Capacity pcu/h	642	NA	805	NA	816	NA	1079	NA
Crit. Lane Entry Flow pcu/h	10	0	196	0	263	0	539	0
V/C ratio	0.02		0.24		0.32		0.50	
Control Delay, sec/pcu	5.7		5.9		6.5		6.6	
LOS	A		A		A		A	
95th % Queue (ft)	1		25		37		77	

UK Model**	N	NE	E	SE	S	SW	W	NW
Crit. Entry Capacity pcu/h	1846	NA	2078	NA	2090	NA	2376	NA
Entry Flow pcu/h	18	0	390	0	524	0	539	0
V/C ratio	0.01		0.19		0.25		0.23	
Control Delay, sec/pcu	2.0		2.1		2.3		2.0	
LOS	A		A		A		A	
95th % Queue (ft)	1		18		27		23	

Notes:

Unit Legend:

vph = vehicles per hour

PHF = peak hour factor

F_{HV} = heavy vehicle factor

pcu = passenger car unit

Bypass Lane Merge Point Analysis (if applicable)						
Bypass Characteristics	Bypass #1	Bypass #2	Bypass #3	Bypass #4	Bypass #5	Bypass #6
Select Entry Leg from Bypass (FROM)	W (7)					
Select Exit Leg for Bypass (TO)	S (5)					
<i>Volumes</i>						
Entry Leg: Insert Right Turn Volume	446					
Exit Leg: (Select Input Method)	Default					
Critical Lane Flow (Default) in Exit Leg***	93					
Sum of inner circulatory flow lane to exit leg (leg bypass merges into)	N/A	N/A	N/A	N/A	N/A	N/A
Sum of outer circulatory flow lane to exit leg (leg bypass merges into)	N/A	N/A	N/A	N/A	N/A	N/A
Critical Lane Flow (Manual) in Exit Leg***						
<i>Volume Characteristics</i>						
PHF (Entry Leg)	0.92					
F _{HV} (Entry Leg)	0.94					
PHF (Exit Leg)***	N/A	N/A	N/A	N/A	N/A	N/A
F _{HV} (Exit Leg)***	N/A	N/A	N/A	N/A	N/A	N/A
***Volume Characteristics are already taken into account for Default method ONLY. Insert Values above if Manual method.						
<i>Entry/Conflicting Flows</i>						
Entry Flow	516					
Conflicting Critical Flow	93					
Bypass Lane Results (NCHRP-572 Method)						
Entry Capacity at bypass merge point, pcu/hr	1029					
V/C ratio	0.50					
Control Delay, sec/pcu	7.0					
LOS	A					
95th % Queue (ft)	77					

Welcome to GDOT's Roundabout Analysis Tool. This tool is designed for the user to determine the functionality of a proposed roundabout. The analysis is based on NCHRP Report 572 and the FHWA's Roundabout Design Guide (2000) standards. Please read the notes in the [Instructions](#) tab before using the spreadsheet.

Analyst:	Foster Grimes
Agency/Company:	District 2 Design
Date:	7/26/2011
Project Name or PI#:	231630 & 231635
Year, Peak Period:	2035 - AM
County/District:	Newton County District 2
Intersection:	SR 12 at SR 142

Insert Project Information Here in the BLUE SPACE. This information is linked to the Single Lane and Multi Lane Worksheets.

Roundabout Considerations Worksheet

Roundabouts may not operate well if there is too much traffic entering the intersection or if the percentage of traffic on the major road is too high. Candidate intersections shall be analyzed to determine whether a roundabout will perform acceptably. Shown below are thresholds to determine if a roundabout capacity analysis is required:

# of circulatory lanes	ADTs (current/ build year)	% traffic on Major Road
Single Lane	less than 25,000	less than 90%
Multi-Lane	less than 45,000	less than 90%

Other things to consider when evaluating roundabouts as an alternative are Right of Way, sight distance, environmental impacts, and access to adjacent properties.

Volume Information (for Analysis Time Period)

1 Enter the Major/Minor Street ADT Volumes in the Chart below:

	Volumes	Split
Major Street	21,250	69%
Minor Street	9,450	31%
Total volumes	30,700	

Proximity to Other Intersections

2 How close is the nearest signal (miles or feet)?

3 Is the proposed intersection located within a coordinated signal network?

Go up to next section...

