

**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA**

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

**FILE** P.I. # 0013174 **OFFICE** Design Policy & Support  
DeKalb County  
GDOT District 7 - Metro Atlanta **DATE** 9/20/2016  
Intersection Improvements - SR12/Covington Hwy  
@ CR700/Young Rd

**FROM**  for Brent Story, State Design Policy Engineer

**TO** SEE DISTRIBUTION

**SUBJECT** APPROVED CONCEPT REPORT

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

Attachment

**DISTRIBUTION:**

Hiral Patel, Director of Engineering  
Joe Carpenter, Director of P3/Program Delivery  
Albert Shelby, State Program Delivery Engineer  
Darryl VanMeter, State Innovative Delivery Engineer  
Bobby Hilliard, Program Control Administrator  
Cindy VanDyke, State Transportation Planning Administrator  
Eric Duff, State Environmental Administrator  
Andrew Heath, State Traffic Engineer  
Angela Robinson, Financial Management Administrator  
Lisa Myers, State Project Review Engineer  
Monica Flournoy, State Materials and Testing Administrator  
Patrick Allen, State Utilities Engineer  
Paul Tanner, State Transportation Data Administrator  
Attn: Systems & Classification Branch  
Richard Cobb, Statewide Location Bureau Chief  
Andy Casey, State Roadway Design Engineer  
Attn: Mehdi Bashirian, Design Group Manager  
Ed David Adams, State Safety Program Manager  
Kathy Zahul, District Engineer  
Scott Lee, District Preconstruction Engineer  
Nicholas Fields, District Utilities Engineer  
Lauren Bolstad, Project Manager  
BOARD MEMBER - 4th Congressional District

**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA  
LIMITED SCOPE PROJECT CONCEPT REPORT**

Project Type:	Safety	P.I. Number:	0013174
GDOT District:	Seven	County:	DeKalb
Federal Route Number:	US 278	State Route Number	SR 12

*This project proposes the reconstruction of the intersection at SR 12/Covington Highway and Young Road (N) / Hidden Creek Road (S) to reduce collisions (especially rear-end crashes), to increase turning capacity, to increase mobility and to add improved pedestrian facilities, such as sidewalks and improved crossing appliances.*

**Submitted for approval:**

*Katherine A. Quinn* 5-24-16  
GDOT Concept/Design Phase Office Head & Office Date

*Albert V. Shelby /c.l.b.* 6/8/16  
State Program Delivery Engineer Date

*Kimberly / jashb* 6.6.16  
GDOT Project Manager Date

*\* Recommendation on file*

*\* Recommendation for approval:*  
*Eric Duff / KUP* 6-10-2016  
State Environmental Administrator Date

*\* For* *Christopher Raymond / KUP* 6-22-2016  
State Traffic Engineer Date

- MPO Area:** This project is consistent with the MPO adopted Regional Transportation Plan (RTP)/Long Range Transportation Plan (LRTP).
- Rural Area:** This project is consistent with the goals outlined in the Statewide Transportation Plan (SWTP) and/or is included in the State Transportation Improvement Program (STIP).

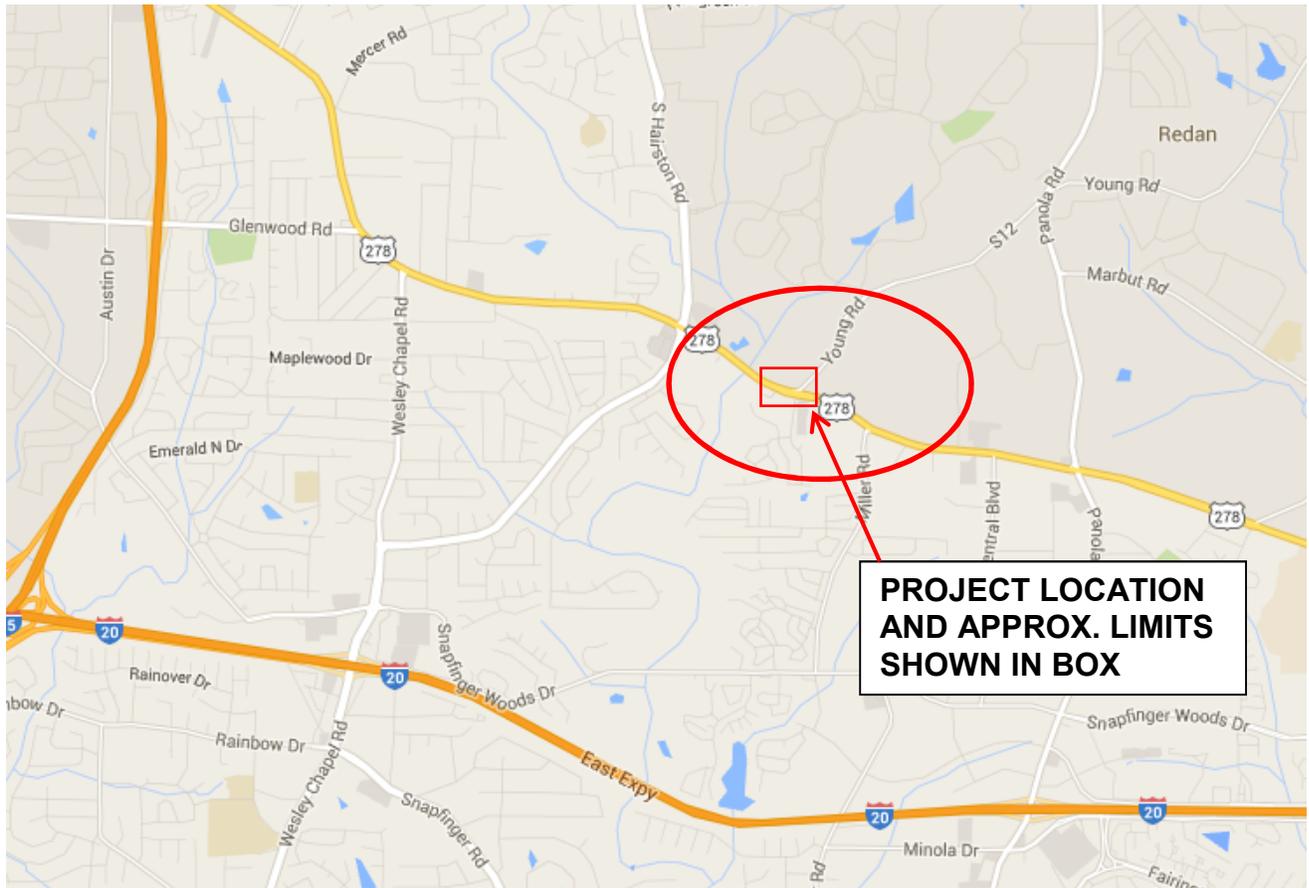
*Cynthia L. Noyke* 6-16-16  
State Transportation Planning Administrator Date

**Approval:**

**Concur:** *Phil Pittel* 9-14-16  
GDOT Director of Engineering Date

**Approve:** *Margaret B. Pirkle* 9.14.16  
GDOT Chief Engineer Date

### PROJECT LOCATION



**Figure 1.** Location of intersection. Note Interstate 20 to the south and east; Interstate 285 to the West. US 278 is SR 12.

## **PLANNING & BACKGROUND DATA**

### **Project Justification Statement:**

Prepared by The Office of Traffic Operations: The purpose of this project is to reduce crash frequency and severity while improving the operation of SR 12 at CR 700/Young Road. Improvements will include minimizing the skew of Young Road by realigning the roadway, and providing left and right turn lanes on both approaches to the Young Road (CR 700) intersection as recommended by the traffic engineering report. Based on a proposed 35% reduction of serious crashes, the Office of Traffic Operations recommends a safety improvement project at this intersection.

### **Existing conditions:**

State Route 12 is an east/west urban minor arterial that connects Lithonia, Georgia to I-285 on the west side and I-20 on the south. The eastbound approach has one through lane, a through/right turn lane onto Hidden Creek Road, and a left turn lane onto Young Road. The westbound approach has one through lane, a through/right onto Young Road and a left turn lane onto Hidden Creek Road. Young Road is a north/south urban collector connecting SR 12 to Panola Road allowing access to several subdivisions. Southbound Hidden Creek Rd is an urban collector connecting two residential subdivisions and several businesses but has no through traffic. Hidden Creek intersects SR 12 with one northbound all-purpose lane and one southbound lane. While the intersection of SR 12 and Hidden Creek is approximately 90 degrees, Young Road joins this intersection from the north at an angle of 55 degrees.

According to crash data logged from 2010 to 2015, provided by the GDOT Office of Traffic Operations, a crash occurs at this intersection every 4.75 days on average. More than half of these crashes are rear-end crashes; using the same statistics, a rear-end crash occurs at this intersection every 8.1 days or 3.7 times per month. Injuries occur at this intersection every 11.5 days or 2.6 times per month. One fatality has been recorded at this intersection in the last five years. Since this is a safety project, reducing crash volume and severity will be considered a main objective.

### **Other projects in the area:**

**P.I. No. 0006890: Panola Road. Project widens Panola Rd. from SR 12 to Snapfinger Woods Dr.**

**P.I. No. 0013175: SR 12 and Wellborn Road, intersection upgrade.**

**P.I. No. 0012815: Signal upgrades I-20 at 8 locations.**

**Description of the proposed project:** P.I. No. 0013174 The proposed project SR 12, P.I. No. 0013174 proposes to improve safety by reducing crash frequency at Young Road and to reduce peak hour queues at the intersection with additional turning capacity.

Important goals of the project will be fulfilled so that:

1. Left turn movement capacity onto Young Road from eastbound SR 12 will be increased with a lengthened left-turn storage lane on SR 12. This should reduce crashes because it will decrease queue times and reduce frantic high-risk maneuvers.
2. A right-turn only lane will be added to SR 12 Westbound to serve Young Road northbound. Because of the severe skew angle turning right from SR 12 westbound, turning vehicles must now slow nearly to a stop on a downgrade. A right-turn lane will eliminate another crash hazard and allow less interrupted movement through the intersection.
3. A bus stop, now located on westbound SR 12 just East of the intersection will be relocated to the West of the intersection to help avoid rear-end collisions. Relocating the bus stop beyond the intersection should reduce rear-end collisions.
4. The traffic signal will be upgraded and sidewalks added to both sides of SR 12/Covington Highway.
5. A left-turn-only lane will be added to Young Road for the eastbound movement on SR 12 to eliminate split phasing of the traffic light and backup queues on Young Rd.
6. The skew angle at SR 12 and Young Road will be increased or mitigated. Because Young Road intersects SR 12 at a skew angle of 55 degrees, designs will seek to blunt the angle to 70 degrees.

**MPO:** Atlanta Regional Commission (ARC)

**TIP #:** N/A

**TIA Regional Commission:** Atlanta Regional Commission

*RC Project ID* N/A

**MPO Name Congressional District(s):** 4th Congressional District

**Federal Oversight:**  Exempt  State Funded  Other

**Projected Traffic:** *ADT or AADT* 24 HR T: 2.5%

Current Year (2016): 23250 Open Year (2019): 24300 Design Year (2039): 32800

Traffic Projections Performed by: GDOT Office of Planning.

**Functional Classification (Mainline):** Urban Minor Arterial Street

**Complete Streets - Bicycle, Pedestrian, and/or Transit Standards Warrants:**

Warrants met:  None  Bicycle  Pedestrian  Transit

**Pavement Evaluation and Recommendations**

Preliminary Pavement Evaluation Summary Report Required?  No  Yes

Preliminary Pavement Type Selection Report Required?  No  Yes

Feasible Pavement Alternatives:  HMA  PCC  HMA & PCC

## DESIGN AND STRUCTURAL

Description of Proposed Project: N/A

### Mainline Design Features: SR 12/Covington Highway

Feature	Existing	Standard*	Proposed
<b>Typical Section</b>			
- Number of Lanes	4	N/A	4
- Lane Width(s)	12'	12'	12'
- Median Width & Type	N/A	N/A	N/A
- Outside Shoulder or Border Area Width	8' URBAN	N/A	10' URBAN**
- Outside Shoulder Slope	N/A	2%	2%
- Inside Shoulder Width	N/A	N/A	N/A
- Sidewalks	N/A	5'	5'
- Auxiliary Lanes	12'	12'	12'
- Bike Lanes	N/A	N/A	N/A
Posted Speed	45		45
Design Speed	45	45	45
Min Horizontal Curve Radius	N/A	711'	711'
Maximum Superelevation Rate	N/A	4%	4% MAX
Maximum Grade	4%	7% MAX	4%
Access Control	BY PERMIT	BY PERMIT	BY PERMIT
Design Vehicle	N/A	WB-40	WB-40
Pavement Type	ASPHALT	ASPHALT	ASPHALT
<i>Additional Items as warranted</i>			

\*According to current GDOT design policy if applicable

\*\*Shoulder width may vary according to topography and walls, if necessary, to border sidewalk.

### Major Interchanges/Intersections:

Lighting required:  No  Yes

Transportation Management Plan [TMP] Required:  No  Yes

If Yes: Project classified as:  Non-Significant  Significant

TMP Components Anticipated:  TTC  TO  PI

Will Context Sensitive Solutions procedures be utilized?  No  Yes

Design Exceptions to FHWA/AASHTO controlling criteria anticipated: No Design Exceptions anticipated.

Design Variances to GDOT Standard Criteria anticipated: No Design Variances anticipated.

**Side Street Design Features: Young Road (North of Int) / Hidden Creek Road (South of Int)**

<b>Feature</b>	<b>Existing</b>	<b>Standard*</b>	<b>Proposed</b>
<b>Typical Section</b>			
- <b>Number of Lanes</b>	<b>2 / 2</b>	<b>N/A</b>	<b>2 / 2</b>
- <b>Lane Width(s)</b>	<b>12' / 12'</b>	<b>12'</b>	<b>12' / 12'</b>
- <b>Median Width &amp; Type</b>	<b>None / Landscape</b>	<b>N/A</b>	<b>None / None</b>
- <b>Outside Shoulder or Border Area Width</b>	<b>Urban 5'</b>	<b>N/A</b>	<b>Urban 8'</b>
- <b>Outside Shoulder Slope</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>
- <b>Inside Shoulder Width</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>
- <b>Sidewalks</b>	<b>5' / NONE</b>	<b>5'</b>	<b>0 to 5'</b>
- <b>Auxiliary Lanes</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>
- <b>Bike Lanes</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>
<b>Posted Speed</b>	<b>45 / 35</b>		<b>45 / 35</b>
<b>Design Speed</b>	<b>45 / 35</b>	<b>45 / 35</b>	<b>45 / 35</b>
<b>Min Horizontal Curve Radius</b>	<b>N/A</b>	<b>711' / 371'</b>	<b>711' / 371'</b>
<b>Maximum Superelevation Rate</b>	<b>N/A</b>	<b>4%</b>	<b>4% MAX</b>
<b>Maximum Grade</b>	<b>4%</b>	<b>7% MAX</b>	<b>4%</b>
<b>Access Control</b>	<b>BY PERMIT (DeKalb Cty)</b>	<b>BY PERMIT (DeKalb Cty)</b>	<b>BY PERMIT (DeKalb Cty)</b>
<b>Design Vehicle</b>	<b>N/A</b>	<b>WB-40</b>	<b>WB-40</b>
<b>Pavement Type</b>	<b>ASPHALT</b>	<b>ASPHALT</b>	<b>ASPHALT</b>
<i>Additional Items as warranted</i>			

\*According to current GDOT (or County) design policy if applicable

## UTILITY AND PROPERTY

Temporary State Route Needed:  No  Yes  Undetermined

Railroad Involvement: None

### Utility Involvements:

1. Atlanta Gas Light
2. AT&T
3. Charter Communication
4. Comcast of Georgia
5. DeKalb County (Water) and Sewer
6. DeKalb County Water and (Sewer)
7. DeKalb County Traffic
8. Georgia Power Company
9. Tower Cloud Communication
10. Zayo Fiber Solution

SUE Required:  No  Yes

Public Interest Determination Policy and Procedure recommended?  No  Yes

Right-of-Way: Existing width: 100ft. Proposed width: 100ft.\*  
Required Right-of-Way anticipated:  No  Yes  Undetermined  
Easements anticipated:  None  Temporary  Permanent  Utility  Other

Anticipated total number of impacted parcels:	<u>4</u>
Displacements anticipated:	Businesses: <u>0</u>
	Residences: <u>0</u>
	Other: <u>0</u>
Total Displacements:	<u>0</u>

**Location and Design Approval is required.**

**\*There is no expectation for an increase in right-of-way width. However, whatever parcels are required to meet the objectives of this intersection improvement will be considered for acquisition.**

## ENVIRONMENTAL AND PERMITS

### Anticipated Environmental Document:

GEPA:  NEPA:  CE  PCE

MS4 Compliance – Is the project located in an MS4 area?  No  Yes

### Environmental Permits, Variances, Commitments, and Coordination anticipated:

#### Air Quality:

Is the project located in a PM 2.5 Non-attainment area?  No  Yes

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

Carbon Monoxide hotspot analysis:  Required  Not Required  TBD

*(If any of the above are answered "Yes", additional analysis may be required; see section in Appendix A for further information)*

### NEPA/GEPA Comments & Information:

**Environmental screening, investigation and mitigation for this project is being determined.**

## COORDINATION, ACTIVITIES, RESPONSIBILITIES, AND COSTS

### Project Meetings:

Project Activity	Party Responsible for Performing Task(s)
Concept Development	GDOT
Design	GDOT
Right-of-Way Acquisition	GDOT
Utility Coordination (Preconstruction)	GDOT
Utility Relocation (Construction)	UTILITY COMPANIES / GDOT
Letting to Contract	GDOT
Construction Supervision	GDOT
Providing Material Pits	CONTRACTOR
Providing Detours	N/A
Environmental Studies, Documents, & Permits	GDOT
Environmental Mitigation	N/A
Construction Inspection & Materials Testing	GDOT

### Other coordination to date:

### Project Cost Estimate and Funding Responsibilities:

	Breakdown of PE	ROW	Reimbursable Utility	CST*	Environmental Mitigation	Total Cost
Funded By	SAFETY	GDOT**	GDOT	GDOT	N/A	
\$ Amount	200,000.00	279,000.00	480,000.00	855,000.00	N/A	1,814,000.00
Date of Estimate	APRIL 2016	MAY 2016	MAY 2016	MAY 2016		

\*CST Cost includes: Construction, Engineering and Inspection, Contingencies and Liquid AC Cost Adjustment. Figures for construction amounts taken from preliminary Detailed Cost Estimate.

