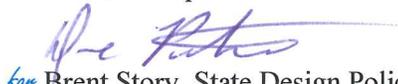


**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA**

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

**FILE** P.I. # 0011730 **OFFICE** Design Policy & Support  
Liberty County  
GDOT District 5 - Jesup **DATE** October 15, 2014  
SR 38/US 84 @ CR 73/Old Sunbury Road  
Intersection Improvement

**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:**

Glenn Bowman, Director of Engineering  
Joe Carpenter, Director of P3/Program Delivery  
Genetha Rice-Singleton, Assistant Director of P3/Program Delivery  
Albert Shelby, State Program Delivery Engineer  
Bobby Hilliard, Program Control Administrator  
Cindy VanDyke, State Transportation Planning Administrator  
Hiral Patel, State Environmental Administrator  
Kathy Zahul, State Traffic Engineer  
Angela Robinson, Financial Management Administrator  
Lisa Myers, State Project Review Engineer  
Charles "Chuck" Hasty, State Materials Engineer  
Mike Bolden, State Utilities Engineer  
Paul Tanner, Asst. State Transportation Data Administrator  
Attn: Systems & Classification Branch  
Jeff Fletcher, Statewide Location Bureau Chief  
Andy Casey, State Roadway Design Engineer  
Attn: Troy Pittman, District Design Engineer  
Emmanuella Myrthil, State Safety Program Coordinator  
Karon Ivery, District Engineer  
William Murphy, District Preconstruction Engineer  
Dallory Rozier, District Utilities Engineer  
Michelle Wright, Project Manager  
BOARD MEMBER - 1st Congressional District

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

Project Type: Intersection Improvement P.I. Number: 0011730  
 GDOT District: 5, Jesup GA County: Liberty  
 Federal Route Number: 84 State Route Number: 38  
 Project Number: 0011730

This project will provide an intersection improvement with a traffic signal installation at the intersection of a four lane section of US 84/SR 38 and a two lane section of CR 73/Old Sunbury Rd. to reduce the frequency and severity of crashes and enhance the level of service.

**Submitted for approval:**

Albert Shulby BA 6-19-14  
 Office Head (GDOT Project Manager's Office) DATE  
Mucielle Wadjet MWB 6-17-14  
 GDOT Project Manager DATE

**Recommendation for approval:**

Program Control Administrator DATE  
 \* Hiral Patel / KLP 6-24-14  
 State Environmental Administrator DATE  
 \* Kathy Zahal / KLP 6-30-14  
 State Traffic Engineer DATE  
 \* Lisa Myers / KLP 6-24-14  
 Project Review Engineer DATE  
 \* Jun-Binn Kammer / KLP 6-27-14  
 State Utilities Engineer DATE  
 \* Karon Ivery / KLP 7-7-14  
 District Engineer DATE  
 State Transportation Financial Management Administrator DATE