→ Proposed Design Configuration Chart

Directions for this Section only: (see Instructions Tab for other sections)

1. **Select** the type of roundabout you are analyzing.
2. **Key in** the number of approaches and the street names at the proposed intersections.
3. Complete the Approach Characteristics Chart:
 - a. **Select** the Street Name from the pulldown menu for each approach leg
 - b. **Select** the Lane Type for each entry approach lane
 *The first box is the inner lane, the second box is the outer lane
 - c. **Select** Yes or No if a right turn bypass will be added to each approach leg

Roundabout Characteristics

Roundabout Type:

of Approaches:

Name of Streets:

Chart Key:

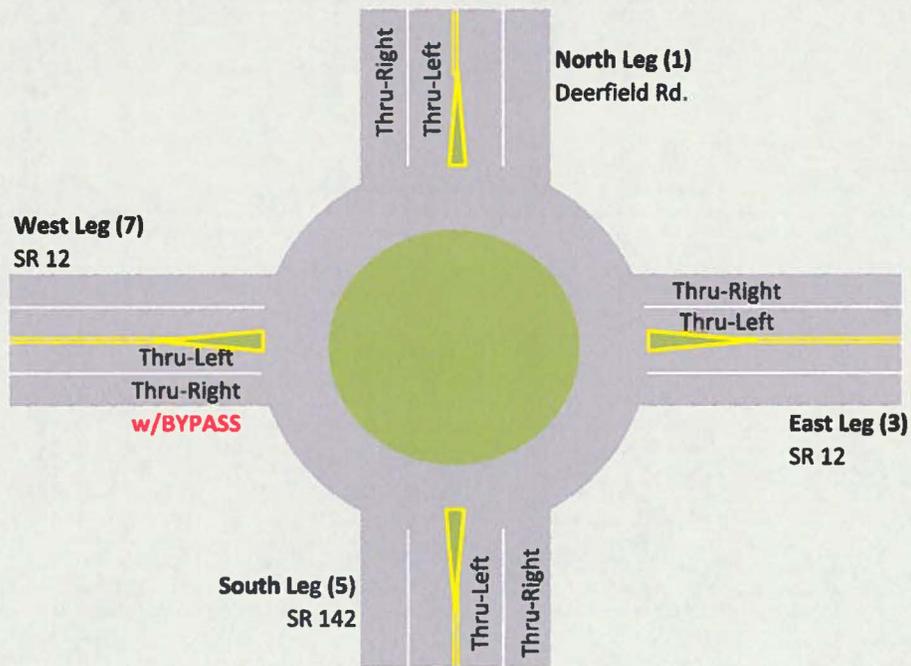
Single Lane	Street Name	
	All	
	Bypass?	
Multi-lane	Street Name	
	Inner Ln	Outer Ln
	Bypass?	

Approach Leg Characteristics:

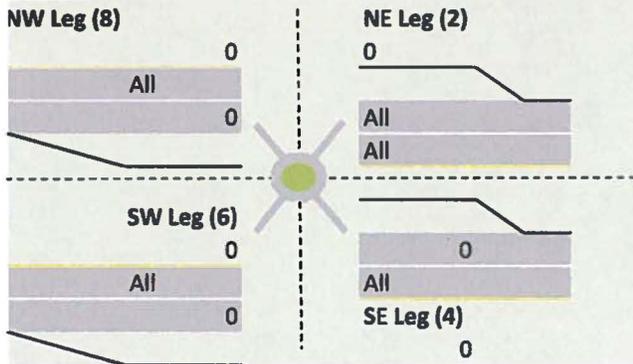
	North Leg (1)		NE Leg (2)		East Leg (3)		SE Leg (4)	
Street Name:	Deerfield Rd.				SR 12			
Entry Lane Config	Thru-Left	Thru-Right	All	All	Thru-Left	Thru-Right	All	
Bypass to Adj Leg?								
	South Leg (5)		SW Leg (6)		West Leg (7)		NW Leg (8)	
Street Name:	SR 142				SR 12			
Entry Lane Config	Thru-Left	Thru-Right	All		Thru-Left	Thru-Right	All	
Bypass to Adj Leg?					Yes			

Additior

Preliminary Roundabout Rendering**



1st Legs



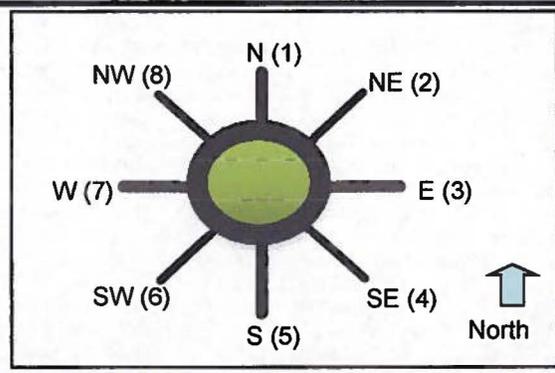
****Note**

This roundabout sketch does not include the secondary cardinal direction legs due to restrictions in the Excel software. For complex roundabouts, a separate sketch is recommended by the designer.