\*\*ROW phase should be added to project schedule and plan.

**ALTERNATIVES DISCUSSION**

**Preferred Alternative:** The preferred alternative addresses both collisions and capacity concerns at the intersection of SR 12 and Young Road. In this alternative, both pedestrian and vehicular intersection facilities are augmented or replaced. Given the frequency of rear-end crashes, the proposed design changes in the preferred alternate would improve vehicle movements with the addition of a dedicated left-turn lane on Young Road, with the addition of a dedicated right-turn lane for SR 12 WB, and a longer left-turn bay on eastbound SR 12. The skew angle is proposed to be improved to meet standards at Young and SR 12. These proposed improvements are anticipated to reduce crash frequency and severity. These improvements are also anticipated to reduce and better accommodate peak-hour queueing and should provide greater driver access and allow more driver maneuverability.

Other improvements include relocating a bus stop, building sidewalks and installing new signal equipment with improved timings. (These secondary items are also included in Alternative 1.)

<b>Estimated Property Impacts:</b>	<b>4 parcels (vacant)</b>	<b>Estimated Total Cost:</b>	<b>\$1,814,000</b>
<b>Estimated ROW Cost:</b>	<b>\$279,000</b>	<b>Estimated CST Time:</b>	<b>9 months</b>

**Rationale:** This alternative provides the most comprehensive solution to mitigating rear-end crashes, while also addressing capacity issues at the intersection. The traffic studies show also that, the preferred alternatives will raise design year intersection level of service from F (no-build) to at least D or E.

**No-Build Alternative:** While the no-build option would require no current funding, it would not address existing crash frequency and severity issues indicated through statistical data nor would it alleviate issues associated with excessive queueing. The no-build alternative would also do nothing to improve the existing design of the intersection to improve the existing skew angle to meet current standards.

<b>Estimated Property Impacts:</b>	<b>0</b>	<b>Estimated Total Cost:</b>	<b>0</b>
<b>Estimated ROW Cost:</b>	<b>0</b>	<b>Estimated CST Time:</b>	<b>0</b>

**Rationale:** This alternative would not address the scope to reduce crash frequency and severity. It also would not improve a skew angle identified as substandard nor would it improve queueing issues.

**Alternative 1:** Alternative one proposes a less costly solution to addressing crash frequency and severity issues as well as addressing capacity when compared to the preferred alternative. This alternate proposes addressing the queueing problem on SR 12 eastbound by lengthening the left-turn bay for additional storage. It can be built with no additional land acquisition requirements and would only require sidewalk and curb reconstruction. The proposed right-turn lane would not be included in this alternate, because of the right-of-way and construction costs involved in implementing it. The bus stop would be relocated. This alternative proposes to increase the radius of the right-turn to allow better sight distance and more space to allow vehicles to maneuver a right-turn movement without needing to stop which would cause traffic to queue. This would potentially reduce or avoid crashes. Sidewalks and new traffic lights are proposed for installation. The skew angle of the intersection would not be addressed and would necessitate a Design Variance for this project. Milling and paving for only those areas necessitating improvements rather than completing this type work for the entire project would reduce costs when compared to the preferred alternate.

<b>Estimated Property Impacts:</b>	<b>2 parcels (vacant)</b>	<b>Estimated Total Cost:</b>	<b>\$1,286,000</b>
<b>Estimated ROW Cost:</b>	<b>\$174,000</b>	<b>Estimated CST Time:</b>	<b>6 months</b>

**Rationale:** Although this alternative is less costly, it would not reduce the crash-frequency at the intersection as effectively as the Preferred Alternative nor would it address the acute skew angle of the intersection.

**Comments/Additional Information:**

## **LIST OF ATTACHMENTS/SUPPORTING DATA**

*List and attach as appropriate to project. Please see PDP Appendix A for a more complete list of potential attachment.*

1. Concept Layout
2. Typical sections
3. Cost Estimates
4. Crash summaries
5. Traffic diagrams or projections
6. Capacity analysis summary
7. Summary of TE Study and/or Signal Warrant Analysis
8. Meeting Minutes

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PREFERRED CONCEPT DESIGN  
SR 12 AND YOUNG ROAD  
PI # 0013174  
DEKALB COUNTY

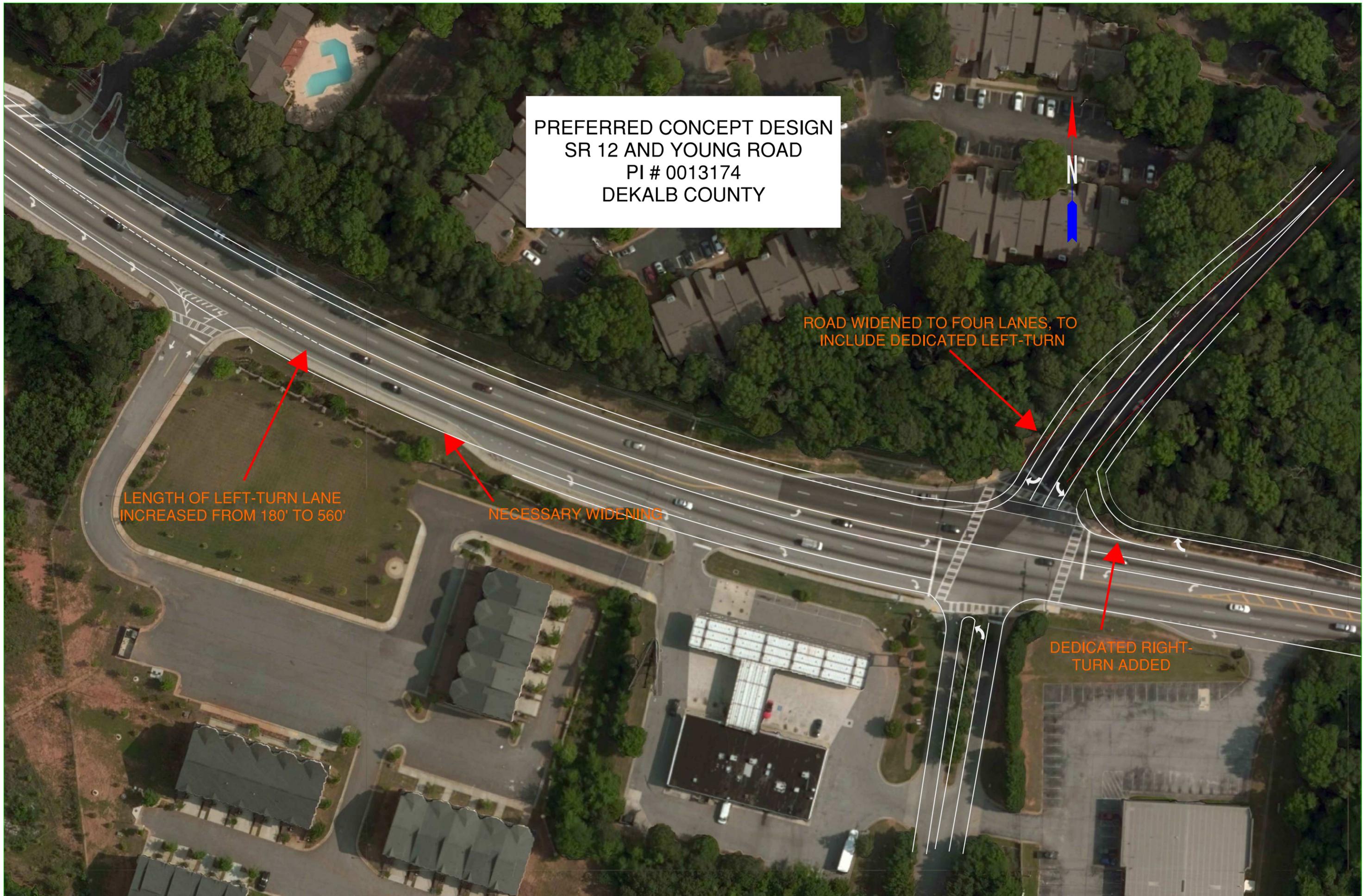


ROAD WIDENED TO FOUR LANES, TO  
INCLUDE DEDICATED LEFT-TURN

LENGTH OF LEFT-TURN LANE  
INCREASED FROM 180' TO 560'

NECESSARY WIDENING

DEDICATED RIGHT-  
TURN ADDED

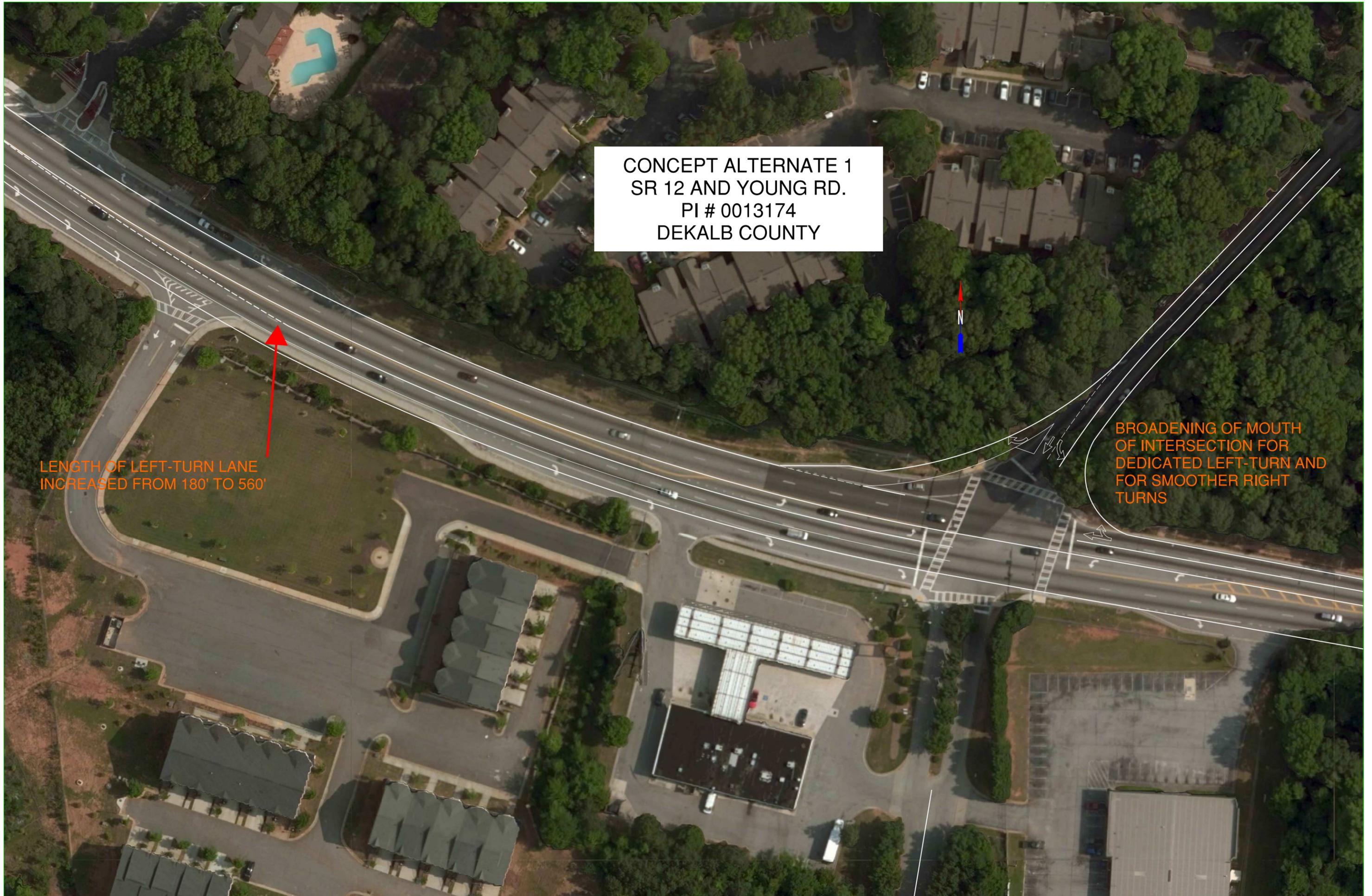


CONCEPT ALTERNATE 1  
SR 12 AND YOUNG RD.  
PI # 0013174  
DEKALB COUNTY

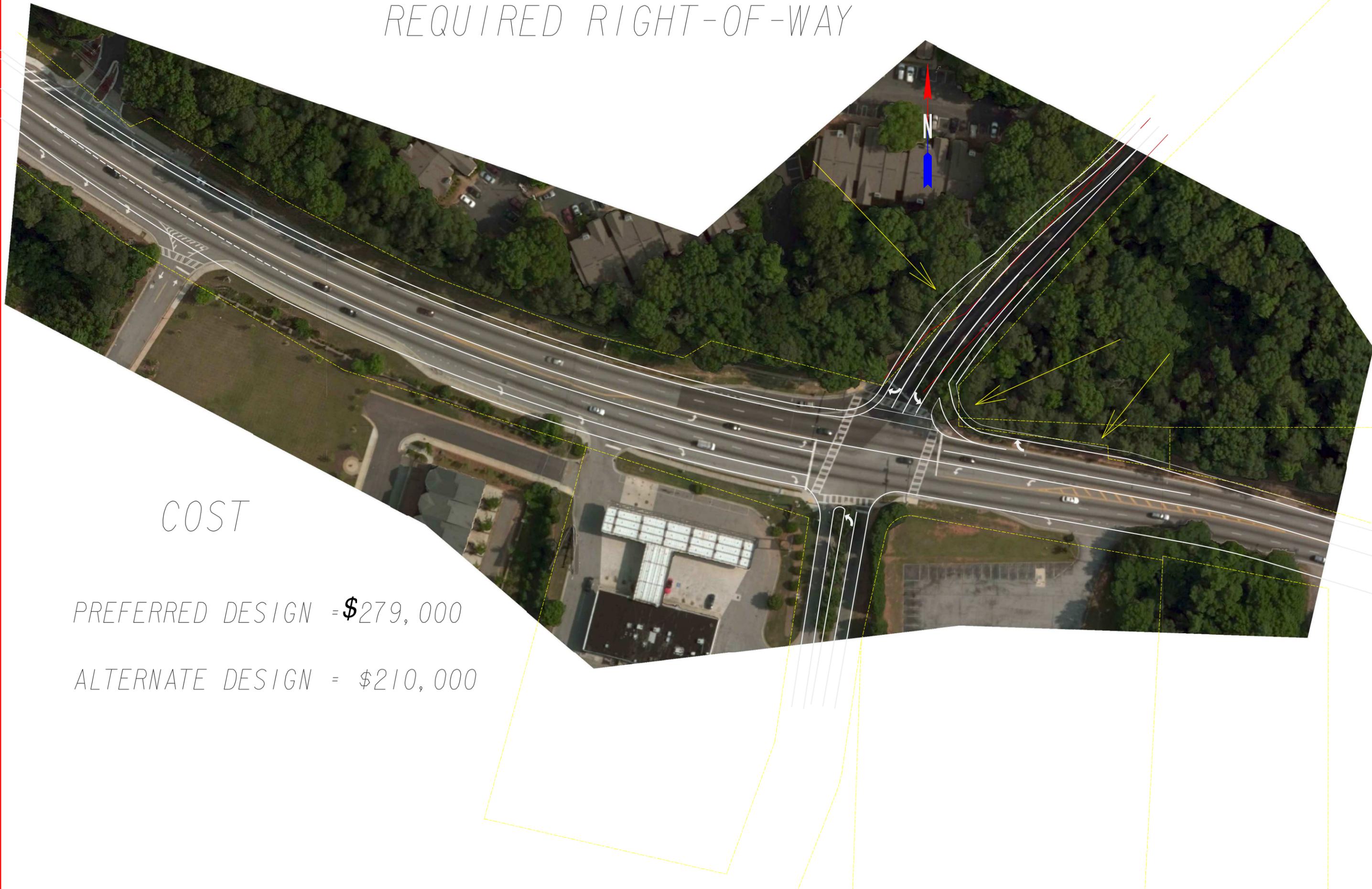


LENGTH OF LEFT-TURN LANE  
INCREASED FROM 180' TO 560'