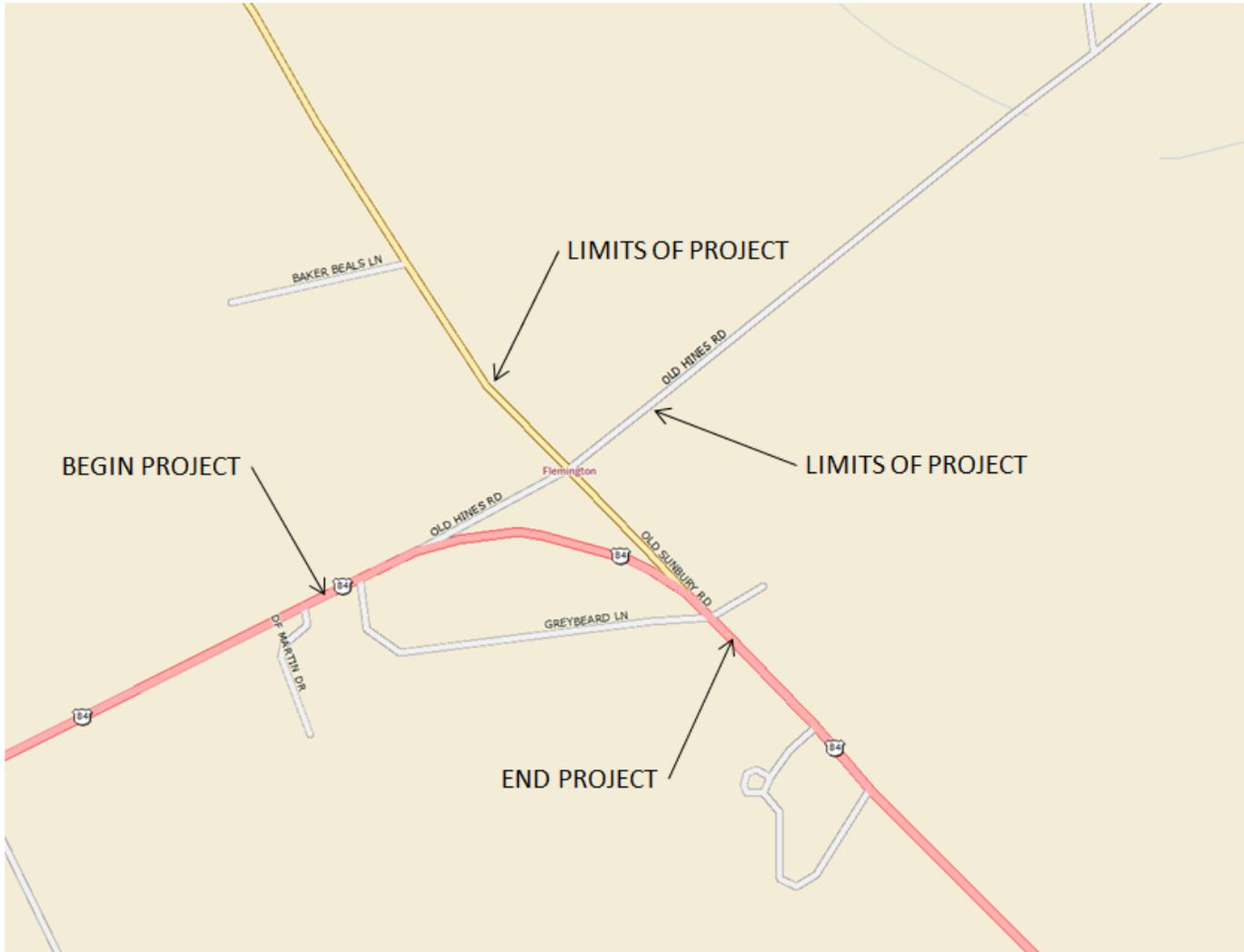
The concept as presented herein and submitted for approval is consistent with that which is included in the Regional Transportation Plan (RTP) and/or the State Transportation Improvement Program (STIP).

\* Cynthia Van Dyke / KLP 7-2-14  
 State Transportation Planning Administrator (recommendation required) DATE

\* Recommendation on file

\* Andy Casey / KLP 7-10-14  
 State Roadway Design Engineer

### PROJECT LOCATION



County: Liberty

## PLANNING & BACKGROUND DATA

**Project Justification Statement:** The proposed project will serve to decrease crash frequency and severity for vehicles at the intersections of SR 38 at Old Sunbury Rd and SR 38 at Old Hines Rd. In Georgia, nearly a third of fatal crashes occur at intersections. Nationally intersection crashes account for 40% of all reported crashes and approximately 20% of traffic fatalities. Of those crashes, almost half are the result of angle collisions. Angle collisions are often high speed, high impact crashes which often result in serious injuries. Crash data from January 2008 through December 2012 was analyzed resulting in a total of 24 crashes; with 5 injuries and the remaining being property damage only. Of these aforementioned crashes, 17 were angle accidents. All of the crashes involved passenger vehicles colliding as a result of vehicular volume, the roadway alignment in conjunction with the skew of the intersections. The above mentioned intersection underwent a traffic engineering study analysis. The result of this analysis proved that the locations met the requirements for traffic signal warrants: 1, 2, 3, and 7. Warrant 1 was satisfied by the eight-hour vehicular volume where a large volume of intersecting traffic is the principal reason to consider traffic control signal installation. Warrant 2 was satisfied by the four-hour vehicular volume where a large volume of intersecting traffic is the principal reason to consider traffic control signal installation. Warrant 3 was satisfied by the peak hour traffic conditions where traffic is such that for a minimum of 1 hour of an average day, the minor-street traffic suffers undue delay when entering or crossing a major street. Warrant 7 was satisfied by the crash experience conditions where the severity and frequency of crashes are the principal reasons to consider installing a traffic control signal. Based on engineering judgment, it is recommended that the installation of a traffic signal, along with subsequent roadway realignment of the above mentioned intersections would greatly reduce the number of crashes.

