

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

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

FILE P.I. # 0010363

OFFICE Design Policy & Support

Cobb County
GDOT District 7 - Metro Atlanta
SR 280 @ I-285 *Quick Project*

DATE January 30, 2013

Kim Phillips
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:

Bobby Hilliard, Program Control Administrator
Genetha Rice-Singleton, State Program Delivery Engineer
Glenn Bowman, State Environmental Administrator
Cindy VanDyke, State Transportation Planning Administrator
Kathy Zahul, State Traffic Engineer
Angela Robinson, Financial Management Administrator
Lisa Myers, State Project Review Engineer
Charles "Chuck" Hasty, State Materials Engineer
Jeff Baker, State Utilities Engineer
Ken Thompson, Statewide Location Bureau Chief
Tamaya Huff, State Pedestrian and Bicycle Coordinator
Rachel Brown, District Engineer
Scott Lee, District Preconstruction Engineer
Jonathan Walker, District Utilities Engineer
Sue Anne Decker, Project Manager
BOARD MEMBER - 11th & 13th Congressional Districts

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

Project Type: Operational P.I. Number: 0010363
 GDOT District: 7 County: Cobb
 Federal Route Number: I-285 State Route Number: 280
 Project Number: N/A

Project Description

An exclusive westbound right turn lane is proposed at the intersection of South Cobb Drive/SR 280 and I-285 northbound on-ramp. Due to the lack of an exclusive right turn lane for westbound to northbound movements, right turns onto the I-285 on-ramp are made from one of the two westbound thru lanes causing traffic operations issues in the project vicinity. The final westbound configuration will consist of three lanes – two thru lanes and a right turn only lane.

Submitted for approval:

ARCADIS US, INC.

Sharon Pugh
 Consultant Designer & Firm or GDOT Concept/Design Phase Office Head & Office

10/26/12
 DATE

Benita Rice-Lik
 Office Head (GDOT Project Manager's Office)

11/8/2012
 DATE

Sue Anne Decker
 GDOT Project Manager

11/1/12
 DATE

Recommendation for approval:

Program Control Administrator

DATE

* Glenn Bowman [Signature]

12/4/2012

State Environmental Administrator (recommendation required)

DATE

* Kathy Zahul [Signature]

11/28/2012

State Traffic Engineer (recommendation required for roundabout projects)

DATE

* Lisa Myers [Signature]

11/20/2012

Project Review Engineer

DATE

* Patrick Allen [Signature]

11/20/2012

For State Utilities Engineer

DATE

* Rachel Brown [Signature]

12/7/2012

District Engineer (projects not originating in District Office)

DATE

State Transportation Financial Management Administrator

DATE

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

* Cindy VanDyke [Signature]

11/20/2012

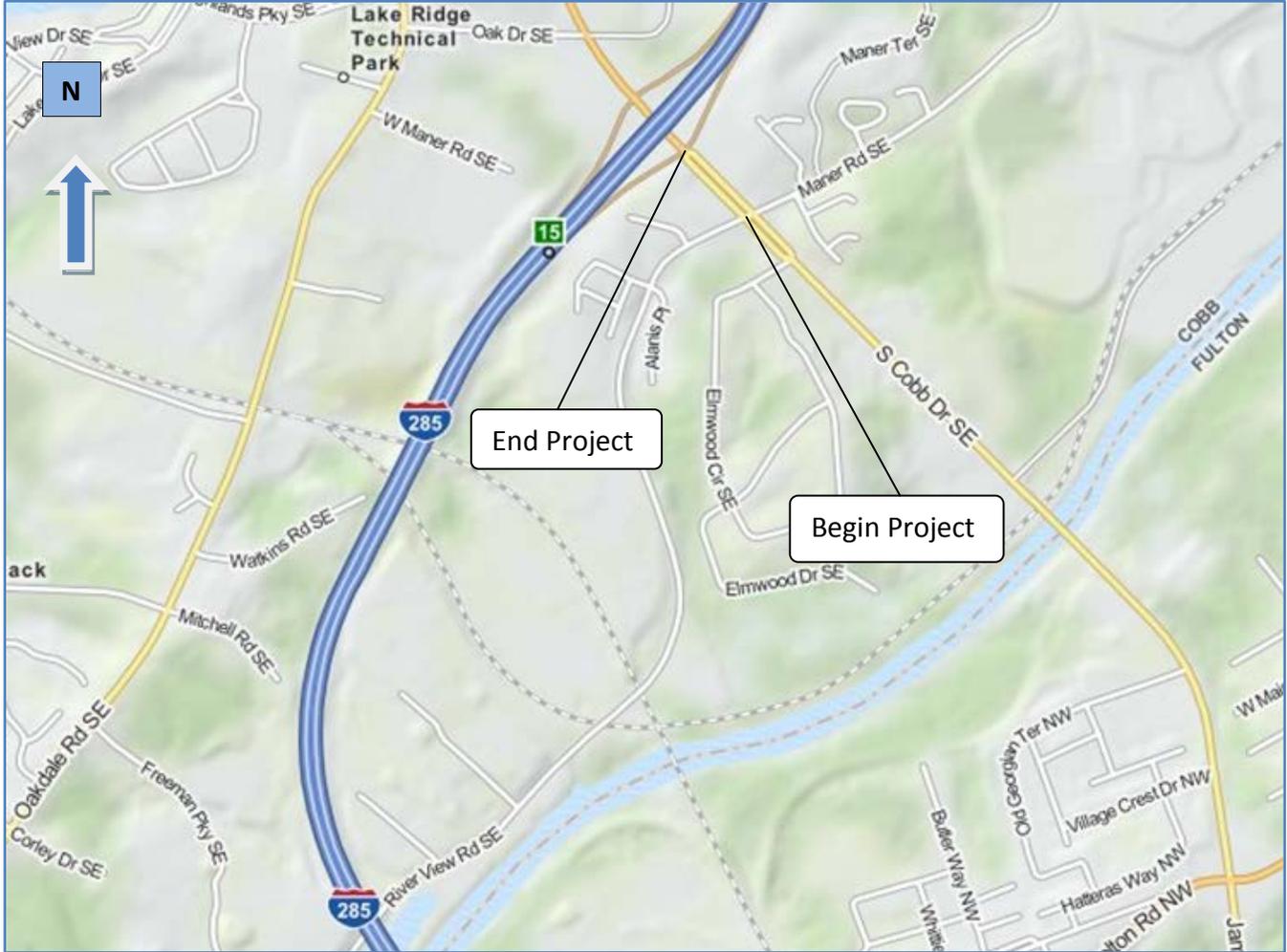
State Transportation Planning Administrator (recommendation required)

DATE

* Recommendation on file - [Signature]

PROJECT LOCATION

I-285 Northbound On-Ramp at SR 280



NOT TO SCALE



County: COBB

PLANNING & BACKGROUND DATA

Project Justification Statement:

The South Cobb Drive (SR 280) approach to the I-285 northbound on-ramp was identified for operational improvements and is included in the GDOT Operational Improvement Lump Sum Program from the Office of Traffic Operations. This proposed project was presented to and approved by the Operational Improvement Committee as a QUICK project.

South Cobb Drive is classified as an urban minor arterial street within the project limits. South Cobb Drive is a four lane divided roadway with a posted speed limit of 45 miles per hour (MPH). At the westbound approach to the I-285 northbound on-ramp, South Cobb Drive is a four lane highway with a grassed median. There is no exclusive right turn lane for westbound to northbound movements and right turns onto the I-285 on-ramp are made from one of the two westbound thru lanes.