BROADENING OF MOUTH  
OF INTERSECTION FOR  
DEDICATED LEFT-TURN AND  
FOR SMOOTHER RIGHT  
TURNS



REQUIRED RIGHT-OF-WAY



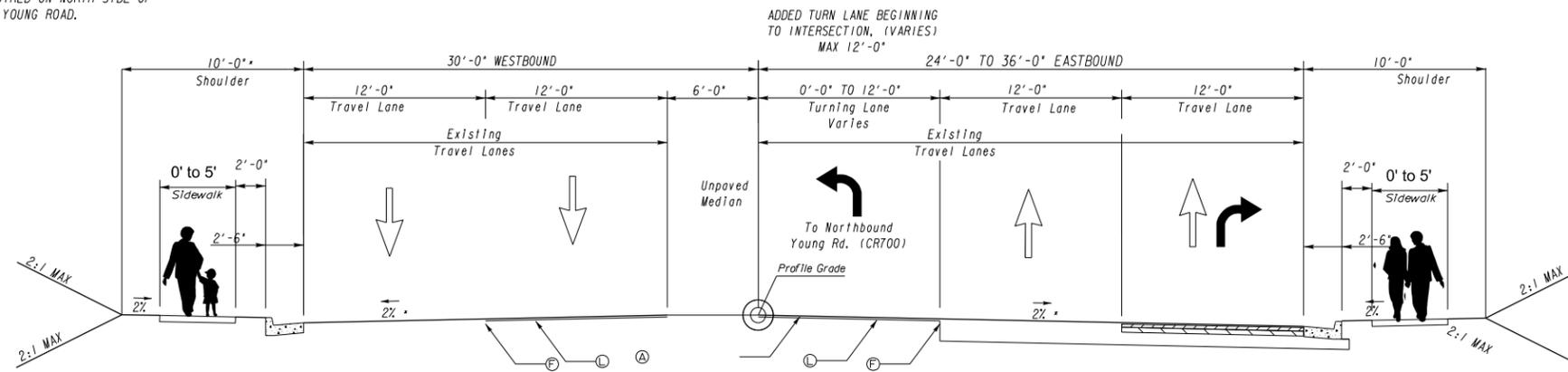
COST

PREFERRED DESIGN = \$279,000

ALTERNATE DESIGN = \$210,000

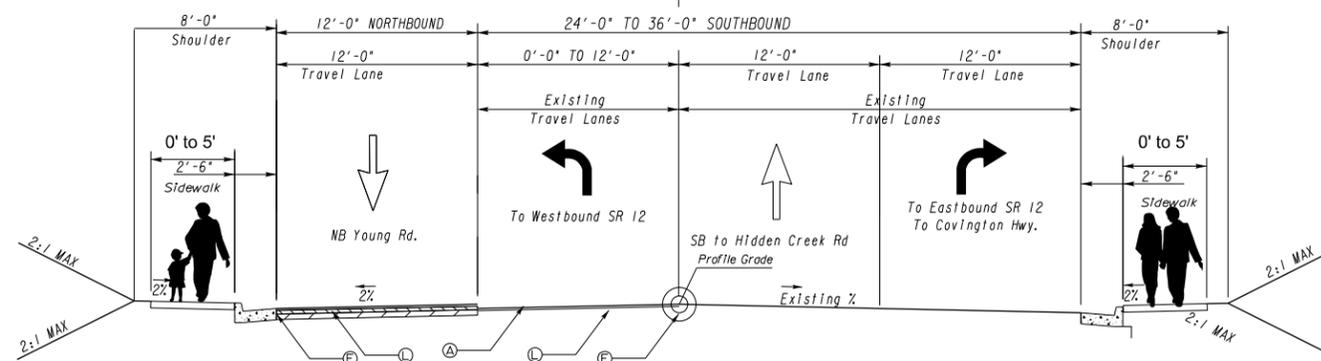
# Eastbound SR 12 From Project beginning to intersection with Young Road (CR 700)

• THE WIDTH OF THIS SHOULDER MAY VARY ACCORDING TO THE TOPOGRAPHY AND WHETHER A WALL IS REQUIRED ON NORTH SIDE OF SR 12 WEST OF YOUNG ROAD.



Eastbound SR 12, Covington Hwy, 12' Center Left-turn lane.  
Road curves, slope and superelevation vary

# Southbound CR 700 Toward intersection with SR 12



Southbound CR 700, Young Road,  
Road curves, slope and superelevation vary

REVISION DATES

No.	Date	Description

TYPICAL SECTIONS

CHECKED:	DATE:	DRAWING No.
BACKCHECKED:	DATE:	05-
CORRECTED:	DATE:	
VERIFIED:	DATE:	

# DETAILED COST ESTIMATE



**Job: 0013174**

**JOB NUMBER:** 0013174

**FED/STATE PROJECT NUMBER** 0013174

**SPEC YEAR:** 13

**DESCRIPTION:** SR 12 AND YOUNG RD. SAFETY/OPERATIONAL IMPROVEMENT  
INTERSECTION IMPROVEMENT

**ITEMS FOR JOB 0013174**

**0010 - ROADWAY**

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0004	210-0100	1.000	LS	\$100,000.00000	GRADING COMPLETE - ALL GRADING, TREE REMOVAL, CLEANUP	\$100,000.00
0155	310-1101	1620.000	TN	\$29.30271	GR AGGR BASE CRS, INCL MATL	\$47,470.39
0070	402-3121	1760.000	TN	\$78.14000	RECYL AC 25MM SP,GP1/2,BM&HL	\$137,526.40
0075	402-3130	1200.000	TN	\$90.55683	RECYL AC 12.5MM SP,GP2,BM&HL	\$108,668.20
0080	402-3190	1300.000	TN	\$82.05100	RECYL AC 19 MM SP,GP 1 OR 2 ,INC BM&HL	\$106,666.30
0150	413-0750	1100.000	GL	\$2.89011	TACK COAT	\$3,179.12
0050	432-5010	4000.000	SY	\$5.65076	MILL ASPH CONC PVMT,VARB DEPTH	\$22,603.04
0045	441-0016	60.000	SY	\$46.24161	DRIVEWAY CONCRETE, 6 IN TK	\$2,774.50
0040	441-0104	2000.000	SY	\$30.78497	CONC SIDEWALK, 4 IN	\$61,569.94
0035	441-0108	100.000	SY	\$70.18168	CONC SIDEWALK, 8 IN	\$7,018.17
0030	441-6222	3800.000	LF	\$19.13587	CONC CURB & GUTTER/ 8X30TP2	\$72,716.31
0055	634-1200	12.000	EA	\$126.30151	RIGHT OF WAY MARKERS	\$1,515.62
<b>SUBTOTAL FOR ROADWAY:</b>						<b>\$671,707.99</b>

**0020 - SIGNING AND MARKING**

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0060	636-1033	108.000	SF	\$19.30237	HWY SIGNS, TP1MAT,REFL SH TP 9	\$2,084.66
0065	636-2070	12.000	LF	\$11.52043	GALV STEEL POSTS, TP 7	\$138.25
0085	639-4004	4.000	EA	\$10,709.22629	STRAIN POLE, TP IV	\$42,836.91
0090	647-1000	1.000	LS	\$50,000.00000	TRAF SIGNAL INSTALLATION NO - SIGNAL, NO SPLIT PHASING 0013174	\$50,000.00
0105	652-0120	15.000	EA	\$86.49431	PAVEMENT MARKING, ARROW, TP 2	\$1,297.41
0100	653-1501	3400.000	LF	\$0.57982	THERMO SOLID TRAF ST 5 IN, WHI	\$1,971.39
0095	653-1502	3400.000	LF	\$0.60382	THERMO SOLID TRAF ST, 5 IN YEL	\$2,052.99
0110	653-3501	7500.000	GLF	\$0.36838	THERMO SKIP TRAF ST, 5 IN, WHI	\$2,762.85
<b>SUBTOTAL FOR SIGNING AND MARKING:</b>						<b>\$103,144.46</b>

# DETAILED COST ESTIMATE



**Job: 0013174**

**0030 - EROSION CONTROL**

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0005	150-1000	1.000	LS	\$30,000.00000	TRAFFIC CONTROL - SR 12 AND YOUNG RD. (9 MONTH PROJECT)	\$30,000.00
0010	163-0232	2.000	AC	\$608.00000	TEMPORARY GRASSING	\$1,216.00
0015	163-0240	20.000	TN	\$258.77000	MULCH	\$5,175.40
0020	163-0300	1.000	EA	\$1,432.40012	CONSTRUCTION EXIT	\$1,432.40
0140	163-0550	10.000	EA	\$193.70331	CONS & REM INLET SEDIMENT TRAP	\$1,937.03
0025	165-0030	3000.000	LF	\$0.93886	MAINT OF TEMP SILT FENCE, TP C	\$2,816.58
0130	171-0030	3000.000	LF	\$3.04022	TEMPORARY SILT FENCE, TYPE C	\$9,120.66
0145	700-7000	2.000	TN	\$189.55548	AGRICULTURAL LIME	\$379.11
0135	700-8000	2.000	TN	\$667.17479	FERTILIZER MIXED GRADE	\$1,334.35
<b>SUBTOTAL FOR EROSION CONTROL:</b>						<b>\$53,411.53</b>

**0040 - DRAINAGE ITEMS**

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0125	611-3002	7.000	EA	\$3,934.49000	RECONSTR CATCH BASIN, GROUP 2	\$27,541.43
<b>SUBTOTAL FOR DRAINAGE ITEMS:</b>						<b>\$27,541.43</b>

**TOTALS FOR JOB 0013174**

<b>ITEMS COST:</b>	<b>\$855,805.41</b>
<b>COST GROUP COST:</b>	<b>\$0.00</b>
<b>ESTIMATED COST:</b>	<b>\$855,805.41</b>
<b>CONTINGENCY PERCENT:</b>	<b>0.00</b>
<b>ENGINEERING AND INSPECTION:</b>	<b>0.00</b>
<b>ESTIMATED COST WITH CONTINGENCY AND E&amp;I:</b>	<b>\$855,805.41</b>

**GEORGIA DEPARTMENT OF TRANSPORTATION  
PRELIMINARY ROW COST ESTIMATE SUMMARY**

Date: 5/18/2016  
Revised:

Project: SR 12 & Young Road  
County: DeKalb  
PI: 0013174

Description: Safety, Intersection Improvement  
Project Termini:

Existing ROW: Varies  
Required ROW: Varies  
Parcels: 4

Land and Improvements \_\_\_\_\_ \$187,500.00

Proximity Damage	\$0.00
Consequential Damage	\$0.00
Cost to Cures	\$0.00
Trade Fixtures	\$0.00
Improvements	\$0.00

Valuation Services \_\_\_\_\_ \$6,000.00

Legal Services \_\_\_\_\_ \$40,200.00

Relocation \_\_\_\_\_ \$9,000.00

Demolition \_\_\_\_\_ \$0.00

Administrative \_\_\_\_\_ \$35,500.00

TOTAL ESTIMATED COSTS \_\_\_\_\_ \$278,200.00

**TOTAL ESTIMATED COSTS (ROUNDED) \_\_\_\_\_ \$279,000.00**

Preparation Credits	Hours	Signature
	10	

Prepared By: Travis Bailey CG#: 366425 (DATE) 5-18-16  
 Approved By: [Signature] CG#: 7207 (DATE) 5-18-16

**NOTE: No Market Appreciation is included in this Preliminary Cost Estimate**

## **RIGHT OF WAY COST ESTIMATE CHECKLIST**

Description: SR 12 and Young Road

PI No.: 0013174

County: DeKalb

Project type: Safety and intersection improvement

Project length: 0.3 mile

Project Phase:         concept     preliminary plans         final plans

Typical section:         urban         rural         both

Number of parcels: four

Required right of way: 0.5 acres        Measured in:  Acres         Sq. ft.

Permanent easement: n/a        Measured in:  Acres         Sq. ft.

Driveway easement: n/a        Measured in:  Acres         Sq. ft.

➤ Limited access:  Yes         No         Both

- Length of limited access: [Click here to enter text.](#)
- List limited access parcels: [Click here to enter text.](#)

➤ Displacement (s):      residential         commercial

- Residential parcels affected: 2
- Commercial parcels affected: 2

➤ Parking spaces displaced:     Yes  No amount: [Click here to enter text.](#)

- Residential parcels affected: Vacant land, no buildings disturbed
- Commercial parcels affected: Vacant land, no buildings disturbed

Billboards displaced:  Yes  No amount: [Click here to enter text.](#)

### **Attachments:**

- Preconstruction Status Report
- Concept layout (for the concept phase)
- Cover sheet with 13 series plans (for the preliminary or final design phases)

**Submit cost estimate request to: [RW-ConceptMtgs\\_Est@dot.ga.gov](mailto:RW-ConceptMtgs_Est@dot.ga.gov)**

November 2015

**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA**

**INTER-DEPARTMENT CORRESPONDENCE**

**FROM:** Nicholas Fields   
District Utilities Engineer

**DATE:** May 6, 2016

**TO:** Kimberly Nesbitt, Project Manager

**SUBJECT:** PRELIMINARY UTILITY COST ESTIMATE  
0013174/Dekalb/ SR 12 @ Young Road

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

FACILITY OWNER	REIMBURSABLE	NON-REIMBURSABLE	TOTAL
Atlanta Gas Light Company	\$0.00	\$96,000.00	\$96,000.00
AT&T (Distrubution)	\$0.00	\$296,000.00	\$296,000.00
Charter Communication	\$0.00	\$56,100.00	
Comcast of Georgia	\$0.00	\$144,000.00	\$144,000.00
Dekalb County (Water) and Sewer	\$0.00	\$117,000.00	\$117,000.00
Dekalb County Water and (Sewer)	\$0.00	\$51,365.00	\$51,365.00
Dekalb County Traffic	\$0.00	\$34,000.00	\$0.00
Georgia Power Company (Distrubution)	\$480,000.00	\$0.00	\$480,000.00
Tower Cloud Communication	\$0.00	\$56,100.00	\$56,100.00
Zayo Fiber Solution	\$0.00	\$112,200.00	\$112,200.00
<b>TOTAL</b>	<b>\$480,000.00</b>	<b>\$962,765.00</b>	<b>\$1,352,665.00</b>

This estimate is based upon the current information. We will provide an updated estimate when the plans are further developed.