**Description of the proposed project:** State Road 38/US 84 is a proposed four lane facility with a raised median and contains a near 90 degree curve with curb and gutter. It is proposed to install a traffic signal at SR 38/US 84 and CR73/Old Sunbury Road. Realignment is proposed for CR 73/Old Sunbury Road and Old Hines Road. The posted speed limit is 45 mph along the SR 38/US 84 corridor and 25 mph along CR 73/Old Sunbury Road and 35 mph along Old Hines Road corridors. SR 38/US 84 is proposed to have a right lane for continuous traffic with a left lane and auxiliary left lane to stop at the traffic signal.

**Federal Oversight:**  Full Oversight  Exempt  State Funded  Other

**MPO:** Hinesville Area MPO

MPO Project ID N/A

**Regional Commission:** Coastal Georgia RC

RC Project ID N/A

**Congressional District(s):** 1

**Projected Traffic:** ADT

Current Year (2014): 35,574    Open Year (2019): 38,971    Design Year (2039): 52,560

Traffic Projections Performed by: GDOT Office of Planning

**Functional Classification (Mainline):** Urban Principal Arterial

County: Liberty

Is this a 3R (Resurfacing, Restoration, &amp; 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:** No potential project impacts have been identified which may require Context Sensitive Solutions per the GDOT Context Sensitive Design Online Manual and AASHTO Guide for Achieving Flexibility in Highway Design.

Context Sensitive Solutions: N/A

**DESIGN AND STRUCTURAL DATA**

Mainline Design Features: SR38/US84

Feature	Existing	Standard*	Proposed
<b>Typical Section</b>			
- Number of Lanes	4	4	4
- Lane Width(s)	12'	11'-12'	12'
- Median Width & Type	Flushed- 14'	Raised-20'	Raised-20'
- Outside Shoulder or Border Area Width	10'	10-16'	11'
- Outside Shoulder Slope	3:1	4:1	4:1
- Inside Shoulder Width	N/A	N/A	N/A
- Sidewalks	4'-RT	5'	5'
- Auxiliary Lanes	14'	11'-12'	12'
- Bike Lanes	N/A	N/A	N/A
Posted Speed	45 mph		45 mph
Design Speed	45 mph	45 mph	45 mph
Min Horizontal Curve Radius	1091.35'	1190'	1190'
Superelevation Rate	6%	4%	4%
Grade	-0.26%	0.5%	-0.26%
Access Control	N/A	N/A	N/A
Right-of-Way Width	120'	120'-150'	120'-150'
Maximum Grade – Crossroad	Unknown	8%	8%
Design Vehicle	WB-67	WB-67	WB-67

\*According to current GDOT design policy if applicable

County: Liberty

**Sideroad Design Features: CR73/Old Sunbury Rd.**

Feature	Existing	Standard*	Proposed
<b>Typical Section</b>			
- Number of Lanes	2	2	2
- Lane Width(s)	12'	11'-12'	12'
- Median Width & Type	N/A	N/A	N/A
- Outside Shoulder or Border Area Width	2' to 6' paved	8'	11'
- Outside Shoulder Slope	4:1	4:1	4:1
- Inside Shoulder Width	N/A	N/A	N/A
- Sidewalks	N/A	N/A	5'
- Auxiliary Lanes	N/A	11'-12'	12'
- Bike Lanes	N/A	N/A	N/A
Posted Speed	25 mph		35 mph
Design Speed	Unknown	35 mph	35 mph
Min Horizontal Curve Radius	Unknown	371'	371'
Superelevation Rate	Unknown	4%	4%
Grade	Unknown	0.3%	0.2%-0.3%
Access Control	N/A	N/A	N/A
Right-of-Way Width	70'	70'-140'	70'-140'
Design Vehicle	SU	SU	SU