Within the limits of study there are three intersections serviced by traffic signals:

Riverview Road / Maner Road at South Cobb Drive

I-285 Northbound (NB) Ramp at South Cobb Drive

I-285 Southbound (SB) Ramp at South Cobb Drive

Under the current signal operation and lane configuration, there is an acceptable Level of Service (LOS) D (am) and C (pm) in the existing year at the intersection of Riverview Rd/Maner Rd at South Cobb Drive. The LOS for the design year is LOS E (am) and LOS D (pm). However, the outermost lane on the westbound South Cobb Drive approach to the I-285 northbound on-ramp experiences queues that exceed the storage capacity and thereby reduces this intersection's efficiency. The intersection's available storage capacity is blocked by the queue 41% of the time.

Description of the proposed project:

The proposed operational improvement project is located along South Cobb Drive (SR 280) near its interchange with Interstate 285 (I-285). The project begins in the vicinity of the South Cobb Drive and Riverview Rd/Maner Rd intersection and consists of the construction of a 12-foot wide, 450 foot right-turn lane along the north side of South Cobb Drive. The lane will have a 12-foot wide urban shoulder with a 2.5-foot curb and gutter, a 2 foot stamped/colored concrete strip and a 5-foot concrete sidewalk. The project terminates in the vicinity of South Cobb Drive (SR 280) and the I-285 NB On-Ramp.

The proposed configuration will consist of four 12-foot lanes with a 44-foot grassed/paved median and a 450-foot right-turn lane with urban shoulder on the north side of South Cobb Drive approaching its intersection with the I-285 northbound on-ramp. The new sidewalk constructed along this shoulder will be compliant with Americans with Disabilities Act (ADA) standards.

The three commercial driveways within the 450-foot right-turn lane will be reconstructed and impacted drainage structures will be relocated to the new curb and gutter but the existing drainage patterns will not change. These improvements are located within the existing 200 to 230 foot right-of-way and no new or additional right-of-way is needed.

The posted speed limit along South Cob Drive is 45 MPH.

Federal Oversight: Full Oversight Exempt State Funded Other

MPO: Atlanta Regional Commission (ARC)

MPO Project ID TIP #AR-106-20R

Regional Commission: N/A

RC Project ID N/A

Atlanta Regional Commission

Congressional District(s): 13

Projected Traffic: ADT

Current Year (2011): 24240 Open Year (2014): 24860 Design Year (2034): 29450
 Traffic Projections Performed by: *ARCADIS US, INC.*

Functional Classification (Mainline): Urban Minor Arterial Street

Is this a 3R (Resurfacing, Restoration, & Rehabilitation) Project? No Yes

Is this project on a designated Bike Route, Pedestrian Plan, or Transit Network?

None Bike Route Pedestrian Plan Transit Network

CONTEXT SENSITIVE SOLUTIONS

Issues of Concern: N/A

Context Sensitive Solutions: N/A

DESIGN AND STRUCTURAL DATA

Mainline Design Features: *SR 280/South Cobb Drive – Maner Road to I-285 NB On-ramp*

Feature	Existing	Standard*	Proposed
Typical Section			
- Number of Lanes	4		4
- Lane Width(s)	12'	11'-12'	12'
- Median Width & Type	44' Grassed	14' Flush	44' Grassed
- Outside Shoulder or Border Area Width	10' Urban	10'-16'	12' Urban
- Outside Shoulder Slope	16:1	2%	2%
- Inside Shoulder Width	N/A	N/A	N/A
- Sidewalks	None	5'	5'
- Auxiliary Lanes	LT	N/A	LT/RT
- Bike Lanes	None	N/A	None
Posted Speed	45 mph	45 mph	45 mph

County: COBB

Design Speed	45 mph	45 mph	45 mph
Min Horizontal Curve Radius	N/A	711	N/A
Superelevation Rate	N/A	4%	N/A
Grade	3%	6% Max	3%
Access Control	By Permit	By Permit	By Permit
Right-of-Way Width	Variable	N/A	Variable
Maximum Grade – Crossroad	N/A	N/A	N/A
Design Vehicle	N/A	WB-40	WB-40

*According to current GDOT design policy if applicable

Major Structures: N/A

Major Interchanges/Intersections: The project improves SR 280 (South Cobb Drive) WB access to the I-285 Northbound On-Ramp.

Utility Involvements: Utility conflicts are not anticipated on this project.

Public Interest Determination Policy and Procedure recommended (Utilities)? No Yes

SUE Required: No Yes

Railroad Involvement: N/A

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

Warrants met: None Bicycle Pedestrian Transit

- Pedestrian facility warrant is met for this project. Sidewalk currently exists on either end of the project. There is a residential area just south of the project and there are some evidence of pedestrian usage. Addition of sidewalk is included in the proposed improvement and this sidewalk will provide the missing sidewalk connection.
- Bike facility warrant is not met on this project. This section of South Cobb Drive is not designated as bike route by either GDOT or Cobb County. In addition, bike facilities are not currently included along South Cobb Drive outside the project limits. Furthermore, this project is not located within ½ mile radius of a transit station or a bus stop.
- Transit facility warrant is not met for this project. This section of South Cobb Drive does not have a transit route for MARTA or CCT system. Closest CCT route ends in the vicinity of King Springs Road and South Cobb Drive intersection which is located approximately 3 miles north from the project limits.

Right-of-Way:

Required Right-of-Way anticipated: No Yes Undetermined

County: COBB

Easements anticipated: None Temporary Permanent Utility Other

Anticipated number of impacted parcels: 0
 Displacements anticipated: Total: 0
 Businesses: 0
 Residences: 0
 Other: 0

Location and Design approval: Not Required Required

Off-site Detours Anticipated: No Undetermined Yes

Transportation Management Plan [TMP] Required: No Yes
 If Yes: Project classified as: Non-Significant Significant
 TMP Components Anticipated: TTC TO PI

Design Exceptions to FHWA/AASHTO controlling criteria anticipated:

FHWA/AASHTO Controlling Criteria	No	Undeter- -mined	Yes	Appvl Date (if applicable)
1. Design Speed	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2. Lane Width	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3. Shoulder Width	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4. Bridge Width	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5. Horizontal Alignment	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6. Superelevation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7. Vertical Alignment	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8. Grade	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9. Stopping Sight Distance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10. Cross Slope	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11. Vertical Clearance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12. Lateral Offset to Obstruction	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13. Bridge Structural Capacity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Design Variances to GDOT Standard Criteria anticipated:

GDOT Standard Criteria	Reviewing Office	No	Undeter- -mined	Yes	Appvl Date (if applicable)

County: COBB

1. Access Control - Median Opening Spacing	DP&S	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2. Median Usage & Width	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3. Intersection Skew Angle	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4. Lateral Offset to Obstruction	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5. Intersection Sight Distance	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6. Bike, Pedestrian & Transit Accommodations	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7. GDOT Drainage Manual	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8. Georgia Standard Drawings	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9. GDOT Bridge & Structural Manual	Bridge Design	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10. Roundabout Illumination	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11. Rumble Strips	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12. Safety Edge	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

VE Study anticipated: No Yes Completed – Date:

ENVIRONMENTAL DATA

Anticipated Environmental Document:

GEPA: NEPA: CE EA/FONSI EIS

Project 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
 Is a Carbon Monoxide hotspot analysis required? No Yes

The project is in the approved FY 2012-2017 Transportation Improvement Program (TIP); the reference number in the TIP is AR-106-2012. The project consists of an intersection operational improvement and would not increase segment capacities. In addition, the proposed project would have no impact on design year build and no-build volumes. The truck percentages, as well as traffic volumes, are expected to remain the same for design year build and no-build per the traffic study.