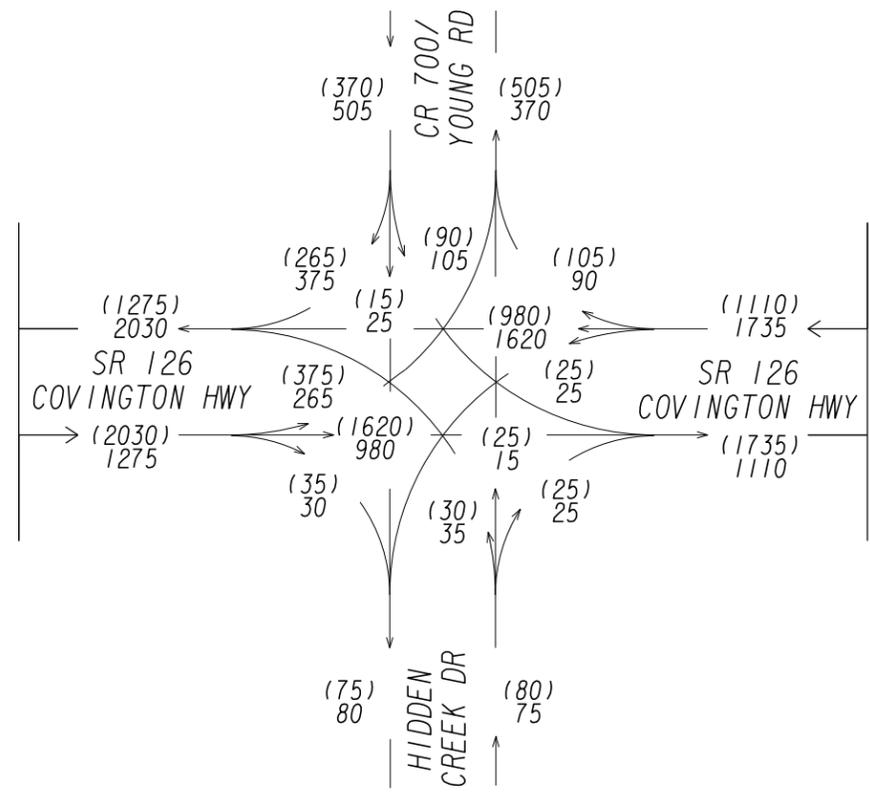
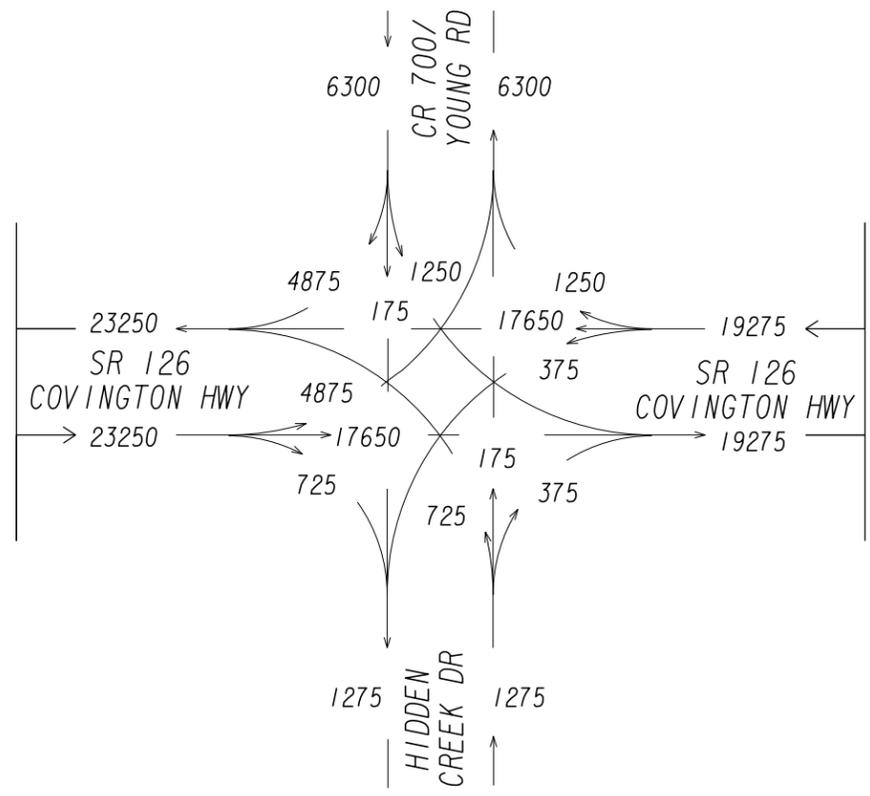
If you have any questions, please contact Lewis Brooker at 770-986-1117

KZ/NF/SW/LB

Cc: Lee Upkins, State Utilities Engineer

# 2016 ADT EXISTING

# 2016 DHV EXISTING



PM DHV = (000)  
AM DHV = 000

PI# 0013174  
DEKALB COUNTY  
SR 126 AT CR 700/  
YOUNG ROAD

24 HOUR T= 2.5%  
SU= 2.2%  
COMB= 0.3%

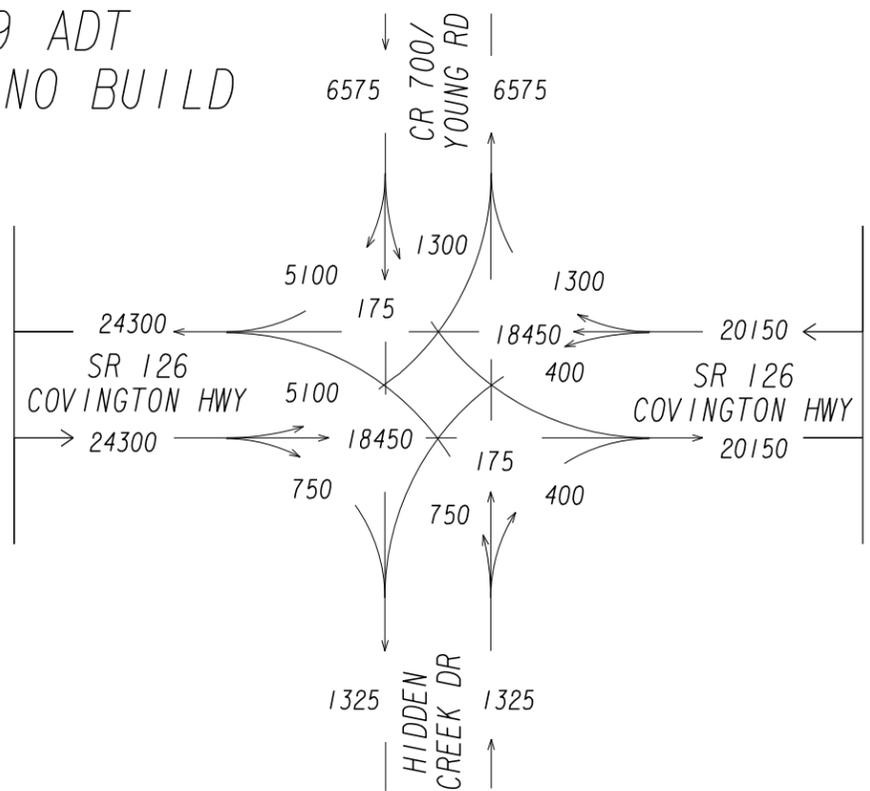


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SU= 1.5%  
COMB= 0.2%

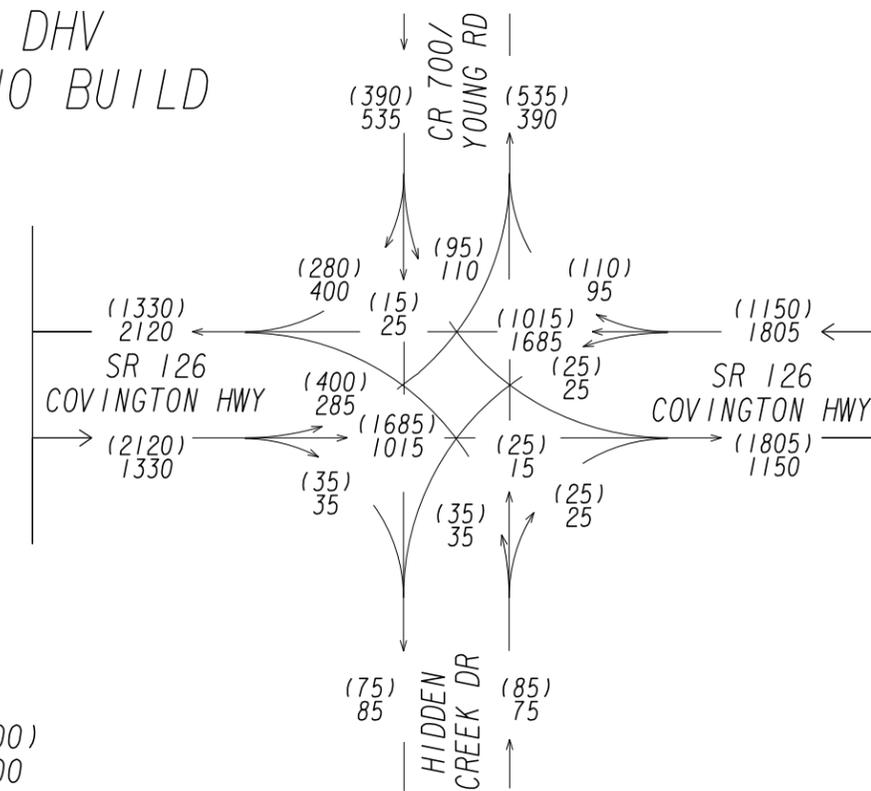
REVISION DATES	
5/2016	

TRAFFIC DIAGRAM			
CHECKED:	DRF	DATE:	5/5/2016
BACKCHECKED:		DATE:	
CORRECTED:		DATE:	
VERIFIED:		DATE:	
			DRAWING No. 10-01