Roundabout Analysis Tool
Multi-Lane

8/2/2011
Version 1.3

General & Site Information	
Analyst:	Foster Grimes
Agency/Company:	District 2 Design
Date:	7/26/2011
Project Name or PI#:	231630 & 231635
Year, Peak Hour:	2035 - AM
County/District:	Newton County District 2
Intersection:	SR 12 at SR 142



	Entry Legs (FROM)							
	N1 (1)	N2 (1)	NE1 (2)	NE2 (2)	E1 (3)	E2 (3)	SE1 (4)	SE2 (4)
N (1), vph						10		
Exit NE (2), vph								
Legs E (3), vph	25							
(TO) SE (4), vph								
S (5), vph					110			
SW (6), vph								
W (7), vph		60			340	440		
NW (8), vph								
Entry Volume, vph	25	60	0	0	450	450	0	0

	S1 (5)	S2 (5)	SW1 (6)	SW2 (6)	W1 (7)	W2 (7)	NW1 (8)	NW2 (8)
N (1), vph					15			
NE (2), vph								
E (3), vph		75			515			
SE (4), vph								
S (5), vph					20			
SW (6), vph								
W (7), vph	440	365						
NW (8), vph								
Entry Volume, vph	440	440	0	0	550	0	0	0

Critical Lane Volumes	N	NE	E	SE	S	SW	W	NW
N (1), vph	0	0	0	0	0	0	15	0
NE (2), vph	0	0	0	0	0	0	0	0
E (3), vph	0	0	0	0	0	0	515	0
SE (4), vph	0	0	0	0	0	0	0	0
S (5), vph	0	0	110	0	0	0	20	0
SW (6), vph	0	0	0	0	0	0	0	0
W (7), vph	60	0	340	0	440	0	0	0
NW (8), vph	0	0	0	0	0	0	0	0
Entry Volume, vph	60	0	450	0	440	0	550	0

No. of Conflict Flow Lanes to	2	2	2	2	2	2	2	2
--------------------------------------	---	---	---	---	---	---	---	---

Roundabout Analysis Tool
Multi-Lane

8/2/2011
Version 1.3

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	100%	100%	91%	100%	91%	100%	91%	100%
% S.U./ Bus	0%	0%	5%	0%	5%	0%	5%	0%
% Trucks/ Combin.	0%	0%	4%	0%	4%	0%	4%	0%
% Bicycles	0%	0%	0%	0%	0%	0%	0%	0%
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
F _{hv}	1.000	1.000	0.939	1.000	0.939	1.000	0.939	1.000

Entry/Conflicting Flows	N	NE	E	SE	S	SW	W	NW
Flow to N (1), pcu/h	0	0	12	0	0	0	17	0
Leg # NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	27	0	0	0	87	0	596	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	0	0	127	0	0	0	23	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	65	0	903	0	932	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Conflicting flow, pcu/h	1962	0	949	0	641	0	155	0

Results: Approach Measures of Effectiveness

NCHRP-572 Model	N	NE	E	SE	S	SW	W	NW
Crit. Entry Capacity pcu/h	286	NA	581	NA	722	NA	1014	NA
Crit. Lane Entry Flow pcu/h	65	0	521	0	509	0	637	0
V/C ratio	0.23		0.90		0.71		0.63	
Control Delay, sec/pcu	16.3		38.0		16.0		9.3	
LOS	C		E		C		A	
95th % Queue (ft)	21		285		157		123	

UK Model**	N	NE	E	SE	S	SW	W	NW
Crit. Entry Capacity pcu/h	1019	NA	1744	NA	1965	NA	2313	NA
Entry Flow pcu/h	92	0	1042	0	1019	0	637	0
V/C ratio	0.09		0.60		0.52		0.28	
Control Delay, sec/pcu	3.9		5.1		3.8		2.1	
LOS	A		A		A		A	
95th % Queue (ft)	7		113		84		30	

Notes:

Unit Legend:

vph = vehicles per hour
PHF = peak hour factor
F_{HV} = heavy vehicle factor
pcu = passenger car unit