Based on the above, a qualitative PM2.5 hotspot analysis is not required for this project since it is NOT a project of local air quality concern under 40 CFR 93.123(b)(1). The Clean Air Act and 40CFR 93.116 requirements were met without a hotspot analysis since this project has been found not to be of air quality concern under 40CFR 93.123(b)(1). Therefore, the project meets statutory and regulatory transportation conformity requirements without a hot-spot analysis.

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

This project involves widening of westbound South Cobb Drive to provide a right turn lane and urban shoulder consisting of curb & gutter and sidewalk. This project requires less than 1 acre of land

County: COBB

disturbance, therefore is exempt from compliance with MS4 permit as described in Section 4.2.5.1(a) of the permit.

Environmental Permits/Variations/Commitments/Coordination anticipated:

Permit/ Variance/ Commitment/ Coordination Anticipated	No	Yes	Remarks
1. U.S. Coast Guard Permit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2. Forest Service/Corps Land	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3. CWA Section 404 Permit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4. Tennessee Valley Authority Permit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5. Buffer Variance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
6. Coastal Zone Management Coordination	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
7. NPDES	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Less than 1 disturbed acre
8. FEMA	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
9. Cemetery Permit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
10. Other Permits	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
11. Other Commitments	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
12. Other Coordination	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

Is a PAR required? No Yes Completed – Date:

NEPA/GEPA: A Programmatic Categorical Exclusion is in process. No environmental resources were identified within the project study area; therefore, there would be no significant NEPA risks associated with the project.

Ecology: An Ecological Resource Survey and Assessment of Effects was performed; no protected species, species habitat, open waters, streams, ephemeral channels or wetlands were identified within the project study area.

History: A survey for historic resources was conducted; no historic resources were identified within the project area.

Archeology: A survey for archaeological resources was conducted; no archaeological resources were identified within the project area.

Air & Noise: A Type III Noise Study established in 23 CFR 772 is required.

Public Involvement: None

Major stakeholders: None

CONSTRUCTION

Issues potentially affecting constructability/construction schedule:

County: COBB

The construction Schedule will be affected by AM/PM peak traffic hours and local school bus schedules. Due to very high traffic volumes, off-hour construction will be required.

Early Completion Incentives recommended for consideration: No Yes

PROJECT RESPONSIBILITIES

Project Activities:

Project Activity	Party Responsible for Performing Task(s)
Concept Development	ARCADIS U.S., Inc.
Design	ARCADIS U.S., Inc.
Right-of-Way Acquisition	N/A
Utility Relocation	N/A
Letting to Contract	GDOT
Construction Supervision	GDOT
Providing Material Pits	N/A
Providing Detours	N/A
Environmental Studies, Documents, and Permits	ARCADIS US, INC
Environmental Mitigation	N/A
Construction Inspection & Materials Testing	GDOT

Lighting required: No Yes

Initial Concept Meeting: N/A

Concept Meeting:

Other projects in the area: N/A

Other coordination to date: None

Project Cost Estimate and Funding Responsibilities:

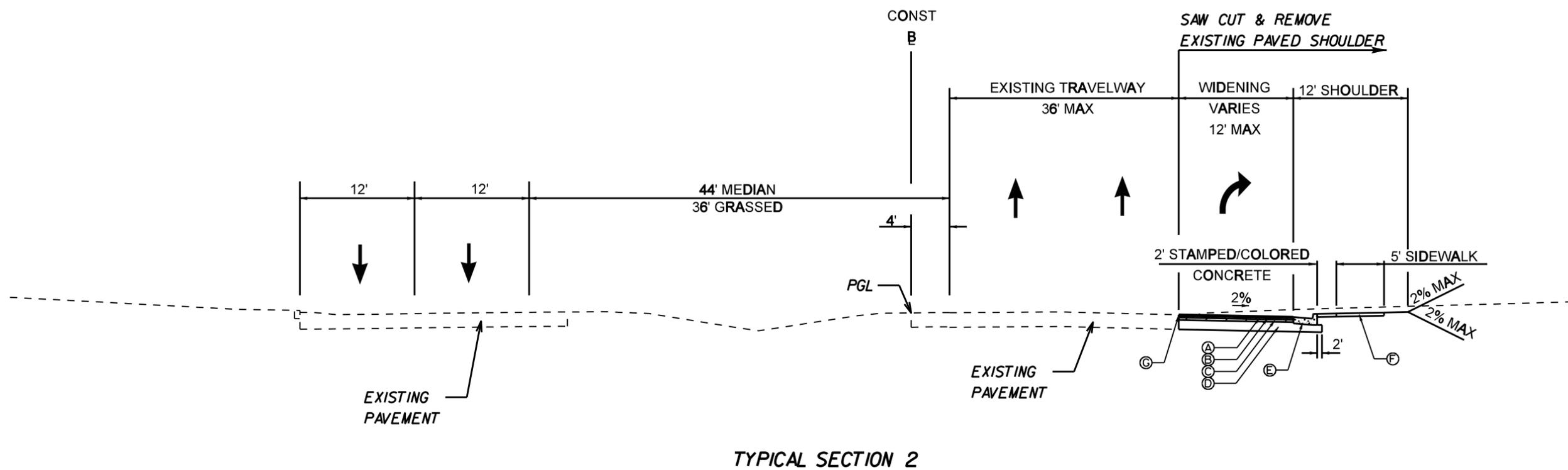
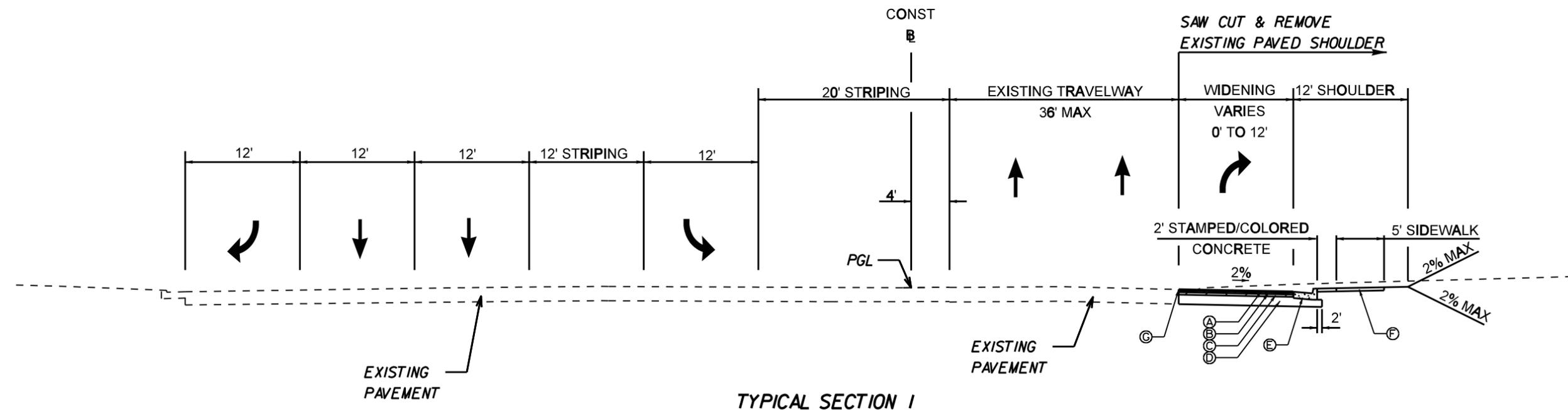
	Breakdown of PE	ROW	Reimbursable Utility	CST*	Environmental Mitigation	Total Cost
By Whom	GDOT	-	-	GDOT	-	
\$ Amount	\$198,137.50	\$0	\$0	\$142,767.79	\$0	\$340,905.29
Date of Estimate	9/10/2012	N/A	N/A	9/24/2012	N/A	

*CST Cost includes: Construction, Engineering and Inspection, and Liquid AC Cost Adjustment.