\*According to current GDOT design policy if applicable

**Sideroad Design Features: Old Hines Rd./CR 75**

Feature	Existing	Standard*	Proposed
<b>Typical Section</b>			
- Number of Lanes	2	2	2
- Lane Width(s)	11'	11'-12'	12'
- Median Width & Type	N/A	N/A	N/A
- Outside Shoulder or Border Area Width	4'-grass	10'-16'	11'
- Outside Shoulder Slope	4:1	4:1	4:1
- Inside Shoulder Width	N/A	N/A	N/A
- Sidewalks	N/A	N/A	5'
- Auxiliary Lanes	N/A	N/A	N/A
- Bike Lanes	N/A	N/A	N/A
Posted Speed	35 mph		35 mph
Design Speed	Unknown	35 mph	35 mph
Min Horizontal Curve Radius	Unknown	371'	371'
Superelevation Rate	Unknown	4%	4%
Grade	Unknown	0.3%	0.2%-0.3%
Access Control	N/A	N/A	N/A
Right-of-Way Width	60'	60'-140'	60'-140'
Design Vehicle	SU	SU	SU

\*According to current GDOT design policy if applicable

**Major Interchanges/Intersections:** US 84/SR 38 at CR 73/Old Sunbury Road

**Utility Involvements:** Atlanta Gas Light-Gas  
Georgia Power Co – Electricity  
Comcast – Telecommunications  
Century Link – Telecommunications  
Water and Sewer – City of Flemington Municipality  
\*Georgia Department of Transportation coordinating all utilities\*

**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

**Right-of-Way:**

Required Right-of-Way anticipated:  No  Yes  Undetermined  
Easements anticipated:  None  Temporary  Permanent  Utility  Other

Anticipated number of impacted parcels:	7
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

County: Liberty

**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)
1. Access Control - Median Opening Spacing	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input 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

**MS4 Compliance – Is the project located in an MS4 area?**  No  Yes  
MS4 submitted to Brad McManus for review on January 27, 2014.

**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"/>	
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:** No ecology, history, archeology, air & noise, or public involvement studies have been done at this time.

**Major stakeholders:** 3<sup>rd</sup> Infantry Division of the US Army: Fort Stewart, property in vicinity of project  
City of Flemington: City Government property in vicinity of project  
Parker's: Convenience Store, property owner in vicinity of project  
Thomas L. Carter Funeral Home: property owner in vicinity of project  
Coastal Utilities: Utility Company, property owner in vicinity of project

County: Liberty

**ROUNDABOUTS** Roundabout ruled out as alternative as required. See attached Traffic Study for analysis of roundabout and approved signal warrants.

## CONSTRUCTION

Issues potentially affecting constructability/construction schedule: NONE

Early Completion Incentives recommended for consideration:  No  Yes

## PROJECT RESPONSIBILITIES

### Project Activities:

Project Activity	Party Responsible for Performing Task(s)
Concept Development	<i>GDOT</i>
Design	<i>GDOT</i>
Right-of-Way Acquisition	<i>GDOT</i>
Utility Relocation	<i>Utility Companies</i>
Letting to Contract	<i>GDOT</i>
Construction Supervision	<i>GDOT</i>
Providing Material Pits	<i>Contractor</i>
Providing Detours	<i>N/A</i>
Environmental Studies, Documents, and Permits	<i>GDOT</i>
Environmental Mitigation	<i>GDOT</i>
Construction Inspection & Materials Testing	<i>GDOT</i>

Lighting required:  No  Yes

**Initial Concept Meeting:** No Initial Concept Meeting was held.

**Concept Meeting:** Concept meeting was held on March 18, 2014; 9:30 a.m. at the Liberty County Courthouse in Hinesville GA. The attendance for this meeting was recorded and minutes were taken. The summary of this meeting can be found on the report “Minutes of Concept Meeting” as attached at the end of this concept report.

**Other projects in the area:** PI# 0010591 – The Flemington Pedestrian Access Improvements project is the installation of approximately 2,500 LF of 5 foot wide sidewalk along the northern ROW of SR 38/US 84. The project will begin at Wallace Martin Rd. and continue northeast along SR 38/US 84 to CR 73/Old Sunbury Rd., at which the sidewalk will turn north along CR 73/Old Sunbury Rd. for approximately 600 LF.

**Other coordination to date:** No other coordination to date.

**Project Cost Estimate and Funding Responsibilities:**

	<b>Breakdown of PE</b>	<b>ROW</b>	<b>Reimbursable Utility</b>	<b>CST*</b>	<b>Environmental Mitigation</b>	<b>Total Cost</b>
By Whom	GDOT	GDOT	GDOT	GDOT	GDOT	
\$ Amount	200,000.00	568,000.00	42,000.00	2,146,335.33	0.00	2,956,335.33
Date of Estimate	6/28/2012	9/8/2014	8/27/2014	9/24/2014	8/27/2014	

\*CST Cost includes: Construction Item Costs, Construction Contingency, Engineering and Inspection, and Liquid AC Cost Adjustment.