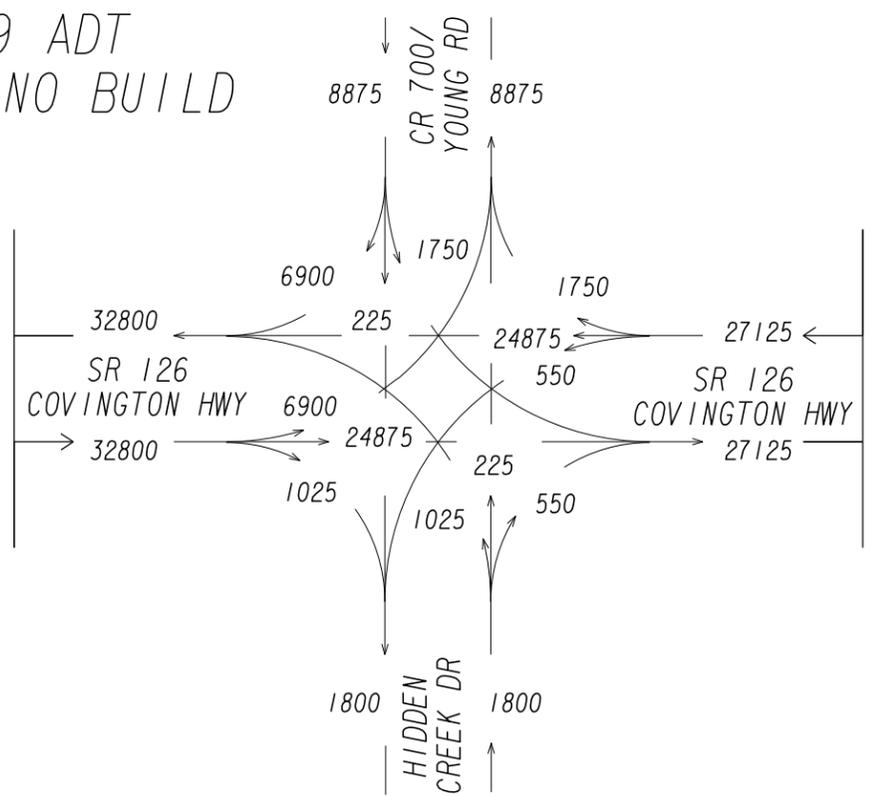
2019 ADT  
BUILD= NO BUILD



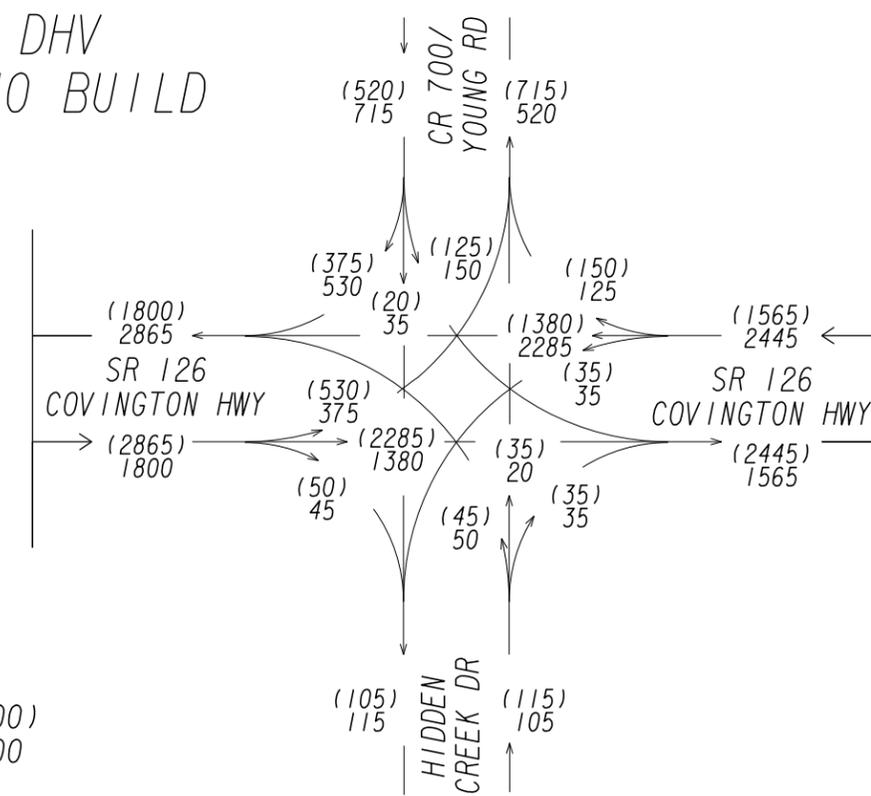
2019 DHV  
BUILD= NO BUILD



2039 ADT  
BUILD= NO BUILD



2039 DHV  
BUILD= NO BUILD



PI# 0013174  
DEKALB COUNTY  
SR 126 AT CR 700/  
YOUNG ROAD

24 HOUR T= 2.5%  
SU= 2.2%  
COMB= 0.3%

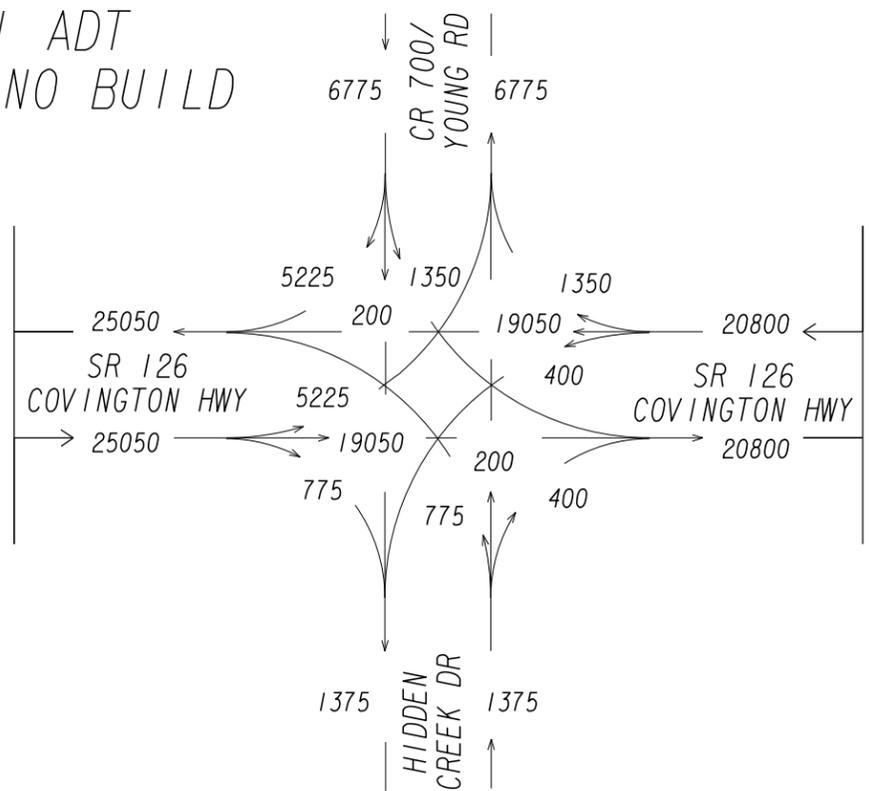


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SU= 1.5%  
COMB= 0.2%

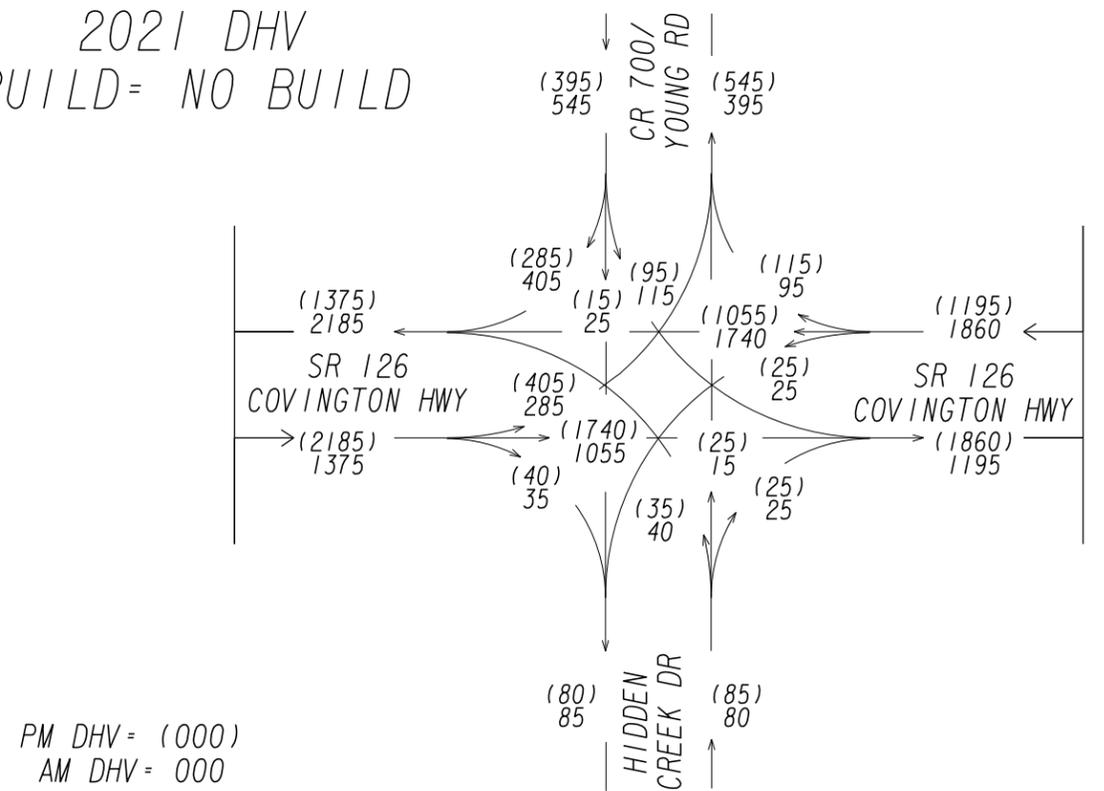
REVISION DATES	
5/2016	

TRAFFIC DIAGRAM			
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BACKCHECKED:		DATE:	
CORRECTED:		DATE:	
VERIFIED:		DATE:	
			DRAWING No. 10-02

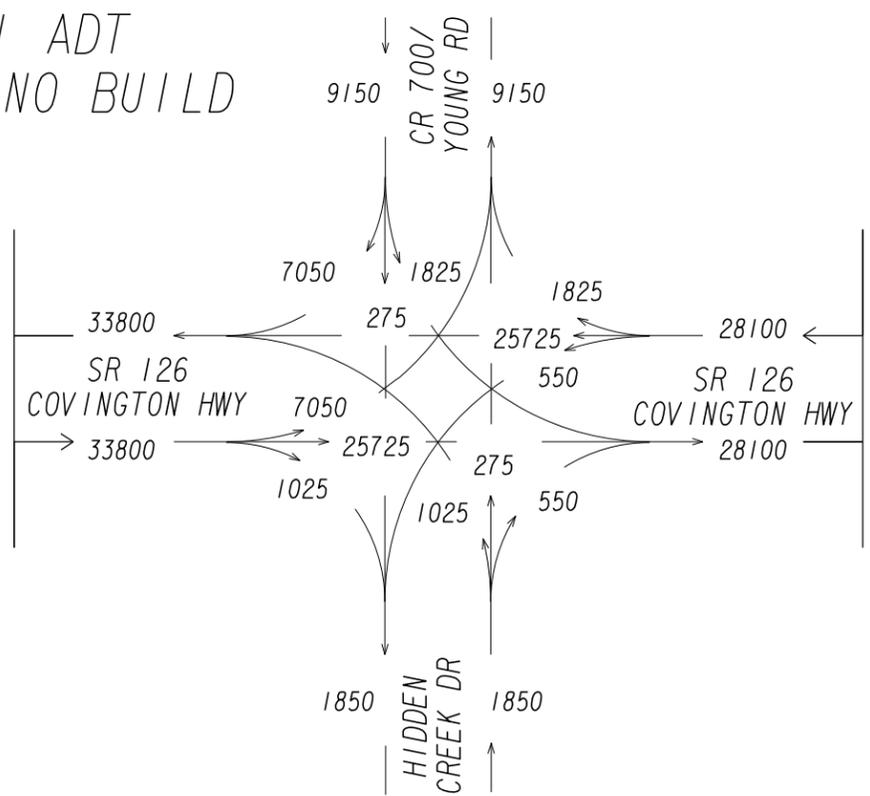
2021 ADT  
BUILD= NO BUILD



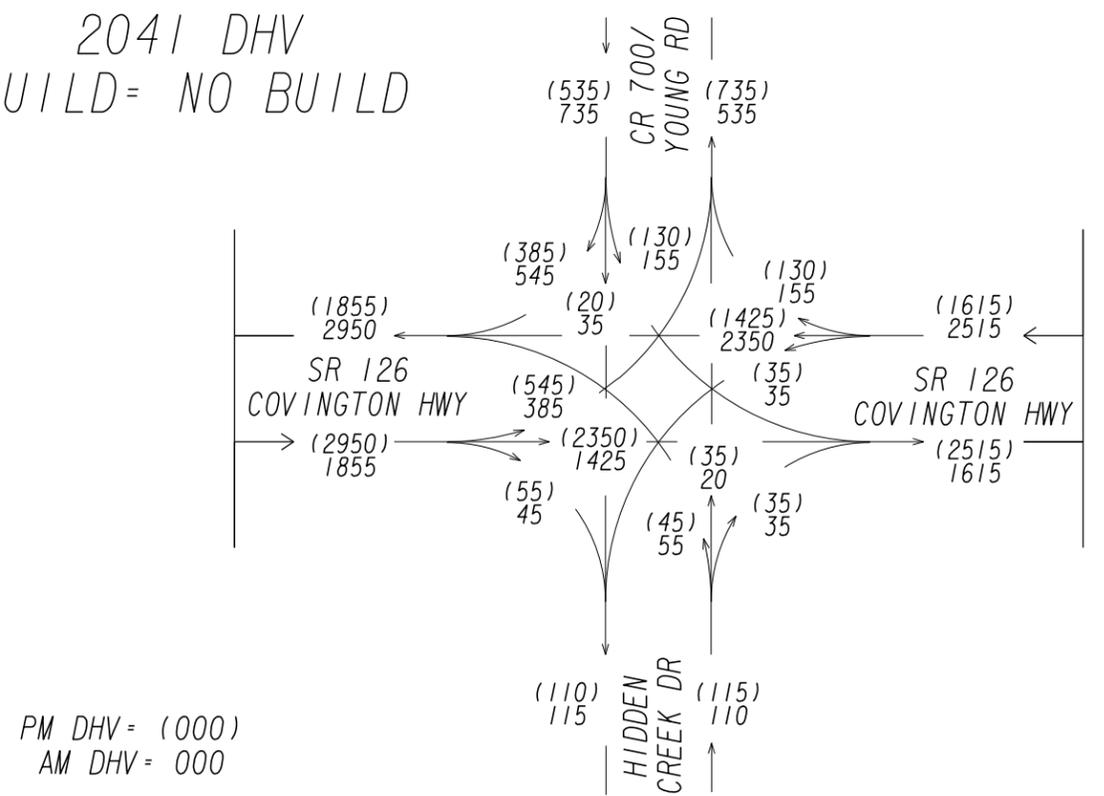
2021 DHV  
BUILD= NO BUILD



2041 ADT  
BUILD= NO BUILD



2041 DHV  
BUILD= NO BUILD



PI# 0013174  
DEKALB COUNTY  
SR 126 AT CR 700/  
YOUNG ROAD

24 HOUR T= 2.5%  
SU= 2.2%  
COMB= 0.3%



T= 1.7%  
SU= 1.5%  
COMB= 0.2%

REVISION DATES	
5/2016	

TRAFFIC DIAGRAM			
CHECKED:	DRF	DATE:	5/5/2016
BACKCHECKED:		DATE:	
CORRECTED:		DATE:	
VERIFIED:		DATE:	
			DRAWING No. 10-03

# CRASH SUMMARIES

2011-2015

## GA 12 and Young Rd/Hidden Creek Road

Year	Angle	Head on	Sideswipe	Rear-end	Not a Collision	Total	Injuries
2011	13	2	9	51	1	76	26
2012	17	3	7	52	3	90	32
2013	21	2	12	41	1	77	38
2014	16	3	9	30	3	61	28
2015	20		8	51	1	80	35

Department of Transportation  
State of Georgia

## Traffic Engineering Report

State Route 12 and Young Rd

In the County of DeKalb  
At the Mile log: 5.53



Report prepared by:  
Phillip Jackson  
Traffic Engineer II  
5025 New Peachtree Rd  
Chamblee, Ga 30341

Telephone number: 770-986-1775  
Email Address: [pjackson@dot.ga.gov](mailto:pjackson@dot.ga.gov)

Date report prepared: November 6, 2013

**Location:**

The intersection of GA 12 and Young Rd is located in Dekalb County, GA.

**Reasons for the Investigation:**

Significant congestion and delay has been noted through aerial imagery provided by SkyComp, Inc. and by field observation on GA 12 near Young Rd.

**Description of intersection**

**\*GA 12 (Covington Hwy)** is a multi-lane collector highway that travels East-West. At this intersection, GA 12 has two thru lanes in both the eastbound and westbound. There are dedicated left and right turn lanes for the Young Rd/Hidden Creek Intersections.

**\*Young Rd and Hidden Creek Dr** are collectors that run North and South. Young Rd is a two lane road that starts at GA 12 and runs North until it terminates at Redan Rd. Many drivers use Young Rd as a cut-thru to Panola Rd. Multiple neighborhoods and subdivisions abut Young Rd. Hidden Creek Drive is a residential street that connects to a gas station, a small manufacturing company with 150 parking lot spaces, and a neighborhood with approximately 250 houses.

**Traffic Volumes in Vehicles per Day (VPD)**

Year	SR 12	Young Rd/Hidden Creek
2011	32340	8530
2010	32220	7841

\*VPD values were taken from Transportation Data Viewer

**Existing Traffic Control:** GA 12 @ Young Road/Hidden Creek is signalized.

**Vehicular Speeds:** The posted speed limit on GA 12 is 45 mph.

**Pedestrian Movements:** Pedestrian movement was observed on GA 12. Vehicular and pedestrian counts were taken.

\*12 pedestrian were observed on the GA 12 and Young Rd intersection during the peak pedestrian hour.

**Other Modes of Transportation Present:** Marta Buses run along the GA 12 corridor. A bus stop is located on the North-East quadrant of the GA 12 and Young Rd intersection

**Observed Delays and Other Field Observations:**

1. Heavy congestion was observed at the intersection.

2. Traffic queues past the in the EB left turn lane on GA 12 in the evening.
3. In the evening, excess green time was observed on Young Rd/Hidden Creek Dr.

**Parking:** No parking was observed or is expected at the intersection

**Adjacent Signalized intersections:**

On GA 12 a stop and go signals are located both 1.2 miles to the east and .5 miles to the west of Young Rd.

**Roundabout:** A roundabout was not considered because of the high mainline volumes. The major street and minor street split of the ADT was approximately 80% and 20% for GA 12 and Young Rd respectively.

**Accident Diagram Observations** (see next page)

1. In the North-East corner, 49 rear-end crashes occurred during a three year period. The majority of these accidents involved vehicles turning right from Young Rd onto GA 12. The skew of Young Rd onto GA 12 likely contributed to some of these accidents. These accidents were primarily property damage only.
2. In the North-West corner, there were 18 crashes and 12 resulting injuries in a 3 year period. Some of these accidents may have been prevented had there been a dedicated right turn lane.



**Traffic Diagram Comparisons**

GA 12 and Young Rd/Hidden Creek Dr. was modeled in Synchro. Several different lane configurations were modeled in synchro.

Option #	Configuration	AM	PM	Avg delay (sec)	Seconds Saved per cycle during peak hour
0	no build	62.3	45.6	53.95	0
1	nb left, SB thru	48.6	39.1	43.85	10.1
2	Nb left, WB right	48.3	39.1	43.7	10.2
3	dual EB left turn lanes	52.7	30.6	41.65	12.3
<b>4</b>	<b>nb left, SB thru &amp; WB right</b>	<b>46.2</b>	<b>35.1</b>	<b>40.65</b>	<b>13.3</b>
<b>5</b>	<b>dual EB left turn lanes, WB right</b>	<b>49.5</b>	<b>27.2</b>	<b>38.35</b>	<b>15.6</b>
6	nb left, dual EB left turn lanes , wb right, sb thru*	43.2	21.8	32.5	21.45

\*major realignment and significant right of way required

Traffic modeling indicates that options 4 and 5 provided the high potential benefit.

Options 4, 5 and 6 were sketched in micro-station.

Option 4

Hidden Valley's lane is currently 17 feet wide and could easily be expanded a few feet. Additional lanes could be added on Young Rd as the adjacent land is undeveloped.

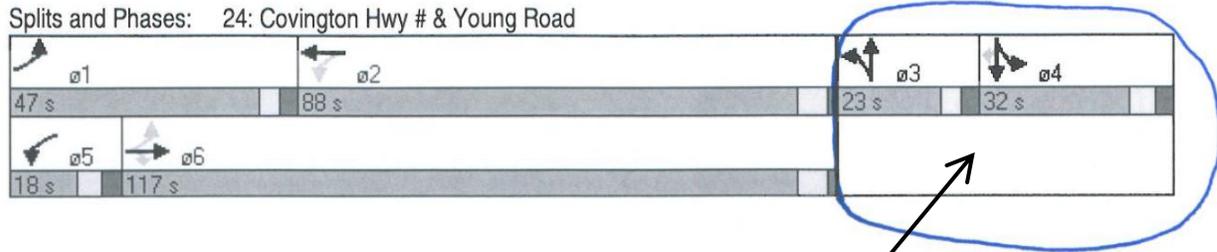
GA 12 and Young Rd/ Hidden Valley





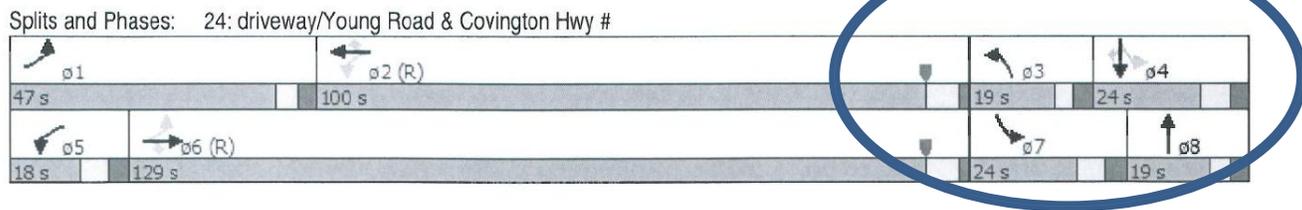
Option 4: Under this option it was possible to run the side-streets concurrently.