ALTERNATIVES DISCUSSION

Alternative selection:

Preferred Alternative: Addition of a 450-foot long right turn lane w/50-foot taper accessing the I-



- Ⓐ RECYCLED ASPH CONC. 12.5 MM SUPERPAVE. GP 2 ONLY. INCL POLYMER-MODIFIED BITUM MATL & H LIME. 220 LB/SY
- Ⓑ RECYCLED ASPH CONC. 19 MM SUPERPAVE. GP 1 OR 2. INCL BITUM MATL & H LIME. 220 LB/SY
- Ⓒ RECYCLED ASPH CONC. 25 MM SUPERPAVE. GP 1 OR 2. INCL BITUM MATL & H LIME. 880 LB/SY
- Ⓓ GR AGGR BASE CRS. 12 INCH
- Ⓔ CONC CURB & GUTTER. 8" X 30". TP 2
- Ⓕ CONC SIDEWALK. 4 IN
- Ⓖ PVMT REINFORCING FABRIC

NOT TO SCALE

DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE PROJECT No. NA, Cobb County
SR 280 @ I-285
P.I. No. 0010363

OFFICE Program Delivery

DATE 12/27/2012

FROM Genetha Rice Singleton, State Program Delivery

TO Lisa Myers, State Project Review Engineer

SUBJECT REVISIONS TO PROGRAMMED COSTS

PROJECT MANAGER Sue Anne Decker, P.E.

MNGT LET DATE 2/15/2014

MNGT R/W DATE NA

PROGRAMMED COST (TPro W/OUT INFLATION)

LAST ESTIMATE UPDATE

CONSTRUCTION \$125,000.00

DATE 2/23/2010

RIGHT OF WAY \$0.00

DATE NA

UTILITIES \$0.00

DATE NA

REVISED COST ESTIMATES

CONSTRUCTION* \$142,767.79

RIGHT OF WAY \$0.00

UTILITIES \$0.00

* Costs contain 5% Engineering and Inspection.

REASON FOR COST DECREASE: This is a concept cost estimate. The original cost was provided by the Office of Traffic Operations.

CONTINGENCY SUMMARY

Construction Cost Estimate:	\$128,432.03	(Base Estimate)
Engineering and Inspection:	\$6,421.60	(Base Estimate x 5 %)
Total Liquid AC Adjustment	\$ 7,914.16	
Construction Total:	\$142,767.79	
Utility Cost Estimate:	\$0.00	
Utility Total:	\$0.00	

REIMBURSABLE UTILITY COST

Utility Owner	Reimbursable Costs
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Attachments

cc: Kathy Zahul, State Traffic Engineer
Attn: Jim Tolson, State Signal Engineer

PROJ. NO.	TM120012
P.I. NO.	0010363
DATE	9/26/2012

CALL NO.

INDEX (TYPE)	DATE	INDEX
REG. UNLEADED	Feb-13	\$ 3.836
DIESEL		\$ 4.068
LIQUID AC		\$ 576.00

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)				7724.16	\$	7,724.16
Monthly Asphalt Cement Price month placed (APM)	Max. Cap	60%	\$	921.60		
Monthly Asphalt Cement Price month project let (APL)			\$	576.00		
Total Monthly Tonnage of asphalt cement (TMT)				22.35		

ASPHALT	Tons	%AC	AC ton
Leveling	10	5.0%	0.50
12.5 OGFC		5.0%	0.00
12.5 mm	87	5.0%	4.35
9.5 mm SP		5.0%	0.00
25 mm SP	233	5.0%	11.65
19 mm SP	117	5.0%	5.85
447			22.35

BITUMINOUS TACK COAT

Price Adjustment (PA)				\$	190.00	\$	190.00
Monthly Asphalt Cement Price month placed (APM)	Max. Cap	60%	\$	921.60			
Monthly Asphalt Cement Price month project let (APL)			\$	576.00			
Total Monthly Tonnage of asphalt cement (TMT)				0.549772918			

Bitum Tack	Gals	gals/ton	tons
	128	232.8234	0.54977292

BITUMINOUS TACK COAT (surface treatment)

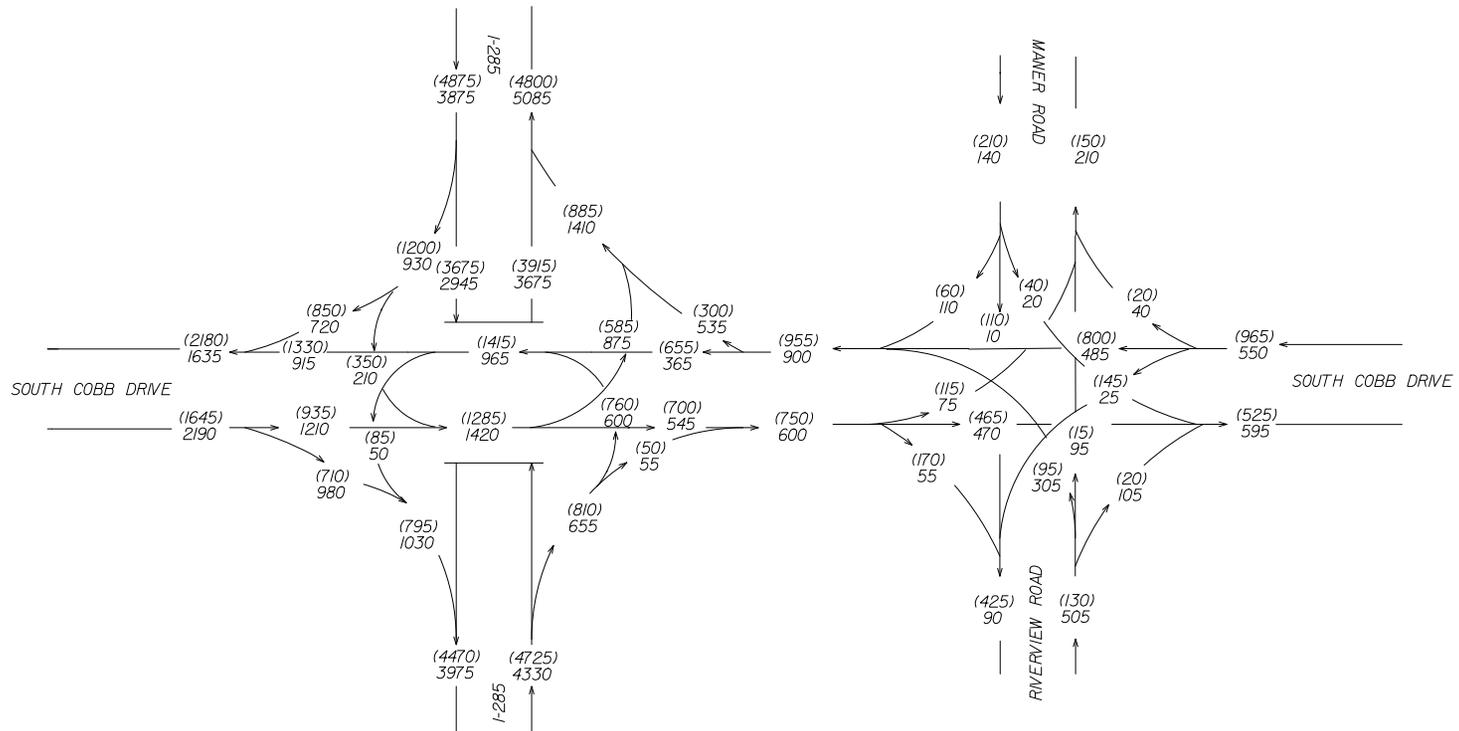
Price Adjustment (PA)				0	\$	-
Monthly Asphalt Cement Price month placed (APM)	Max. Cap	60%	\$	921.60		
Monthly Asphalt Cement Price month project let (APL)			\$	576.00		
Total Monthly Tonnage of asphalt cement (TMT)				0		