**ALTERNATIVES DISCUSSION**

**Alternative selection:**

<b>Preferred Alternative:</b> <i>Intersection Realignment with Signal Install – no free flow lane on US84.</i>			
<b>Estimated Property Impacts:</b>	<b>7</b>	<b>Estimated Total Cost:</b>	<b>2,956,335.33</b>
<b>Estimated ROW Cost:</b>	<b>568,000.00</b>	<b>Estimated CST Time:</b>	<b>18 months</b>
<b>Rationale:</b> <i>Preferred alternative serves the traveling public and pedestrians with the best traffic movement.</i>			

<b>No-Build Alternative:</b> <i>No build</i>			
<b>Estimated Property Impacts:</b>	<b>N/A</b>	<b>Estimated Total Cost:</b>	<b>N/A</b>
<b>Estimated ROW Cost:</b>	<b>N/A</b>	<b>Estimated CST Time:</b>	<b>N/A</b>
<b>Rationale:</b> <i>Traffic data and turning movements constitute a need for a left turn lane on US84, and a realignment of both side roads for sight distance and maneuverability.</i>			

<b>Alternative 1:</b> <i>Intersection Realignment with Signal Install, and a free flow lane on US84.</i>			
<b>Estimated Property Impacts:</b>	<b>7</b>	<b>Estimated Total Cost:</b>	<b>2,701,988.80</b>
<b>Estimated ROW Cost:</b>	<b>542,000.00</b>	<b>Estimated CST Time:</b>	<b>18 months</b>
<b>Rationale:</b> <i>Pedestrian crossing requires all traffic to stop, free flow lane is not permitted with Signal and pedestrian cross walk.</i>			

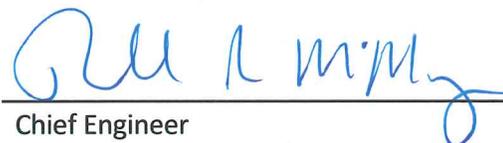
**Comments:** No Comments

**Attachments:**

1. Concept Layout:  
Existing  
Proposed
2. Typical sections
3. Detailed Cost Estimates:
  - a. Construction including Engineering and Inspection
  - b. Completed Fuel & Asphalt Price Adjustment forms
  - c. Right-of-Way
  - d. Utilities
  - e. Environmental Mitigation (EPD, etc.)
4. Traffic diagrams
5. Capacity analysis summary
6. Summary of TE Study and Signal Warrant Analysis including Crash Summary
7. Hydrology Study for MS4 Permit
8. Minutes of Concept Meeting (3-18-2014)

**APPROVALS**

Concur:   
\_\_\_\_\_  
Director of Engineering

Approve:   
\_\_\_\_\_  
Chief Engineer

10/10/14  
\_\_\_\_\_  
Date

CR 73/Old Sunbury Rd.