Lanes, Volumes, Timings  
 24: Covington Hwy # & Young Road



Adding an additional lane on Young Rd and Hidden Valley Dr., and realigning the intersection would allow 10-20 seconds per cycle to be reallocated from the side-streets to the mainline. This would reduce the delay experienced on the mainline while maintaining the level of service on the side-streets.

Lanes, Volumes, Timings  
 24: driveway/Young Road & Covington Hwy #



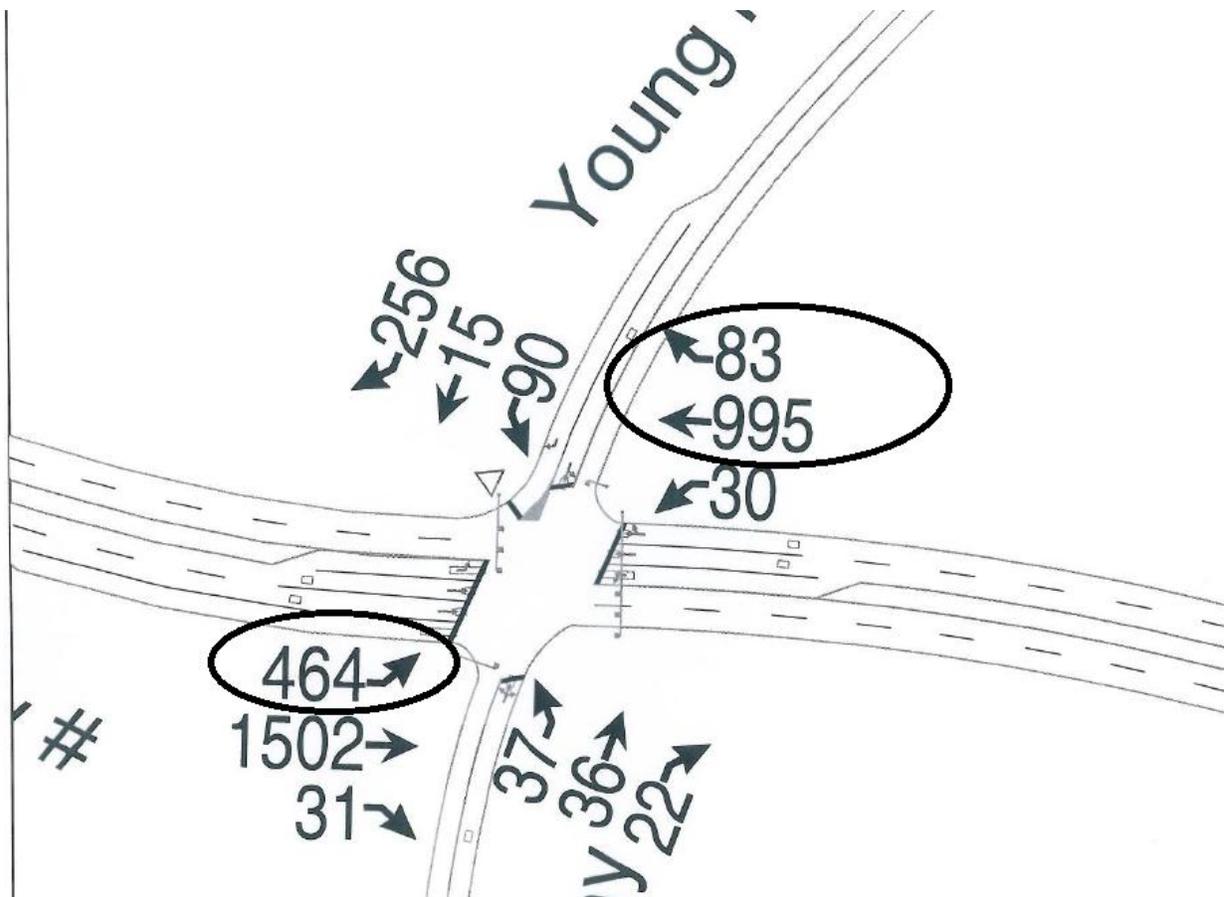
11/6/2013

Option 5: Under this option, the mainline critical movement is reduced by adding an additional EB left turn lane and WB right turn lane.

Critical movement =  $\sum$  (conflicting movement vehicle count/ # lanes)

Mainline critical movement =  $464 + (995+83)/2 = 1002$  vehicles

Proposed mainline critical movement =  $464/2 + (995)/2 = 729$  vehicles





**Option 6** is a combination of Options 4 and 5. Option would likely be approximately twice as expensive as option 4 or 5 while only providing an additional 40% time savings. It would require significant realignment, right-of-way, and engineering costs.



Option 4 (NB left, SB thru, and WB right) and Option 5 (dual lefts and WB right) were further analyzed.

**Synchro Volumes and Delays**

Existing - AM

	Intersectio n	GA 12 - EB			GA 12 - WB			Young Rd - NB			Young Rd - SB		
		L	T	R	L	T	R	L	T	R	L	T	R
<b>V/C Ratio</b>	1.17	0.90	0.30	0.02	0.03	0.96			0.57			0.27	0.17
<b>LOS</b>	E	F	B	A	B	D			F			E	F
<b>Delay</b>	62.3	87.9	17.4	6.4	12.8	54.9			85.7			64.8	133.8

Proposed – AM dual lefts and WB right turn lane

	Intersecti on	GA 12 - EB			GA 12 - WB			Young Rd - NB			Young Rd - SB		
		L	T	R	L	T	R	L	T	R	L	T	R
<b>V/C Ratio</b>	1.11	0.64	0.31	0.02	0.03	0.88	0.08		0.57			0.25	1.11
<b>LOS</b>	D	D	B	A	B	D	B		F			E	F
<b>Delay</b>	49.6	39.2	18.5	6.4	12.5	43.6	10.8		85.7			63.2	112.7

Proposed – AM NB left , WB right, SB thru

	Intersecti on	GA 12 - EB			GA 12 - WB			Young Rd - NB			Young Rd - SB		
		L	T	R	L	T	R	L	T	R	L	T	R
<b>V/C Ratio</b>	1.22	0.73	0.26	0.01	0.03	0.78	0.07	0.27	0.21		0.28	.2	1.19
<b>LOS</b>	D	E	B	A	A	C	A	E	D		E	F	F
<b>Delay</b>	46.1	73	11.3	0	7.6	30.0	.1	58.8	43.2		58.2	68	138.3

Existing – PM

	Intersecti on	GA 12 - EB			GA 12 - WB			Young Rd - NB			Young Rd – SB		
		L	T	R	L	T	R	L	T	R	L	T	R
<b>V/C Ratio</b>	1.11	1.11	0.74	0.03	0.46	0.43			0.08			0.10	0.10
<b>LOS</b>	D	F	A	A	C	E			F			F	B
<b>Delay</b>	45.6	128.4	8.2	1.3	22.9	60.0			105.3			96.0	15.6

Proposed – PM dual lefts and WB right turn lane

	Intersecti on	GA 12 - EB			GA 12 - WB			Young Rd - NB			Young Rd - SB		
		L	T	R	L	T	R	L	T	R	L	T	R
<b>V/C Ratio</b>	0.74	0.68	0.74	0.03	0.26	0.64	0.12		0.72			0.63	0.68
<b>LOS</b>	C	D	A	A	B	D	B		F			F	B
<b>Delay</b>	28.2	48.7	8.2	1.3	19.3	39.3	11.9		105.3			96.0	15.6

Proposed – PM NB left, WB right, SB thru

	Intersectio n	GA 12 - EB			GA 12 - WB			Young Rd - NB			Young Rd - SB		
		L	T	R	L	T	R	L	T	R	L	T	R
<b>V/C Ratio</b>	1.02	.7	0.73	0.03	0.23	0.72	0.13	0.41	0.52		.45	0.1	.7
<b>LOS</b>	C	F	A	A	B	D	A	F	D		E	F	B
<b>Delay</b>	34.3	104	5.5	0	13.2	43	4	97.6	82.1		76.1	81	16.9

**Intersection performance summary**

Option	AM	PM	LOS AM	LOS PM
No build	62.3	45.6**	E	D
dual EB left turn lanes & WB right	49.6*	28.2	D	C
nb left, SB thru & WB right	46.1*	34.3	D	C

Notes

\*morning benefits may not be fully realized due WB traffic delays.

\*\* traffic delays may be greater than calculated, because EB left turning queues from GA 12 onto Young Rd extend beyond the left turn bay.



**Conclusion:**

An intersection improvement project would improve traffic operations and reduce the number of accidents on Young Rd/Hidden Creek and GA 12. Providing a Westbound right turn lane from GA 12 onto Young Rd would reduce the number of accidents and provide operational benefits to the intersection.

Additionally, two different alternatives that could reduce the overall traffic delay on GA 12 were sketched and evaluated. Both options would reduce the delay on GA 12 and reduce the total number of accidents.

\*One alternative is to add an additional left turn lane on Hidden Creek, add a SB thru lane on Young Rd and remove the side street split phasing.

\*A second alternative is to add an additional Eastbound left turn lane from GA 12 onto Young Rd.

Both projects were modeled in Synchro and showed comparable intersection savings.

**Recommendations**

This office recommends the following alternatives:

Alternative 1:

- \*Install a dedicated Westbound right turn lane from GA 12 onto Young Rd.
- \*Install an additional second Eastbound left-turn lane. Add a 600 foot receiving lane on to Young Rd.

Alternative 2:

- \*Install a dedicated Westbound right turn lane from GA 12 onto Young Rd.
- \*Install a left turn lane from Hidden Cr Drive on to GA 12 and install a Southbound thru lane on Young Rd. Remove split phasing from side street cycles during peak hour.

PREPARED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

District Traffic Operations Manager

RECOMMENDED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

District Traffic Engineer

RECOMMENDED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

State Traffic Operations Engineer

APPROVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

Director of Operations

Traffic Engineering Report  
State Route 12 at Young Rd  
Date November 6, 2013  
Page 19 of 20

cc: file

Traffic Engineering Report  
State Route 12 at Young Rd  
Date November 6, 2013  
Page 20 of 20

**Traffic Engineering Report Appendix**  
\*Synchro Timing Sheets

Lanes, Volumes, Timings  
24: Covington Hwy 12 & Young Road

AM 2016  
5/11/2016

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	265	980	30	25	1620	90	35	15	25	105	25	375
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-6%			3%			-4%	
Storage Length (ft)	153		356	103		0	0		0	0		135
Storage Lanes	1		1	1		0	0		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frts			0.850		0.992			0.955				0.850
Flt Protected	0.950			0.950				0.977			0.961	
Satd. Flow (prot)	1770	3539	1583	1823	3616	0	0	1712	0	0	1826	1615
Flt Permitted	0.044			0.227				0.977			0.961	
Satd. Flow (perm)	82	3539	1583	436	3616	0	0	1712	0	0	1826	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			33		5			12				187
Link Speed (mph)		45			45			25				40
Link Distance (ft)		503			553			256				407
Travel Time (s)		7.6			8.4			7.0				6.9
Peak Hour Factor	0.90	0.90	0.90	0.88	0.88	0.88	0.93	0.93	0.93	0.95	0.95	0.95
Adj. Flow (vph)	294	1089	33	28	1841	102	38	16	27	111	26	395
Shared Lane Traffic (%)												
Lane Group Flow (vph)	294	1089	33	28	1943	0	0	81	0	0	137	395
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	0.96	0.96	0.96	1.02	1.02	1.02	0.97	0.97	0.97
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt		Perm	pm+pt			Split			Split		Perm
Protected Phases	1	6		5	2		3	3		4	4	
Permitted Phases	6		6	2								4

Lanes, Volumes, Timings  
24: Covington Hwy 12 & Young Road

AM 2016  
5/11/2016

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6	6	5	2		3	3		4	4	4
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	11.3	32.8	32.8	12.2	37.8		13.1	13.1		14.6	14.6	14.6
Total Split (s)	24.0	100.0	100.0	15.0	91.0	0.0	20.0	20.0	0.0	35.0	35.0	35.0
Total Split (%)	14.1%	58.8%	58.8%	8.8%	53.5%	0.0%	11.8%	11.8%	0.0%	20.6%	20.6%	20.6%
Maximum Green (s)	17.7	93.2	93.2	7.8	84.2		13.9	13.9		27.4	27.4	27.4
Yellow Time (s)	3.3	5.1	5.1	4.2	5.1		3.0	3.0		4.4	4.4	4.4
All-Red Time (s)	3.0	1.7	1.7	3.0	1.7		3.1	3.1		3.2	3.2	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.3	6.8	6.8	7.2	6.8	4.0	6.1	6.1	4.0	7.6	7.6	7.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	5.0	5.0	2.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Gap (s)	0.2	3.0	3.0	0.2	3.0		0.2	0.2		0.2	0.2	0.2
Time Before Reduce (s)	0.0	20.0	20.0	0.0	20.0		0.0	0.0		0.0	0.0	0.0
Time To Reduce (s)	0.0	10.0	10.0	0.0	10.0		0.0	0.0		0.0	0.0	0.0
Recall Mode	None	C-Min	C-Min	None	C-Min		Min	Min		None	None	None
Walk Time (s)		7.0	7.0		7.0							
Flash Dont Walk (s)		19.0	19.0		24.0							
Pedestrian Calls (#/hr)		0	0		0							
Act Effct Green (s)	110.4	102.0	102.0	89.4	84.2		12.5			27.1	27.1	
Actuated g/C Ratio	0.65	0.60	0.60	0.53	0.50		0.07			0.16	0.16	
v/c Ratio	1.20	0.51	0.03	0.10	1.08		0.59			0.47	0.95	
Control Delay	166.3	21.8	5.0	13.4	88.2		82.0			70.7	69.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0			0.0	0.0	
Total Delay	166.3	21.8	5.0	13.4	88.2		82.0			70.7	69.9	
LOS	F	C	A	B	F		F			E	E	
Approach Delay		51.4			87.1		82.0			70.1		
Approach LOS		D			F		F			E		
90th %ile Green (s)	17.7	94.5	94.5	6.5	84.2		13.9	13.9		27.4	27.4	27.4
90th %ile Term Code	Max	Coord	Coord	Gap	Coord		Max	Max		Max	Max	Max
70th %ile Green (s)	17.7	95.1	95.1	5.9	84.2		13.9	13.9		27.4	27.4	27.4
70th %ile Term Code	Max	Coord	Coord	Gap	Coord		Max	Max		Max	Max	Max
50th %ile Green (s)	17.7	95.6	95.6	5.4	84.2		13.9	13.9		27.4	27.4	27.4
50th %ile Term Code	Max	Coord	Coord	Gap	Coord		Max	Max		Max	Max	Max
30th %ile Green (s)	17.7	108.2	108.2	0.0	84.2		12.0	12.0		29.3	29.3	29.3
30th %ile Term Code	Max	Coord	Coord	Skip	Coord		Gap	Gap		Max	Max	Max
10th %ile Green (s)	26.1	116.6	116.6	0.0	84.2		9.0	9.0		23.9	23.9	23.9
10th %ile Term Code	Max	Coord	Coord	Skip	Coord		Gap	Gap		Gap	Gap	Gap
Stops (vph)	161	559	4	12	1510		61			117	188	
Fuel Used(gal)	12	15	0	0	56		2			3	8	
CO Emissions (g/hr)	827	1014	12	21	3887		115			236	575	
NOx Emissions (g/hr)	161	197	2	4	756		22			46	112	
VOC Emissions (g/hr)	192	235	3	5	901		27			55	133	
Dilemma Vehicles (#)	0	29	0	0	46		0			4	0	
Queue Length 50th (ft)	~365	393	0	11	~1270		75			140	251	
Queue Length 95th (ft)	#570	464	17	24	#1345		137			217	#468	
Internal Link Dist (ft)		423			473		176			327		