Bypass Lane Merge Point Analysis (if applicable)						
Bypass Characteristics	Bypass #1	Bypass #2	Bypass #3	Bypass #4	Bypass #5	Bypass #6
Select Entry Leg from Bypass (FROM)	W (7)					
Select Exit Leg for Bypass (TO)	S (5)					
<i>Volumes</i>						
Entry Leg: Insert Right Turn Volume	550					
Exit Leg: (Select Input Method)	Default					
Critical Lane Flow (Default) in Exit Leg***	150					
Sum of inner circulatory flow lane to exit leg (leg bypass merges into)	N/A	N/A	N/A	N/A	N/A	N/A
Sum of outer circulatory flow lane to exit leg (leg bypass merges into)	N/A	N/A	N/A	N/A	N/A	N/A
Critical Lane Flow (Manual) in Exit Leg***						
<i>Volume Characteristics</i>						
PHF (Entry Leg)	0.92					
F _{HV} (Entry Leg)	0.94					
PHF (Exit Leg)***	N/A	N/A	N/A	N/A	N/A	N/A
F _{HV} (Exit Leg)***	N/A	N/A	N/A	N/A	N/A	N/A
***Volume Characteristics are already taken into account for Default method ONLY. Insert Values above if Manual method.						
<i>Entry/Conflicting Flows</i>						
Entry Flow	637					
Conflicting Critical Flow	150					
Bypass Lane Results (NCHRP-572 Method)						
Entry Capacity at bypass merge point, pcu/hr	972					
V/C ratio	0.65					
Control Delay, sec/pcu	10.4					
LOS	B					
95th % Queue (ft)	135					

Welcome to GDOT's Roundabout Analysis Tool. This tool is designed for the user to determine the functionality of a proposed roundabout. The analysis is based on NCHRP Report 572 and the FHWA's Roundabout Design Guide (2000) standards. Please read the notes in the **Instructions** tab before using the spreadsheet.

Analyst:	Foster Grimes
Agency/Company:	District 2 Design
Date:	7/26/2011
Project Name or PI#:	231630 & 231635
Year, Peak Period:	2035 - PM
County/District:	Newton County District 2
Intersection:	SR 12 at SR 142

Insert Project Information Here in the BLUE SPACE. This information is linked to the Single Lane and Multi Lane Worksheets.

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Other things to consider when evaluating roundabouts as an alternative are Right of Way, sight distance, environmental impacts, and access to adjacent properties.

Volume Information (for Analysis Time Period)

1 Enter the Major/Minor Street ADT Volumes in the Chart below:

	Volumes	Split
Major Street	21,250	69%
Minor Street	9,450	31%
Total volumes	30,700	

Proximity to Other Intersections

2 How close is the nearest signal (miles or feet)?

3 Is the proposed intersection located within a coordinated signal network?

Go up to next section...

→ Proposed Design Configuration Chart

Directions for this Section only: (see Instructions Tab for other sections)

1. **Select** the type of roundabout you are analyzing.
2. **Key in** the number of approaches and the street names at the proposed intersections.
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 - a. **Select** the Street Name from the pulldown menu for each approach leg
 - b. **Select** the Lane Type for each entry approach lane
 *The first box is the inner lane, the second box is the outer lane
 - c. **Select** Yes or No if a right turn bypass will be added to each approach leg

Roundabout Characteristics

Roundabout Type:

of Approaches:

Name of Streets:

Chart Key:

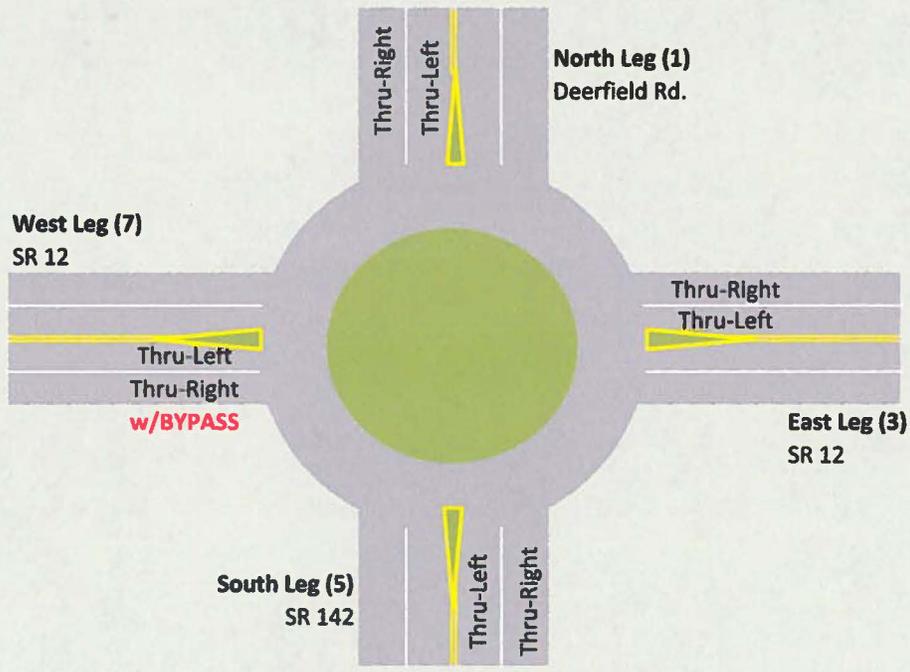
Single Lane	Street Name	
	All	
	Bypass?	
Multi-lane	Street Name	
	Inner Ln	Outer Ln
	Bypass?	

Approach Leg Characteristics:

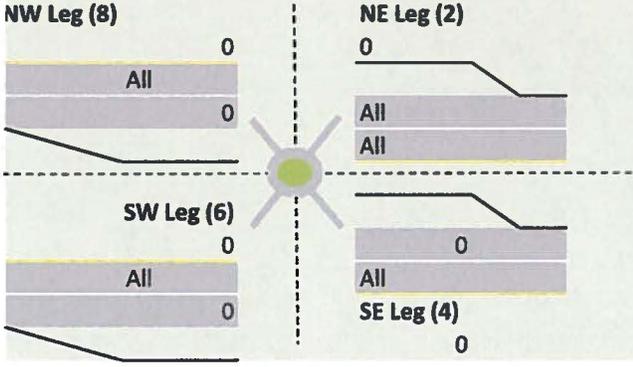
	North Leg (1)		NE Leg (2)		East Leg (3)		SE Leg (4)	
Street Name:	Deerfield Rd.				SR 12			
Entry Lane Config	Thru-Left	Thru-Right	All	All	Thru-Left	Thru-Right	All	
Bypass to Adj Leg?								
	South Leg (5)		SW Leg (6)		West Leg (7)		NW Leg (8)	
Street Name:	SR 142				SR 12			
Entry Lane Config	Thru-Left	Thru-Right	All		Thru-Left	Thru-Right	All	
Bypass to Adj Leg?					Yes			

Additior

Preliminary Roundabout Rendering**



Partial Legs

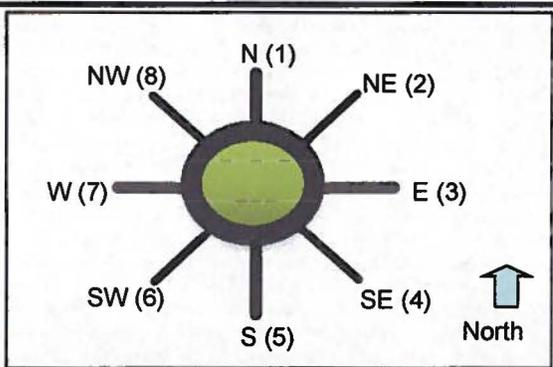


****Note**
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Roundabout Analysis Tool
Multi-Lane

8/2/2011
Version 1.3

General & Site Information	
Analyst:	Foster Grimes
Agency/Company:	District 2 Design
Date:	7/26/2011
Project Name or PI#:	231630 & 231635
Year, Peak Hour:	2035 - PM
County/District:	Newton County District 2
Intersection:	SR 12 at SR 142



		Entry Legs (FROM)							
		N1 (1)	N2 (1)	NE1 (2)	NE2 (2)	E1 (3)	E2 (3)	SE1 (4)	SE2 (4)
N (1), vph							25		
Exit	NE (2), vph								
Legs	E (3), vph	10							
(TO)	SE (4), vph								
	S (5), vph					75			
	SW (6), vph								
	W (7), vph		15			247	298		
	NW (8), vph								
	Entry Volume, vph	10	15	0	0	322	323	0	0
		S1 (5)	S2 (5)	SW1 (6)	SW2 (6)	W1 (7)	W2 (7)	NW1 (8)	NW2 (8)
	N (1), vph					60			
	NE (2), vph								
	E (3), vph		110			725			
	SE (4), vph								
	S (5), vph					10			
	SW (6), vph								
	W (7), vph	340	230						
	NW (8), vph								
	Entry Volume, vph	340	340	0	0	795	0	0	0