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 \$ **7,914.16**

FIGURE 1

EXISTING YEAR (2011) - DESIGN HOURLY VOLUMES (DHV)



AM PEAK
T = 16.8%
S.U. = 10.5%
COMB. = 6.3%

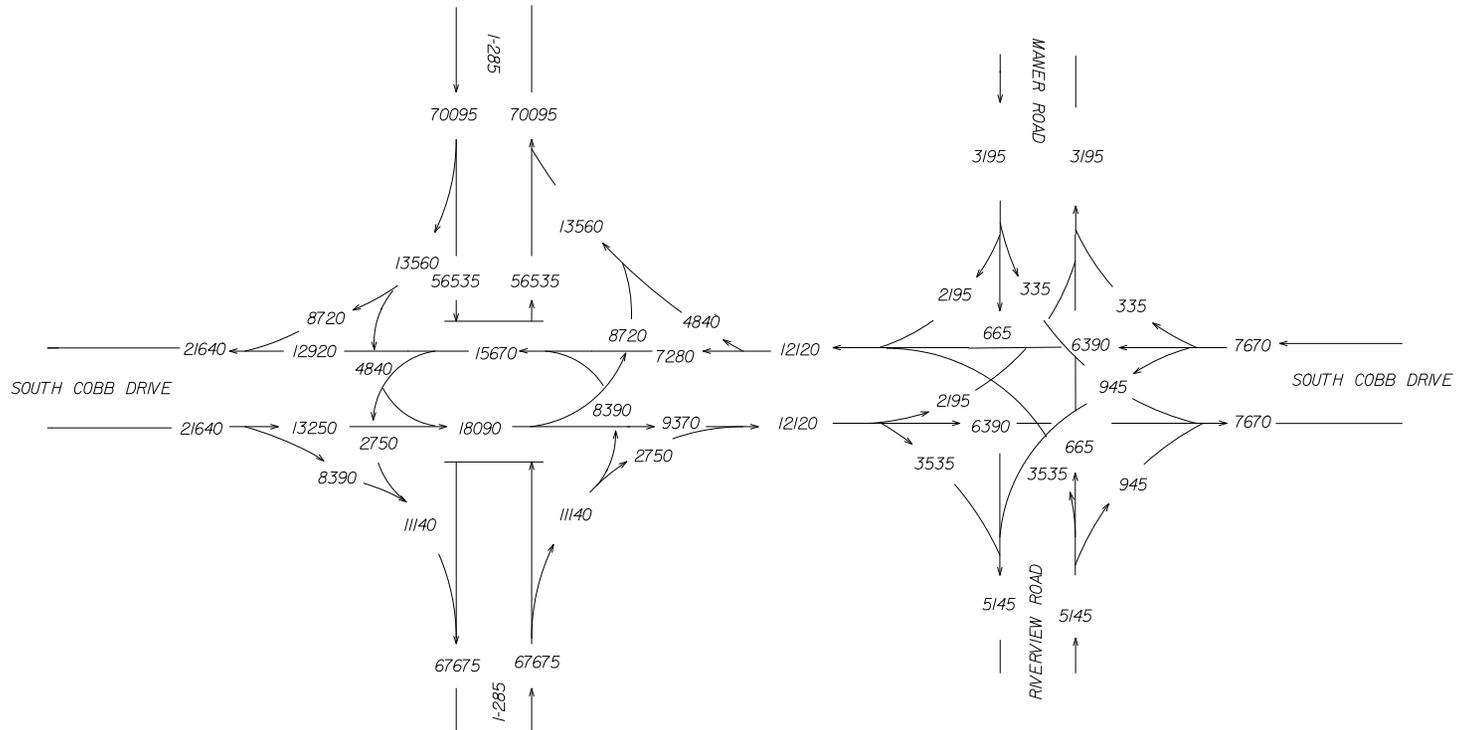
P.I. # 0010363
COBB COUNTY
SOUTH COBB DR. (SR 280)
AT I-285 OPERATIONAL
IMPROVEMENTS

PM PEAK
T = 12.2%
S.U. = 7.2%
COMB. = 5.0%

2011 AM DHV = 000
2011 PM DHV = (000)

FIGURE 2

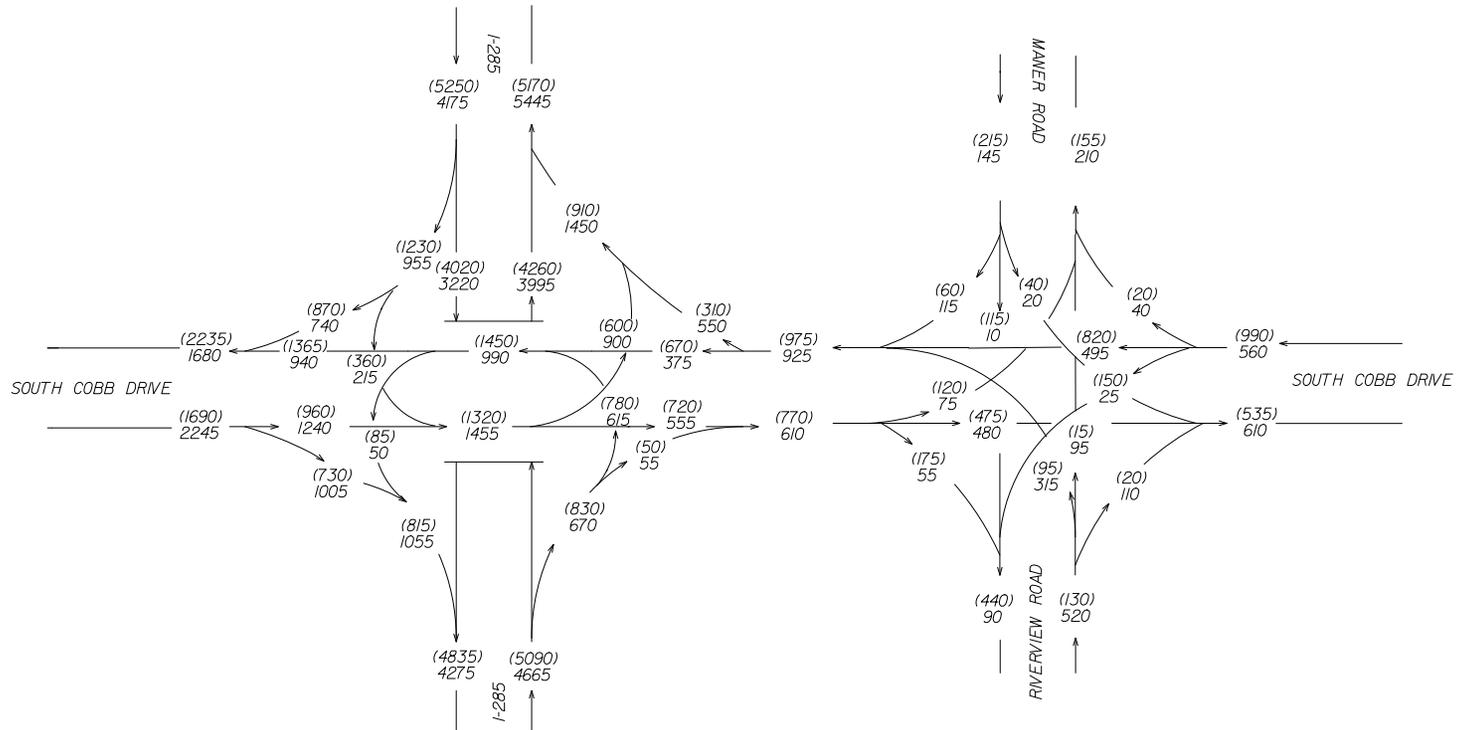
EXISTING YEAR (2011) - AVERAGE DAILY TRAFFIC (ADT)