Lanes, Volumes, Timings  
 24: Covington Hwy 12 & Young Road

AM 2016  
 5/11/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)	153		356	103								135
Base Capacity (vph)	246	2123	963	299	1794			151			298	420
Starvation Cap Reductn	0	0	0	0	0			0			0	0
Spillback Cap Reductn	0	0	0	0	0			0			0	0
Storage Cap Reductn	0	0	0	0	0			0			0	0
Reduced v/c Ratio	1.20	0.51	0.03	0.09	1.08			0.54			0.46	0.94

Intersection Summary

Area Type: Other  
 Cycle Length: 170  
 Actuated Cycle Length: 170  
 Offset: 35 (21%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.20  
 Intersection Signal Delay: 72.1  
 Intersection Capacity Utilization 93.8%  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Intersection LOS: E  
 ICU Level of Service F

Splits and Phases: 24: Covington Hwy 12 & Young Road

ø1	ø2	ø3	ø4
24 s	91 s	20 s	35 s
ø5	ø6		
15 s	100 s		

Lanes, Volumes, Timings  
24: Covington Hwy 12 & Young Road

AM 2019 No Build

5/11/2016

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	285	1015	35	25	1685	95	35	15	25	110	25	400
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-6%			3%			-4%	
Storage Length (ft)	153		356	103		0	0		0	0		135
Storage Lanes	1		1	1		0	0		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.992			0.955				0.850
Flt Protected	0.950			0.950				0.977			0.961	
Satd. Flow (prot)	1770	3539	1583	1823	3616	0	0	1712	0	0	1826	1615
Flt Permitted	0.044			0.205				0.977			0.961	
Satd. Flow (perm)	82	3539	1583	393	3616	0	0	1712	0	0	1826	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			39		5			12				186
Link Speed (mph)		45			45			25			40	
Link Distance (ft)		503			553			256			407	
Travel Time (s)		7.6			8.4			7.0			6.9	
Peak Hour Factor	0.90	0.90	0.90	0.88	0.88	0.88	0.93	0.93	0.93	0.95	0.95	0.95
Adj. Flow (vph)	317	1128	39	28	1915	108	38	16	27	116	26	421
Shared Lane Traffic (%)												
Lane Group Flow (vph)	317	1128	39	28	2023	0	0	81	0	0	142	421
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	0.96	0.96	0.96	1.02	1.02	1.02	0.97	0.97	0.97
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt		Perm	pm+pt			Split			Split		Perm
Protected Phases	1	6		5	2		3	3		4	4	
Permitted Phases	6		6	2								4

Lanes, Volumes, Timings  
24: Covington Hwy 12 & Young Road

AM 2019 No Build  
5/11/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6	6	5	2		3	3		4	4	4
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	11.3	32.8	32.8	12.2	37.8		13.1	13.1		14.6	14.6	14.6
Total Split (s)	24.0	100.0	100.0	15.0	91.0	0.0	20.0	20.0	0.0	35.0	35.0	35.0
Total Split (%)	14.1%	58.8%	58.8%	8.8%	53.5%	0.0%	11.8%	11.8%	0.0%	20.6%	20.6%	20.6%
Maximum Green (s)	17.7	93.2	93.2	7.8	84.2		13.9	13.9		27.4	27.4	27.4
Yellow Time (s)	3.3	5.1	5.1	4.2	5.1		3.0	3.0		4.4	4.4	4.4
All-Red Time (s)	3.0	1.7	1.7	3.0	1.7		3.1	3.1		3.2	3.2	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.3	6.8	6.8	7.2	6.8	4.0	6.1	6.1	4.0	7.6	7.6	7.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	5.0	5.0	2.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Gap (s)	0.2	3.0	3.0	0.2	3.0		0.2	0.2		0.2	0.2	0.2
Time Before Reduce (s)	0.0	20.0	20.0	0.0	20.0		0.0	0.0		0.0	0.0	0.0
Time To Reduce (s)	0.0	10.0	10.0	0.0	10.0		0.0	0.0		0.0	0.0	0.0
Recall Mode	None	C-Min	C-Min	None	C-Min		Min	Min		None	None	None
Walk Time (s)		7.0	7.0		7.0							
Flash Dont Walk (s)		19.0	19.0		24.0							
Pedestrian Calls (#/hr)		0	0		0							
Act Effct Green (s)	108.7	100.3	100.3	89.4	84.2		12.5			28.8	28.8	
Actuated g/C Ratio	0.64	0.59	0.59	0.53	0.50		0.07			0.17	0.17	
v/c Ratio	1.39	0.54	0.04	0.11	1.13		0.59			0.46	0.98	
Control Delay	240.1	22.9	4.6	13.6	104.8		82.0			69.7	77.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0			0.0	0.0	
Total Delay	240.1	22.9	4.6	13.6	104.8		82.0			69.7	77.7	
LOS	F	C	A	B	F		F			E	E	
Approach Delay		68.8			103.6		82.0			75.7		
Approach LOS		E			F		F			E		
90th %ile Green (s)	17.7	94.5	94.5	6.5	84.2		13.9	13.9		27.4	27.4	27.4
90th %ile Term Code	Max	Coord	Coord	Gap	Coord		Max	Max		Max	Max	Max
70th %ile Green (s)	17.7	95.1	95.1	5.9	84.2		13.9	13.9		27.4	27.4	27.4
70th %ile Term Code	Max	Coord	Coord	Gap	Coord		Max	Max		Max	Max	Max
50th %ile Green (s)	17.7	95.6	95.6	5.4	84.2		13.9	13.9		27.4	27.4	27.4
50th %ile Term Code	Max	Coord	Coord	Gap	Coord		Max	Max		Max	Max	Max
30th %ile Green (s)	17.7	108.2	108.2	0.0	84.2		12.0	12.0		29.3	29.3	29.3
30th %ile Term Code	Max	Coord	Coord	Skip	Coord		Gap	Gap		Max	Max	Max
10th %ile Green (s)	17.7	108.2	108.2	0.0	84.2		9.0	9.0		32.3	32.3	32.3
10th %ile Term Code	Max	Coord	Coord	Skip	Coord		Gap	Gap		Max	Max	Max
Stops (vph)	174	598	4	12	1543		61			121	202	
Fuel Used(gal)	17	15	0	0	64		2			3	9	
CO Emissions (g/hr)	1190	1083	14	22	4444		115			243	658	
NOx Emissions (g/hr)	232	211	3	4	865		22			47	128	
VOC Emissions (g/hr)	276	251	3	5	1030		27			56	153	
Dilemma Vehicles (#)	0	30	0	0	46		0			4	0	
Queue Length 50th (ft)	~419	414	0	11	~1368		75			146	~299	
Queue Length 95th (ft)	#629	487	19	24	#1437		137			224	#533	
Internal Link Dist (ft)		423			473		176			327		

Lanes, Volumes, Timings  
 24: Covington Hwy 12 & Young Road

AM 2019 No Build  
 5/11/2016

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)	153		356	103								135
Base Capacity (vph)	228	2088	950	277	1794			151			309	428
Starvation Cap Reductn	0	0	0	0	0			0			0	0
Spillback Cap Reductn	0	0	0	0	0			0			0	0
Storage Cap Reductn	0	0	0	0	0			0			0	0
Reduced v/c Ratio	1.39	0.54	0.04	0.10	1.13			0.54			0.46	0.98

Intersection Summary

Area Type: Other  
 Cycle Length: 170  
 Actuated Cycle Length: 170  
 Offset: 35 (21%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.39  
 Intersection Signal Delay: 87.1 Intersection LOS: F  
 Intersection Capacity Utilization 97.3% ICU Level of Service F  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 24: Covington Hwy 12 & Young Road

ø1	ø2	ø3	ø4
24 s	91 s	20 s	35 s
ø5	ø6		
15 s	100 s		

Lanes, Volumes, Timings  
24: Covington Hwy 12 & Young Road

AM 2019 Proposed  
5/11/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	285	1015	35	25	1685	95	35	15	25	110	25	400
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-6%			3%			-4%	
Storage Length (ft)	560		356	103		200	200		0	200		135
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.906				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1823	3645	1631	1743	1662	0	1805	1900	1615
Flt Permitted	0.050			0.228			0.950			0.950		
Satd. Flow (perm)	93	3539	1583	437	3645	1631	1743	1662	0	1805	1900	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			39			45		27				181
Link Speed (mph)		45			45			25			40	
Link Distance (ft)		503			553			256			407	
Travel Time (s)		7.6			8.4			7.0			6.9	
Peak Hour Factor	0.90	0.90	0.90	0.88	0.88	0.88	0.93	0.93	0.93	0.95	0.95	0.95
Adj. Flow (vph)	317	1128	39	28	1915	108	38	16	27	116	26	421
Shared Lane Traffic (%)												
Lane Group Flow (vph)	317	1128	39	28	1915	108	38	43	0	116	26	421
Enter Blocked Intersection	No	No	No	No	No	No						
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	0.96	0.96	0.96	1.02	1.02	1.02	0.97	0.97	0.97
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	20
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex						
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt		Perm	pm+pt		Perm	Split			Split		Perm
Protected Phases	1	6		5	2		3	3		4	4	
Permitted Phases	6		6	2		2						4

Lanes, Volumes, Timings  
24: Covington Hwy 12 & Young Road

AM 2019 Proposed  
5/11/2016

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Detector Phase	1	6	6	5	2	2	3	3		4	4	4	
Switch Phase													
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	7.0	7.0		7.0	7.0	7.0	
Minimum Split (s)	11.3	32.8	32.8	12.2	37.8	37.8	13.1	13.1		14.6	14.6	14.6	
Total Split (s)	26.2	94.0	94.0	12.2	80.0	80.0	13.1	13.1	0.0	30.7	30.7	30.7	
Total Split (%)	17.5%	62.7%	62.7%	8.1%	53.3%	53.3%	8.7%	8.7%	0.0%	20.5%	20.5%	20.5%	
Maximum Green (s)	19.9	87.2	87.2	5.0	73.2	73.2	7.0	7.0		23.1	23.1	23.1	
Yellow Time (s)	3.3	5.1	5.1	4.2	5.1	5.1	3.0	3.0		4.4	4.4	4.4	
All-Red Time (s)	3.0	1.7	1.7	3.0	1.7	1.7	3.1	3.1		3.2	3.2	3.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.3	6.8	6.8	7.2	6.8	6.8	6.1	6.1	4.0	7.6	7.6	7.6	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead		Lag	Lag	Lag	
Lead-Lag Optimize?													
Vehicle Extension (s)	3.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	
Minimum Gap (s)	0.2	3.0	3.0	0.2	3.0	3.0	0.2	0.2		0.2	0.2	0.2	
Time Before Reduce (s)	0.0	20.0	20.0	0.0	20.0	20.0	0.0	0.0		0.0	0.0	0.0	
Time To Reduce (s)	0.0	10.0	10.0	0.0	10.0	10.0	0.0	0.0		0.0	0.0	0.0	
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	Min	Min		None	None	None	
Walk Time (s)		7.0	7.0		7.0	7.0							
Flash Dont Walk (s)		19.0	19.0		24.0	24.0							
Pedestrian Calls (#/hr)		0	0		0	0							
Act Effct Green (s)	99.9	92.1	92.1	77.8	73.2	73.2	7.0	7.0		23.1	23.1	23.1	
Actuated g/C Ratio	0.67	0.61	0.61	0.52	0.49	0.49	0.05	0.05		0.15	0.15	0.15	
v/c Ratio	1.12	0.52	0.04	0.10	1.08	0.13	0.47	0.42		0.42	0.09	1.05	
Control Delay	131.5	18.2	3.9	11.3	82.2	12.6	88.7	46.5		62.6	55.4	91.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	
Total Delay	131.5	18.2	3.9	11.3	82.2	12.6	88.7	46.5		62.6	55.4	91.5	
LOS	F	B	A	B	F	B	F	D		E	E	F	
Approach Delay		42.0			77.6			66.3			83.9		
Approach LOS		D			E			E			F		
90th %ile Green (s)	19.9	87.2	87.2	5.0	73.2	73.2	7.0	7.0		23.1	23.1	23.1	
90th %ile Term Code	Max	Coord	Coord	Max	Coord	Coord	Max	Max		Max	Max	Max	
70th %ile Green (s)	19.9	87.2	87.2	5.0	73.2	73.2	7.0	7.0		23.1	23.1	23.1	
70th %ile Term Code	Max	Coord	Coord	Max	Coord	Coord	Max	Max		Max	Max	Max	
50th %ile Green (s)	19.9	87.2	87.2	5.0	73.2	73.2	7.0	7.0		23.1	23.1	23.1	
50th %ile Term Code	Max	Coord	Coord	Max	Coord	Coord	Max	Max		Max	Max	Max	
30th %ile Green (s)	19.9	99.4	99.4	0.0	73.2	73.2	7.0	7.0		23.1	23.1	23.1	
30th %ile Term Code	Max	Coord	Coord	Skip	Coord	Coord	Max	Max		Max	Max	Max	
10th %ile Green (s)	19.9	99.4	99.4	0.0	73.2	73.2	7.0	7.0		23.1	23.1	23.1	
10th %ile Term Code	Max	Coord	Coord	Skip	Coord	Coord	Max	Max		Max	Max	Max	
Stops (vph)	195	561	4	13	1488	31	33	19		98	22	201	
Fuel Used(gal)	11	14	0	0	53	1	1	1		3	1	11	
CO Emissions (g/hr)	768	982	13	22	3687	68	58	38		187	40	736	
NOx Emissions (g/hr)	149	191	3	4	717	13	11	7		36	8	143	
VOC Emissions (g/hr)	178	228	3	5	855	16	14	9		43	9	171	
Dilemma Vehicles (#)	0	34	0	0	51	0	0	0		0	1	0	
Queue Length 50th (ft)	~304	343	0	9	~1094	32	37	15		104	22	~287	
Queue Length 95th (ft)	#503	405	17	20	#1181	66	79	58		171	52	#505	
Internal Link Dist (ft)		423			473			176			327		

Lanes, Volumes, Timings  
 24: Covington Hwy 12 & Young Road

AM 2019 Proposed  
 5/11/2016

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)	560		356	103		200	200			200		135
Base Capacity (vph)	284	2172	987	273	1779	819	81	103		278	293	402
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	1.12	0.52	0.04	0.10	1.08	0.13	0.47	0.42		0.42	0.09	1.05

Intersection Summary

Area Type: Other  
 Cycle Length: 150  
 Actuated Cycle Length: 150  
 Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.12  
 Intersection Signal Delay: 65.6  
 Intersection Capacity Utilization 94.3%  
 Analysis Period (min) 15  
 Intersection LOS: E  
 ICU Level of Service F

~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 24: Covington Hwy 12 & Young Road

ø1	ø2	ø3	ø4
26.2 s	80 s	13.1 s	30.7 s
ø5	ø6		
12.2 s	94 s		

Lanes, Volumes, Timings  
24: Covington Hwy 12 & Young Road

AM 2039 No Build  
5/11/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	375	1380	45	35	2285	125	50	20	35	150	35	530
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-6%			3%			-4%	
Storage Length (ft)	153		356	103		0	0		0	0		135
Storage Lanes	1		1	1		0	0		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.992			0.955				0.850
Flt Protected	0.950			0.950				0.977			0.961	
Satd. Flow (prot)	1770	3539	1583	1823	3616	0	0	1712	0	0	1826	1615
Flt Permitted	0.044			0.085				0.977			0.961	
Satd. Flow (perm)	82	3539	1583	163	3616	0	0	1712	0	0	1826	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			44		5			12				166
Link Speed (mph)		45			45			25			40	
Link Distance (ft)		503			553			256			407	
Travel Time (s)		7.6			8.4			7.0			6.9	
Peak Hour Factor	0.90	0.90	0.90	0.88	0.88	0.88	0.93	0.93	0.93	0.95	0.95	0.95
Adj. Flow (vph)	417	1533	50	40	2597	142	54	22	38	158	37	558
Shared Lane Traffic (%)												
Lane Group Flow (vph)	417	1533	50	40	2739	0	0	114	0	0	195	558
Enter Blocked Intersection	No	No	No	No	No	No						
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	0.96	0.96	0.96	1.02	1.02	1.02	0.97	0.97	0.97
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt		Perm	pm+pt			Split			Split		Perm
Protected Phases	1	6		5	2		3	3		4	4	
Permitted Phases	6		6	2								4