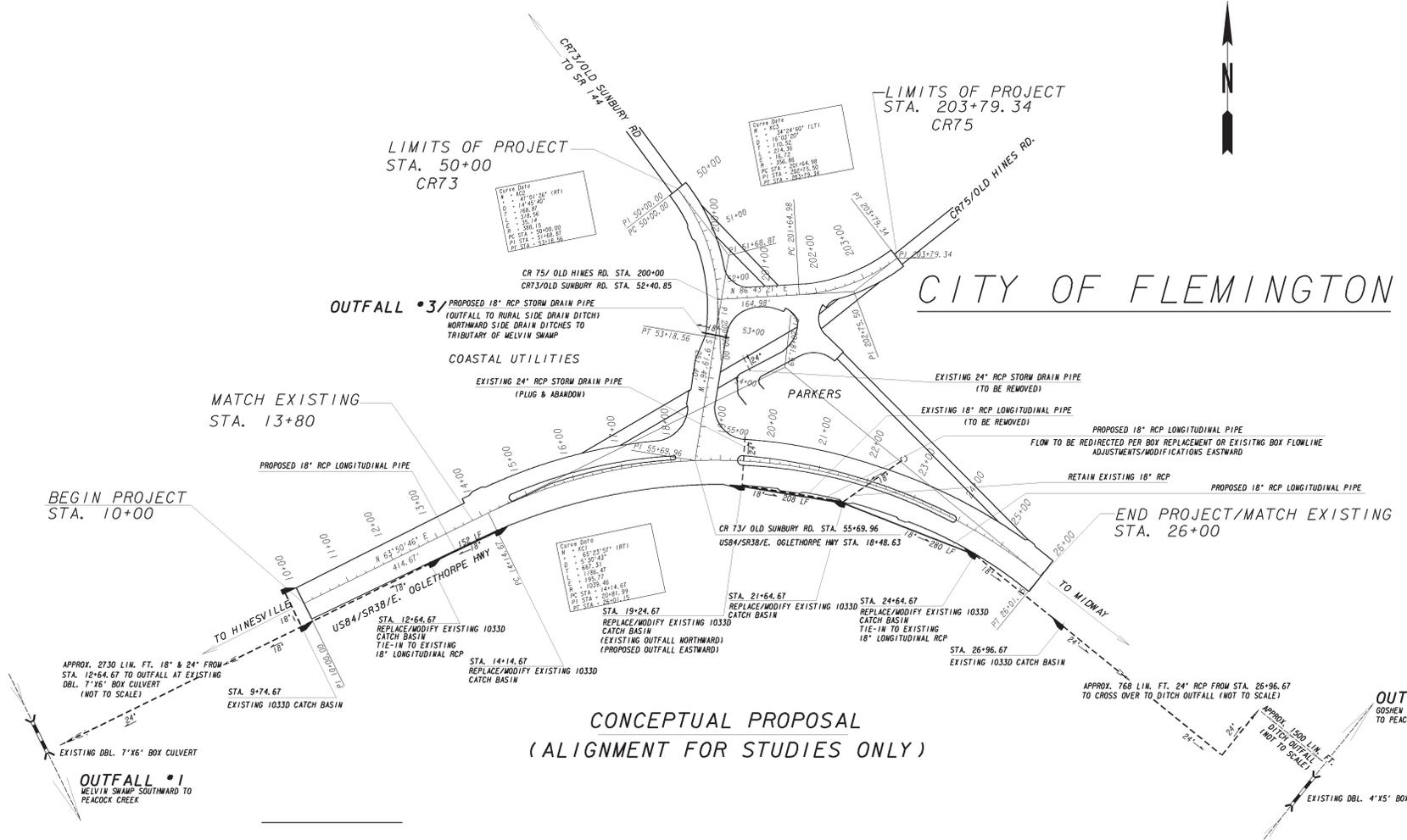
Old Hines Rd.