P.I. # 0010363
COBB COUNTY
SOUTH COBB DR. (SR 280)
AT I-285 OPERATIONAL
IMPROVEMENTS
2011 ADT = 000
24 HRS T = 19.6%
S.U.=12.7%
COMB.= 6.9%
SB
01/12

FIGURE 3

NO-BUILD & BUILD OPEN YEAR (2014) - DESIGN HOURLY VOLUMES (DHV)



AM PEAK
T = 16.8%
S.U. = 10.5%
COMB. = 6.3%

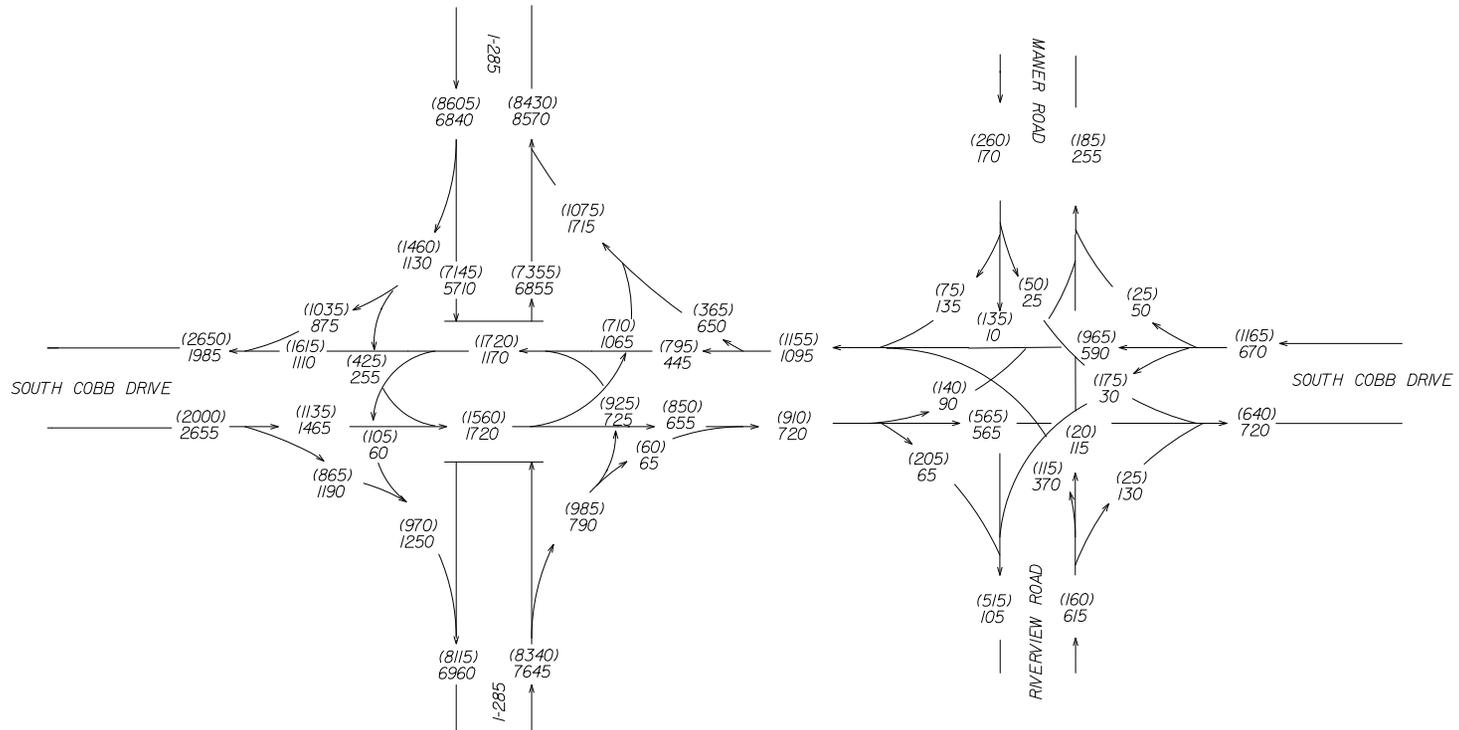
PM PEAK
T = 12.2%
S.U. = 7.2%
COMB. = 5.0%

P.I. # 0010363
COBB COUNTY
SOUTH COBB DR. (SR 280)
AT I-285 OPERATIONAL
IMPROVEMENTS

2014 AM DHV = 000
2014 PM DHV = (000)

FIGURE 4

NO-BUILD & BUILD DESIGN YEAR (2034) - DESIGN HOURLY VOLUMES (DHV)



AM PEAK
T = 16.8%
S.U. = 10.5%
COMB. = 6.3%

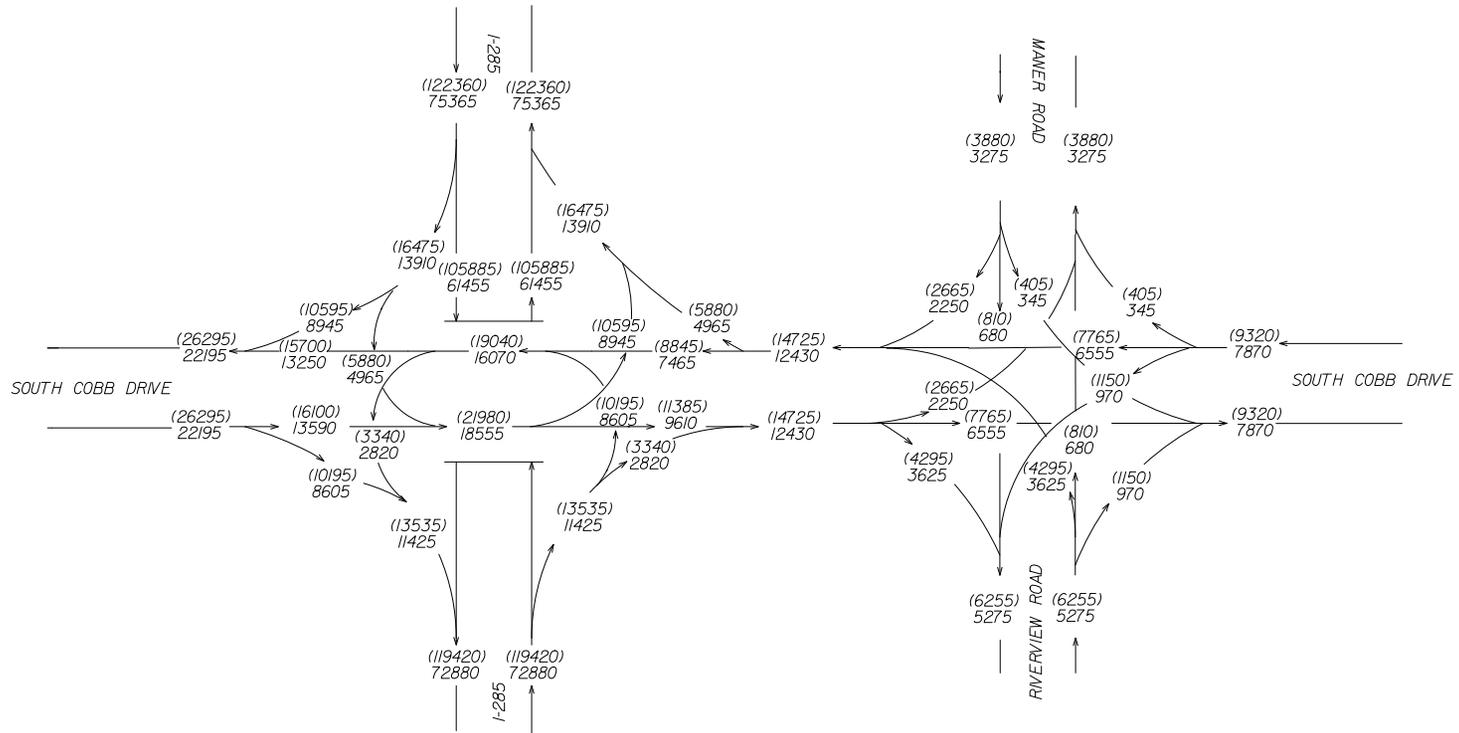
P.I. # 0010363
COBB COUNTY
SOUTH COBB DR. (SR 280)
AT I-285 OPERATIONAL
IMPROVEMENTS