Lanes, Volumes, Timings  
24: Covington Hwy 12 & Young Road

AM 2039 No Build  
5/11/2016

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6	6	5	2		3	3		4	4	4
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	11.3	32.8	32.8	12.2	37.8		13.1	13.1		14.6	14.6	14.6
Total Split (s)	24.0	100.0	100.0	15.0	91.0	0.0	20.0	20.0	0.0	35.0	35.0	35.0
Total Split (%)	14.1%	58.8%	58.8%	8.8%	53.5%	0.0%	11.8%	11.8%	0.0%	20.6%	20.6%	20.6%
Maximum Green (s)	17.7	93.2	93.2	7.8	84.2		13.9	13.9		27.4	27.4	27.4
Yellow Time (s)	3.3	5.1	5.1	4.2	5.1		3.0	3.0		4.4	4.4	4.4
All-Red Time (s)	3.0	1.7	1.7	3.0	1.7		3.1	3.1		3.2	3.2	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.3	6.8	6.8	7.2	6.8	4.0	6.1	6.1	4.0	7.6	7.6	7.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	5.0	5.0	2.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Gap (s)	0.2	3.0	3.0	0.2	3.0		0.2	0.2		0.2	0.2	0.2
Time Before Reduce (s)	0.0	20.0	20.0	0.0	20.0		0.0	0.0		0.0	0.0	0.0
Time To Reduce (s)	0.0	10.0	10.0	0.0	10.0		0.0	0.0		0.0	0.0	0.0
Recall Mode	None	C-Min	C-Min	None	C-Min		Min	Min		None	None	None
Walk Time (s)		7.0	7.0		7.0							
Flash Dont Walk (s)		19.0	19.0		24.0							
Pedestrian Calls (#/hr)		0	0		0							
Act Effct Green (s)	108.7	97.5	97.5	89.7	84.2		13.5			27.8	27.8	
Actuated g/C Ratio	0.64	0.57	0.57	0.53	0.50		0.08			0.16	0.16	
v/c Ratio	1.83	0.76	0.05	0.28	1.53		0.78			0.65	1.38	
Control Delay	420.7	31.0	5.4	17.9	271.8		100.1			78.1	221.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0			0.0	0.0	
Total Delay	420.7	31.0	5.4	17.9	271.8		100.1			78.1	221.2	
LOS	F	C	A	B	F		F			E	F	
Approach Delay		111.6			268.2		100.1			184.1		
Approach LOS		F			F		F			F		
90th %ile Green (s)	17.7	93.8	93.8	7.2	84.2		13.9	13.9		27.4	27.4	27.4
90th %ile Term Code	Max	Coord	Coord	Gap	Coord		Max	Max		Max	Max	Max
70th %ile Green (s)	17.7	94.6	94.6	6.4	84.2		13.9	13.9		27.4	27.4	27.4
70th %ile Term Code	Max	Coord	Coord	Gap	Coord		Max	Max		Max	Max	Max
50th %ile Green (s)	17.7	95.2	95.2	5.8	84.2		13.9	13.9		27.4	27.4	27.4
50th %ile Term Code	Max	Coord	Coord	Gap	Coord		Max	Max		Max	Max	Max
30th %ile Green (s)	17.7	95.7	95.7	5.3	84.2		13.9	13.9		27.4	27.4	27.4
30th %ile Term Code	Max	Coord	Coord	Gap	Coord		Max	Max		Max	Max	Max
10th %ile Green (s)	17.7	108.2	108.2	0.0	84.2		11.9	11.9		29.4	29.4	29.4
10th %ile Term Code	Max	Coord	Coord	Skip	Coord		Gap	Gap		Max	Max	Max
Stops (vph)	201	1023	6	16	1681		87			174	271	
Fuel Used(gal)	36	26	0	0	163		3			5	28	
CO Emissions (g/hr)	2505	1814	19	32	11389		190			361	1957	
NOx Emissions (g/hr)	487	353	4	6	2216		37			70	381	
VOC Emissions (g/hr)	581	420	4	7	2639		44			84	453	
Dilemma Vehicles (#)	0	41	0	0	47		0			6	0	
Queue Length 50th (ft)	~652	680	3	16	~2248		113			207	~666	
Queue Length 95th (ft)	#881	790	25	31	#2272		#219			302	#911	
Internal Link Dist (ft)		423			473		176			327		

Lanes, Volumes, Timings  
 24: Covington Hwy 12 & Young Road

AM 2039 No Build  
 5/11/2016

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)	153		356	103								135
Base Capacity (vph)	228	2030	927	164	1794			151			298	403
Starvation Cap Reductn	0	0	0	0	0			0			0	0
Spillback Cap Reductn	0	0	0	0	0			0			0	0
Storage Cap Reductn	0	0	0	0	0			0			0	0
Reduced v/c Ratio	1.83	0.76	0.05	0.24	1.53			0.75			0.65	1.38

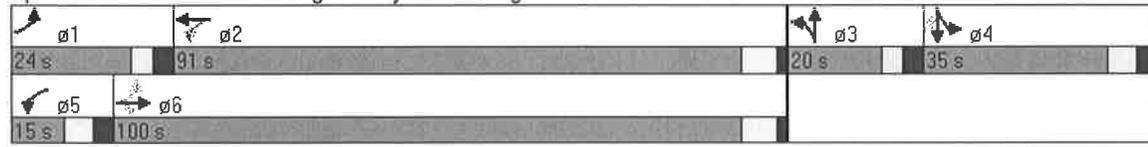
Intersection Summary

Area Type: Other  
 Cycle Length: 170  
 Actuated Cycle Length: 170  
 Offset: 75 (44%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.83  
 Intersection Signal Delay: 198.1  
 Intersection Capacity Utilization 123.0%  
 Analysis Period (min) 15  
 Intersection LOS: F  
 ICU Level of Service H

~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 24: Covington Hwy 12 & Young Road



Lanes, Volumes, Timings  
24: Covington Hwy 12 & Young Road

AM 2039 Proposed  
5/11/2016

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	375	1380	45	35	2285	125	50	20	35	150	35	530
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-6%			3%			-4%	
Storage Length (ft)	560		356	103		200	200		0	200		135
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.905				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1823	3645	1631	1743	1660	0	1805	1900	1615
Flt Permitted	0.049			0.098			0.950			0.950		
Satd. Flow (perm)	91	3539	1583	188	3645	1631	1743	1660	0	1805	1900	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			50			45		38				142
Link Speed (mph)		45			45			25			40	
Link Distance (ft)		503			553			256			407	
Travel Time (s)		7.6			8.4			7.0			6.9	
Peak Hour Factor	0.90	0.90	0.90	0.88	0.88	0.88	0.93	0.93	0.93	0.95	0.95	0.95
Adj. Flow (vph)	417	1533	50	40	2597	142	54	22	38	158	37	558
Shared Lane Traffic (%)												
Lane Group Flow (vph)	417	1533	50	40	2597	142	54	60	0	158	37	558
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	0.96	0.96	0.96	1.02	1.02	1.02	0.97	0.97	0.97
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt		Perm	pm+pt		Perm	Split			Split		Perm
Protected Phases	1	6		5	2		3	3		4	4	
Permitted Phases	6		6	2		2						4

Lanes, Volumes, Timings  
24: Covington Hwy 12 & Young Road

AM 2039 Proposed  
5/11/2016

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6	6	5	2	2	3	3		4	4	4
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	11.3	32.8	32.8	12.2	37.8	37.8	13.1	13.1		14.6	14.6	14.6
Total Split (s)	24.0	93.2	93.2	12.7	81.9	81.9	13.1	13.1	0.0	31.0	31.0	31.0
Total Split (%)	16.0%	62.1%	62.1%	8.5%	54.6%	54.6%	8.7%	8.7%	0.0%	20.7%	20.7%	20.7%
Maximum Green (s)	17.7	86.4	86.4	5.5	75.1	75.1	7.0	7.0		23.4	23.4	23.4
Yellow Time (s)	3.3	5.1	5.1	4.2	5.1	5.1	3.0	3.0		4.4	4.4	4.4
All-Red Time (s)	3.0	1.7	1.7	3.0	1.7	1.7	3.1	3.1		3.2	3.2	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.3	6.8	6.8	7.2	6.8	6.8	6.1	6.1	4.0	7.6	7.6	7.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Minimum Gap (s)	0.2	3.0	3.0	0.2	3.0	3.0	0.2	0.2		0.2	0.2	0.2
Time Before Reduce (s)	0.0	20.0	20.0	0.0	20.0	20.0	0.0	0.0		0.0	0.0	0.0
Time To Reduce (s)	0.0	10.0	10.0	0.0	10.0	10.0	0.0	0.0		0.0	0.0	0.0
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	Min	Min		None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0						
Flash Dont Walk (s)		19.0	19.0		24.0	24.0						
Pedestrian Calls (#/hr)		0	0		0	0						
Act Effct Green (s)	99.6	89.0	89.0	80.0	75.1	75.1	7.0	7.0		23.4	23.4	23.4
Actuated g/C Ratio	0.66	0.59	0.59	0.53	0.50	0.50	0.05	0.05		0.16	0.16	0.16
v/c Ratio	1.61	0.73	0.05	0.25	1.42	0.17	0.67	0.53		0.56	0.12	1.50
Control Delay	324.0	25.1	3.5	14.6	224.6	14.3	105.9	48.5		67.1	55.9	269.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	324.0	25.1	3.5	14.6	224.6	14.3	105.9	48.5		67.1	55.9	269.4
LOS	F	C	A	B	F	B	F	D		E	E	F
Approach Delay		86.9			210.9			75.7			216.5	
Approach LOS		F			F			E			F	
90th %ile Green (s)	17.7	86.4	86.4	5.5	75.1	75.1	7.0	7.0		23.4	23.4	23.4
90th %ile Term Code	Max	Coord	Coord	Max	Coord	Coord	Max	Max		Max	Max	Max
70th %ile Green (s)	17.7	86.4	86.4	5.5	75.1	75.1	7.0	7.0		23.4	23.4	23.4
70th %ile Term Code	Max	Coord	Coord	Max	Coord	Coord	Max	Max		Max	Max	Max
50th %ile Green (s)	17.7	86.4	86.4	5.5	75.1	75.1	7.0	7.0		23.4	23.4	23.4
50th %ile Term Code	Max	Coord	Coord	Max	Coord	Coord	Max	Max		Max	Max	Max
30th %ile Green (s)	17.7	86.8	86.8	5.1	75.1	75.1	7.0	7.0		23.4	23.4	23.4
30th %ile Term Code	Max	Coord	Coord	Gap	Coord	Coord	Max	Max		Max	Max	Max
10th %ile Green (s)	17.7	99.1	99.1	0.0	75.1	75.1	7.0	7.0		23.4	23.4	23.4
10th %ile Term Code	Max	Coord	Coord	Skip	Coord	Coord	Max	Max		Max	Max	Max
Stops (vph)	218	970	5	15	1681	46	46	24		138	30	271
Fuel Used(gal)	29	24	0	0	134	1	1	1		4	1	33
CO Emissions (g/hr)	2004	1651	17	29	9339	97	95	54		267	55	2320
NOx Emissions (g/hr)	390	321	3	6	1817	19	19	10		52	11	451
VOC Emissions (g/hr)	464	383	4	7	2164	22	22	12		62	13	538
Dilemma Vehicles (#)	0	46	0	0	54	0	0	0		0	1	0
Queue Length 50th (ft)	~536	570	0	13	~1798	49	53	21		145	32	~635
Queue Length 95th (ft)	#756	661	19	26	#1851	88	#124	72		224	67	#872
Internal Link Dist (ft)		423			473			176			327	

Lanes, Volumes, Timings  
 24: Covington Hwy 12 & Young Road

AM 2039 Proposed  
 5/11/2016

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)	560		356	103		200	200			200		135
Base Capacity (vph)	259	2100	960	160	1825	839	81	114		282	296	372
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	1.61	0.73	0.05	0.25	1.42	0.17	0.67	0.53		0.56	0.13	1.50

Intersection Summary

Area Type: Other  
 Cycle Length: 150  
 Actuated Cycle Length: 150  
 Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.61  
 Intersection Signal Delay: 165.0 Intersection LOS: F  
 Intersection Capacity Utilization 118.9% ICU Level of Service H  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 24: Covington Hwy 12 & Young Road

ø1	ø2	ø3	ø4
24 s	81.9 s	13.1 s	31 s
ø5	ø6		
12.7 s	93.2 s		

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## PI 0013174 CONCEPT TEAM MEETING MINUTES

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**LOCATION:** 5025 New Peachtree, Chamblee Ga 30341  
**MEETING DATE:** Thursday, May 19, 2016, 01:30 PM  
**RE:** SR 12 at CR 5192/Cove Lake Rd./Wellborn Rd.  
PI No. 0013174, DeKalb County

**ATTENDEES:** Scott Lee – GDOT, D7 Design  
Mehdi Bashirian – GDOT, D7 Design  
Shawn Buckley- GDOT, D7 Design  
Davis Robinson- GDOT, D7 Design  
Lewis Brooker GDOT, D7 Utilities  
Andrew Cobb-OES  
Lakeshia Osborn-GO, Traffic Operations  
Patrece Keeter, DeKalb County  
Kimberly Nesbitt-OPD

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### Introductions

- Kimberly Nesbitt started the meeting with introductions and a description of the project. The project justification was read and a briefing on the programmed funds provided through Traffic Operations for operational improvement funds was listed.

#### Justification Statement

- The purpose of this project is to reduce crash frequency and severity while improving the operation of SR 12 at CR 700/Young Road. The improvements will include minimizing the skew of Young Road by realigning the roadway, and providing left and right turn lanes on both approaches to the Young Road (CR 700) intersection as recommended by the traffic engineering report. Based on a proposed 35% reduction of serious crashes, the Office of Traffic Operations recommends a safety improvement project at this intersection.

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### Project Background

- Davis Robinson described the project layout.
- Survey was requested and is expected soon.
- Currently Wellborn Road angle of intersect is below 70% which is not desirable. They are record accidents for vehicles traveling south on Wellborn Rd, and turning right (west) onto Covington Hwy. There was a discussion of the posted speed limit and how Covington Hwy. opens up traveling east between Panola Rd. and Wellborn.
- There is a gas station in the northeast quadrant with an undeveloped buffer. It was discussed to shift Wellborn Rd. east if possible to avoid the topo grade drop on the west side of Wellborn Road. There may be a conflict with that option if monitoring wells or gas tanks are close of the buffer. The designer stated they would verify survey picked up their locations.

- DeKalb County requested sidewalk be considered if possible for the entire project limits
- There does not seem to be any sidewalk within the limits for projects. Landing pads and ADA ramps will be placed in each quadrant. The PM will follow up with the Program Managers to determine if sidewalk can be constructed on the north side of Covington Hwy. east of Wellborn Rd.
- There is a MARTA stop on the northeast side of the intersection.
- There does not seem to be any major utility conflicts however proper 1<sup>st</sup> utility submission will determine if that is correct.
- The right lane traveling on west on Covington Hwy. should be extended.
- There is a park on the south side of the mainline. The team tried to determine if it was a public park. Design discussed the project limits and believes the park would not be impacted.

### **Public Involvement**

- A PIOH is not expected.

### **Environmental Resources**

- History not anticipated
- Concern was there may be a stream in the northwest quadrant of the project
  - It is anticipated that a CE will be required.
  - It is anticipated that no endangered species studies will be needed for this area of DeKalb County
  - A UST/hazardous waste investigation will be required.
  - A 404 permit will likely be required.
- 

### **Right of Way**

- Right of Way had no concerns. Expected to take 12 month to acquire right of way after funds authorization.

### **Utilities**

- 1<sup>st</sup> and 2<sup>nd</sup> utilities submittal will be done by District Utilities

### **Staging, Maintenance and Constructability**

- No issues where noted.

### **Closing**

- Kim asked if anyone had any further questions or concerns.