Critical Lane Volumes	N	NE	E	SE	S	SW	W	NW
N (1), vph	0	0	25	0	0	0	60	0
NE (2), vph	0	0	0	0	0	0	0	0
E (3), vph	0	0	0	0	0	0	725	0
SE (4), vph	0	0	0	0	0	0	0	0
S (5), vph	0	0	0	0	0	0	10	0
SW (6), vph	0	0	0	0	0	0	0	0
W (7), vph	15	0	298	0	340	0	0	0
NW (8), vph	0	0	0	0	0	0	0	0
Entry Volume, vph	15	0	323	0	340	0	795	0

No. of Conflict Flow Lanes to	2	2	2	2	2	2	2	2
-------------------------------	---	---	---	---	---	---	---	---

Roundabout Analysis Tool
Multi-Lane

8/2/2011
Version 1.3

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	100%	100%	91%	100%	91%	100%	91%	100%
% S.U./ Bus	0%	0%	5%	0%	5%	0%	5%	0%
% Trucks/ Combin.	0%	0%	4%	0%	4%	0%	4%	0%
% Bicycles	0%	0%	0%	0%	0%	0%	0%	0%
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
F _{hv}	1.000	1.000	0.939	1.000	0.939	1.000	0.939	1.000

Entry/Conflicting Flows	N	NE	E	SE	S	SW	W	NW
Flow to N (1), pcu/h	0	0	29	0	0	0	69	0
Leg # NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	11	0	0	0	127	0	839	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	0	0	87	0	0	0	12	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	16	0	631	0	660	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Conflicting flow, pcu/h	1378	0	729	0	920	0	98	0

Results: Approach Measures of Effectiveness

NCHRP-572 Model	N	NE	E	SE	S	SW	W	NW
Crit. Entry Capacity pcu/h	431	NA	678	NA	594	NA	1055	NA
Crit. Lane Entry Flow pcu/h	16	0	374	0	394	0	920	0
V/C ratio	0.04		0.55		0.66		0.87	
Control Delay, sec/pcu	8.7		11.6		17.2		21.2	
LOS	A		B		C		C	
95th % Queue (ft)	3		90		131		319	

UK Model**	N	NE	E	SE	S	SW	W	NW
Crit. Entry Capacity pcu/h	1438	NA	1902	NA	1766	NA	2354	NA
Entry Flow pcu/h	27	0	747	0	787	0	920	0
V/C ratio	0.02		0.39		0.45		0.39	
Control Delay, sec/pcu	2.6		3.1		3.7		2.5	
LOS	A		A		A		A	
95th % Queue (ft)	1		51		63		51	

Notes:

Unit Legend:

vph = vehicles per hour
PHF = peak hour factor
F_{HV} = heavy vehicle factor
pcu = passenger car unit

Bypass Lane Merge Point Analysis (if applicable)						
Bypass Characteristics	Bypass #1	Bypass #2	Bypass #3	Bypass #4	Bypass #5	Bypass #6
Select Entry Leg from Bypass (FROM)	W (7)					
Select Exit Leg for Bypass (TO)	S (5)					
Volumes						
Entry Leg: Insert Right Turn Volume	795					
Exit Leg: (Select Input Method)	Default					
Critical Lane Flow (Default) in Exit Leg***	66					
Sum of inner circulatory flow lane to exit leg (leg bypass merges into)	N/A	N/A	N/A	N/A	N/A	N/A
Sum of outer circulatory flow lane to exit leg (leg bypass merges into)	N/A	N/A	N/A	N/A	N/A	N/A
Critical Lane Flow (Manual) in Exit Leg***						
Volume Characteristics						
PHF (Entry Leg)	0.92					
F _{HV} (Entry Leg)	0.94					
PHF (Exit Leg)***	N/A	N/A	N/A	N/A	N/A	N/A
F _{HV} (Exit Leg)***	N/A	N/A	N/A	N/A	N/A	N/A
***Volume Characteristics are already taken into account for Default method ONLY. Insert Values above if Manual method.						
Entry/Conflicting Flows						
Entry Flow	920					
Conflicting Critical Flow	66					
Bypass Lane Results (NCHRP-572 Method)						
Entry Capacity at bypass merge point, pcu/hr	1058					
V/C ratio	0.87					
Control Delay, sec/pcu	20.9					
LOS	C					
95th % Queue (ft)	316					