PM PEAK
T = 12.2%
S.U. = 7.2%
COMB. = 5.0%

2034 AM DHV = 000
2034 PM DHV = (000)

FIGURE 5

NO-BUILD & BUILD OPEN YEAR (2014) & DESIGN YEAR (2034)
- AVERAGE DAILY TRAFFIC (ADT)



P.I. # 0010363
COBB COUNTY
SOUTH COBB DR. (SR 280)
AT I-285 OPERATIONAL
IMPROVEMENTS
2014 ADT = 000
2034 ADT = (000)
24 HRS T = 19.6%
S.U.=12.7%
COMB.= 6.9%
SB
01/12

Department of Transportation State of Georgia

INTERDEPARTMENT CORRESPONDENCE

FILE Cobb County
P.I. # 0010363
OFFICE Planning
DATE January 25, 2012

FROM Cindy VanDyke, State Transportation Planning Administrator

TO Bobby K. Hilliard, P.E., State Program Delivery Engineer
Attention: Sue Anne Decker

SUBJECT **Reviewed Updated** Design Traffic for SR 280/South Cobb Drive @ I-285.

We reviewed the revised Design Traffic for the above project.

The traffic is approved. If you have any questions concerning this information please contact Abby Ebodaghe at (404) 631-1923.

CLV/AFE



ARCADIS U.S., Inc.
2410 Paces Ferry Road
#400
Atlanta
Georgia 30339
Tel 770 431 8666
Fax 770 435 2666

MEMO

To:
Sue Anne H. Decker, P.E.

Copies:
Paul DeNard, GDOT
Doug Tilt, ARCADIS
Prasoon Sinha, ARCADIS

ARCADIS U.S., Inc.

From:
Koushik Arunachalam, P.E.

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Subject:
Justification for limits of operational improvements for South Cobb Drive (SR 280) at I-285 interchange (P.I.0010363)

The scope of this memorandum is to summarize the results of traffic analysis to justify the limits of operational improvements at the interchange of South Cobb Drive (SR 280) at I-285 (P.I. 0010363).

The interchange of South Cobb Drive and I-285 is located in Cobb County, Georgia. South Cobb Drive is classified as an urban principal arterial in the vicinity of I-285 and transitions to an urban minor arterial just south of I-285. South Cobb Drive is a four lane divided roadway with a posted speed limit of 45 miles per hour (MPH). Within the limits of the study area, there are three signalized intersections.

- ✚ Maner Road / Riverview Road at South Cobb Drive
- ✚ I-285 Northbound (NB) Ramp at South Cobb Drive
- ✚ I-285 Southbound (SB) Ramp at South Cobb Drive

Field Observations:

Field observations were conducted during weekday peak hours and the findings from these observations, specific to South Cobb Drive approaching I-285 NB ramp is summarized below.

- ❖ Heavy right turn volume from South Cobb Drive onto I-285 NB ramp was observed during the morning peak hours

- ❖ Higher lane utilization on outermost through lane (closer to the curb) and subsequently long queues were observed on South Cobb Drive approaching I-285 NB ramp. Figure 1 shows a snapshot of these queues during the morning peak hours

- ❖ The queues along South Cobb Drive did spillback onto the intersection of Riverview Road / Maner Road at South Cobb Drive. This condition did result in green time starvation and long queues for the heavy left turn movement from Riverview Road onto South Cobb Drive.



Figure 1: Vehicle Queues along South Cobb Drive Approaching I-285 NB Ramp (AM Peak Hour)

Accident Data Analysis:

Accident data analysis was performed based on latest three years of Georgia Department of Transportation’s (Georgia DOT) accident data. The roadway segments along South Cobb Drive were broken down into two segments: South Cobb Drive, Between Maner Road / Riverview Road and I-285 NB ramp, South Cobb Drive, Between Maner Road / Riverview Road and I-285 NB ramp. The comparison of the study area accident rates with the statewide accident rates are summarized in Table 1.

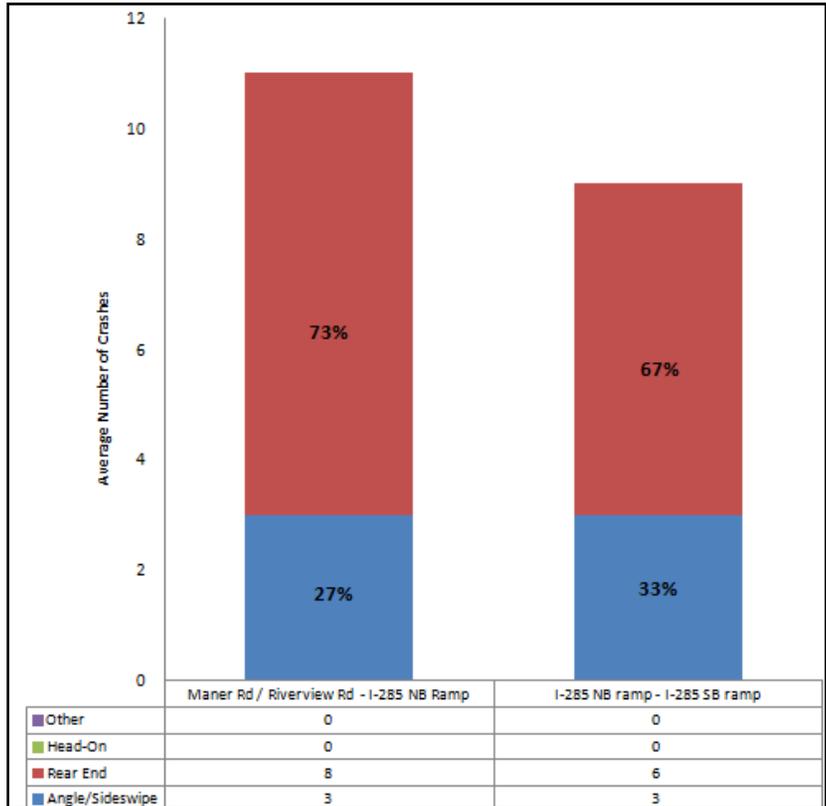
Table 1: Accident Rate Comparison Summary

Data Type	Maner Rd/Riverview Rd to I-285 NB Ramps			I-285 NB Ramps to I-285 SB Ramps		
	Year			Year		
	2007	2008	2009	2007	2008	2009
Total Accidents	16	9	9	8	8	10
Total Non-Fatal Injuries	5	1	1	1	0	4
Total Fatalities	0	0	0	0	0	0
AADT	23435	23630	23835	32635	32915	33195
Accident Rate (per 100 MVMT)	1247	696	690	517	512	635
Statewide Accident Rate (per 100 MVMT)	649	612	603	649	612	603
Non-Fatality Injury Rate (per 100 MVMT)	390	77	77	65	0	254
Statewide Non-Fatality Injury Rate (per 100)	227	213	214	227	213	214
Fatality Rate (per 100 MVMT)	0	0	0	0	0	0
Statewide Fatality Rate (per 100 MVMT)	1.51	1.27	1.26	1.51	1.27	1.26

The segment level accident rates along South Cobb Drive between Maner Road / Riverview Road and I-285 NB ramp were significantly higher than the statewide accident rates in the year 2007. However in 2008 and 2009, the accident rates have reduced significantly over 2007, but still higher than the statewide accident rates. The segment level accident rates along South Cobb Drive between I-285 NB ramp and SB ramp were significantly lower than the statewide accident rates in 2007 and 2008; however there is a slight increase over state wide accident rates in 2009.