SR 38/US 84

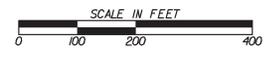
© 2013 Google

Google earth

# CONCEPT PROPOSAL

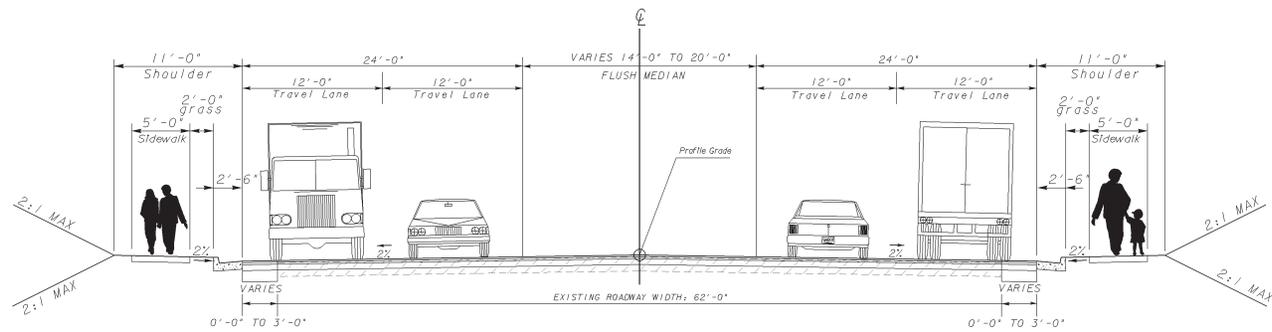


## CONCEPTUAL PROPOSAL (ALIGNMENT FOR STUDIES ONLY)

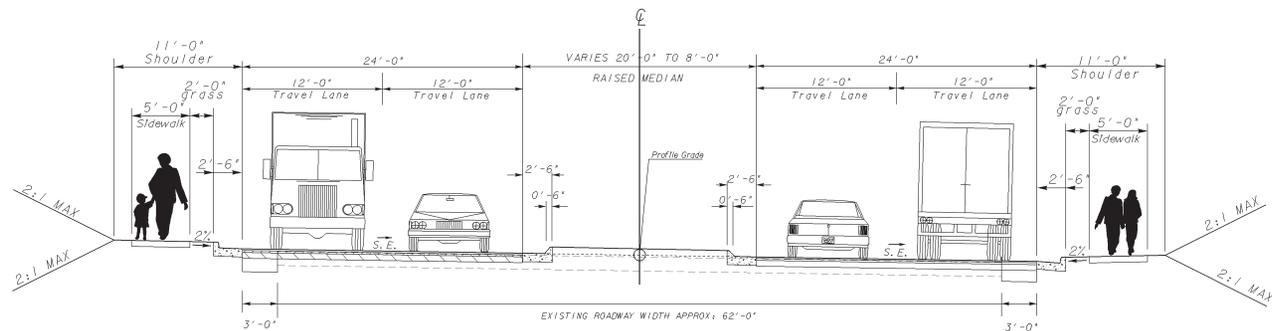


REVISION DATES	STATE OF GEORGIA DEPARTMENT OF TRANSPORTATION OFFICE: DISTRICT 5 ROAD DESIGN
	<b>MS4 CONCEPT PROPOSAL</b>
	0011730
	CONCEPT FOOTPRINT
	LIBERTY COUNTY
	DRAWING NO. <b>1</b>

9/3/2014 kstewart	Wed Sep 03 09:45:19 2014 \\gdot-dsn\gocfg\resources\Gdot-2012.tbl	J:\DESIGN\0011730\PE (Preconstruction)\Concept\01\plays\0011730 Concept Typical Sections.dgn	STATE <b>GA</b>	PROJECT NUMBER CONCEPT TYPICALS	SHEET NO. 1	TOTAL SHEETS 4
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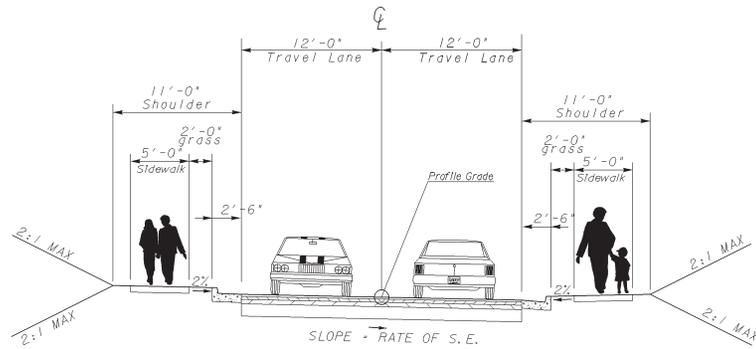
SR38/US84  
STA. 10+00 TO STA. 14+14.67 (Concept Approximate)  
TANGENT SECTION



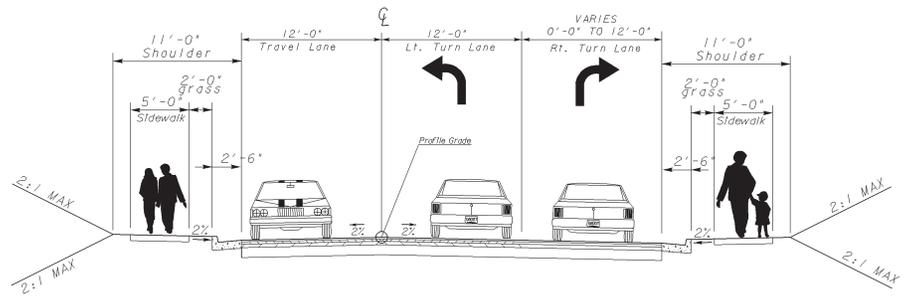
SR38/US84  
STA. 14+14.67 TO STA. 16+00 (Concept Approximate)  
SUPERELEVATION SECTION

REVISION DATES	STATE OF GEORGIA
	DEPARTMENT OF TRANSPORTATION
	OFFICE: DISTRICT 5 ROAD DESIGN
	<b>TYPICAL SECTIONS</b>
	SR28/US84 @ CR73/OLD SUNBURY RD
	LIBERTY COUNTY
	0011730
	DRAWING NO. <b>5-001</b>