Figure 2 shows the number of crashes by crash type. It is evident that reared crashes are the most predominant crash type, indicative of stop and go condition due to the lack of exclusive right turn lane at the intersection of I-285 NB ramp and South Cobb Drive.

Figure 2: Crash Type Summary Chart



Traffic Operational Analysis

Existing (2011) Conditions:

The information related to the existing conditions lane geometry, turn lane storage lengths, speed limits, field signal timing and phasing information were used to create a traffic simulation model in Synchro 7. The traffic volumes (pending approval by Georgia DOT Office of Planning) were input to Synchro 7 to perform intersection capacity analysis. Refer Appendix A for the raw traffic counts. Refer Appendix B for the existing conditions approved volume diagrams.

Detailed capacity analysis was performed for the morning and afternoon peak hours. The intersection capacity analysis was performed in accordance with the Highway Capacity Manual methodologies.

The results of the existing conditions capacity analysis is summarized in Table 2.

Table 2: Existing Conditions Capacity Analysis Summary

Intersection	Delay (Sec/Veh)	
	AM	PM
Maner Rd / Riverview Rd at South Cobb Drive	45.6	34.5
I-285 NB Ramp at South Cobb Drive	59.5	41.3
I-285 SB Ramp at South Cobb Drive	49.0	43.9



Findings:

- The intersections of Maner Road / Riverview Road and I-285 SB ramp along South Cobb Drive currently operates at LOS D or better
- The intersection of I-285 SB ramp at South Cobb Drive currently operates at LOS E with an intersection delay of 59.5 sec/veh. The critical movements at this intersection are the eastbound left turn and westbound right turn movement onto I-285 NB on ramp. The eastbound left turn movement has sufficient capacity with dual left turn lanes; however the lack of exclusive turn lane for the heavy westbound right turn movement results in significant delays (55.7 sec/veh) on the westbound approach. The LOS E operations on this approach results in queuing on this approach between Maner Road / Riverview Road and I-285 NB ramp

Open Year (2014) Conditions:

In order to evaluate the traffic operations in the future year, it is necessary to estimate the growth rate in the study area. An annual growth rate of 0.85 percent was estimated along South Cobb Drive based on Atlanta Regional Commission’s Plan 2040 model, Georgia DOT STARS data and traffic projections from relevant studies/ projects in the vicinity of the study area. The scope of build condition is to evaluate the need and impact of westbound right turn lane and an advance left turn storage length (for I-285 SB on-ramp movement) at the intersection of I-285 NB ramp and South Cobb Drive. Existing traffic volumes were grown at the estimated annual growth rate to develop open year (2014) traffic projections. Refer Appendix B for the approved open year no-build and build conditions volume diagrams.

The results of open year (2014) no-build and build conditions are summarized in Table 3.

Table 3: Open Year Conditions Capacity Analysis Summary

Intersection	AM Peak Hour				PM Peak Hour			
	No-Build	Build	Change in Delay	Percent Change in Delay	No-Build	Build	Change in Delay	Percent Change in Delay
Maner Rd / Riverview Rd at South Cobb Drive	46.8	44.5	2.1	5%	35.5	35.2	-0.3	- 1%
I-285 NB Ramp at South Cobb Drive	68.2	51.2	- 17.0	- 25%	44.3	34.7	- 9.6	- 22%
I-285 SB Ramp at South Cobb Drive	54.7	54.0	- 0.7	- 1%	47.0	49.7	2.7	6%

■ LOS A-B
 ■ LOS C
 ■ LOS D
 ■ LOS E
 ■ LOS F

Findings:

- The intersection delay at the intersections of Maner Road / Riverview Road, I-285 SB ramp does not vary significantly between no-build and build conditions since there is no variation in the available capacity.
- The construction of a westbound right turn lane at the intersection of I-285 NB ramp and South Cobb Drive would result in 25% and 22% reduction in intersection delay during the morning and afternoon peak hours respectively. The addition of this exclusive right turn lane would provide sufficient capacity to significantly reduce queue delays.

- The need to provide advance / longer left turn lane for South Cobb Drive westbound to I-285 SB ramp was evaluated. However, low volumes for this movement do not warrant the need for the advance turn lane.

Design Year (2034) Conditions:

The design year analysis was based on the approved design year no-build and build conditions volume diagrams (Refer Appendix B). The results of traffic analysis and queuing analysis from the design year conditions were used to recommend storage length for the proposed turn lane.

The results of design year (2034) no-build and build conditions are summarized in Table 4.

Table 4: Design Year Conditions Capacity Analysis Summary

Intersection	AM Peak Hour				PM Peak Hour			
	No-Build	Build	Change in Delay	Percent Change in Delay	No-Build	Build	Change in Delay	Percent Change in Delay
Maner Rd / Riverview Rd at South Cobb Drive	77.3	69.3	- 8.0	- 10%	37.3	37.3	0	- 1%
I-285 NB Ramp at South Cobb Drive	144.3	96.9	- 47.4	- 41%	89.0	55.6	- 33.4	- 38%
I-285 SB Ramp at South Cobb Drive	93.6	90.4	- 3.2	- 3%	93.1	94.5	1.4	2%

■ LOS A-B
 ■ LOS C
 ■ LOS D
 ■ LOS E
 ■ LOS F

Findings:

- The intersection delay at the intersections of Maner Road / Riverview Road, I-285 SB ramp does not vary significantly between no-build and build conditions since there is no variation in the available capacity.
- The construction of a westbound right turn lane at the intersection of I-285 NB ramp and South Cobb Drive would result in a 41% and 38% reduction in intersection delay during the morning and afternoon peak hours respectively. The addition of this exclusive right turn lane would provide sufficient capacity to minimize queue delays.
- The need to provide advance / longer left turn lane for South Cobb Drive westbound to I-285 SB ramp in the design year was evaluated. However, the low volume for this movement does not warrant the need for the advance turn lane.
- The 95 percentile queue length for the proposed turn lane during the morning peak hour would be approximately 445 feet. The recommendation would be to provide an exclusive auxiliary right turn lane along South Cobb Drive between Maner Road / Riverview Road and I-285 NB ramp. However, if there are any feasibility issues associated with providing the recommended auxiliary right turn lane, it should at least be 250 feet with a 100 feet taper

Conclusion and Recommendation:

- The proposed westbound right turn lane would significantly reduce the intersection delay during the open year (24% reduction approx) and the design year (40% reduction approx).
- The need to provide advance / longer left turn lane for South Cobb Drive westbound to I-285 SB ramp in the open and design year was evaluated. However, the low volume for this movement does not warrant the need for the advance turn lane.
- The recommendation would be to provide an exclusive auxiliary right turn lane along South Cobb Drive between Maner Road / Riverview Road and I-285 NB ramp. However, if there is any feasibility issues associated with providing the recommended auxiliary right turn lane, it should at least be 250 feet with 100 feet taper.