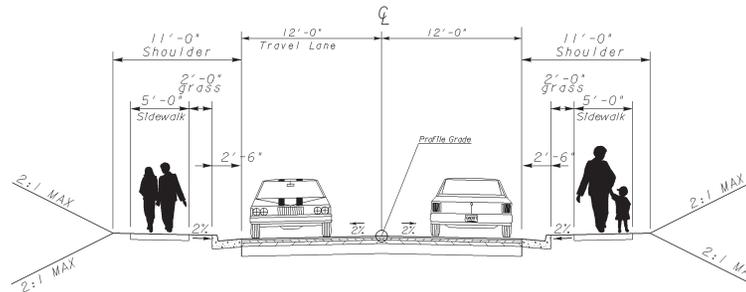
CR73/OLD SUNBURY ROAD  
STA. 50+00 TO STA. 52+94.96 (Concept Approximate)  
SUPER ELEVATED SECTION



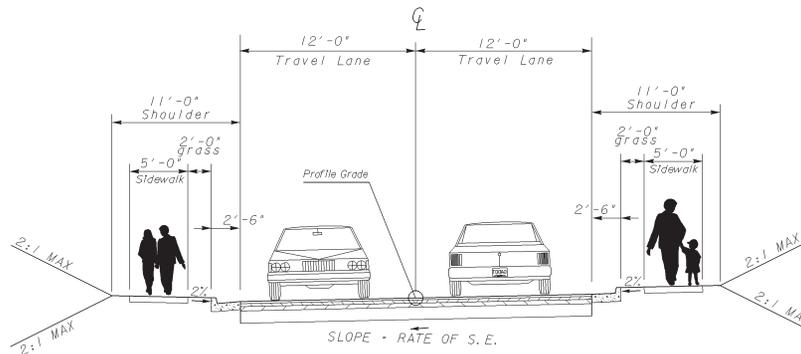
CR73/OLD SUNBURY ROAD  
STA. 52+94.96 TO STA. 55+69.96 (Concept Approximate)  
TANGENT SECTION

REVISION DATES	STATE OF GEORGIA DEPARTMENT OF TRANSPORTATION
	OFFICE:
	<b>TYPICAL SECTIONS</b>
	SR28/US84 @ CR73/OLD SUNBURY RD
	LIBERTY COUNTY
	0011730
	DRAWING NO. <b>5-003</b>

9/3/2014 kstewart	Wed Sep 03 09:49:33 2014 \\gdot-dsn\gocf\resources\Gdot-2012.tbl	J:\DESIGN\0011730\PE (Preconstruction)\Concept\01\plays\0011730_Concept_Typical_Sections.dgn	STATE GA	PROJECT NUMBER CONCEPT TYPICALS	SHEET NO. 4	TOTAL SHEETS 4
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CR75/OLD HINES ROAD  
STA. 200+00 TO STA. 201+64.98 (Concept Approximate)  
TANGENT SECTION



CR75/OLD HINES ROAD  
STA. 201+64.98 TO STA. 203+79.34 (Concept Approximate)  
SUPER ELEVATED SECTION

REVISION DATES	STATE OF GEORGIA DEPARTMENT OF TRANSPORTATION OFFICE: DISTRICT 5 ROAD DESIGN <b>TYPICAL SECTIONS</b> SR28/US84 @ CR73/OLD SUNBURY RD LIBERTY COUNTY 0011730

DRAWING NO.  
**5-004**

# DETAILED COST ESTIMATE



**Job: 0011730**

**JOB NUMBER** 0011730

**FED/STATE PROJECT NUMBER** 0011730

**SPEC YEAR:** 01

**DESCRIPTION:** INTERSECTION IMPROVEMENT @ US84/SR38 AND CR73/OLD SUNBURY RD  
SIGNAL INSTALLATION AND CR REALIGNMENT

**ITEMS FOR JOB 0011730**

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0070	150-1000	1.000	LS	\$35,000.00000	TRAFFIC CONTROL - 0011730	\$35,000.00
0060	153-1300	1.000	EA	\$79,011.37786	FIELD ENGINEERS OFFICE TP 3	\$79,011.38
0120	163-0232	10.000	AC	\$347.55647	TEMPORARY GRASSING	\$3,475.56
0125	163-0240	200.000	TN	\$174.66245	MULCH	\$34,932.49
0035	163-0300	5.000	EA	\$1,341.43479	CONSTRUCTION EXIT	\$6,707.17
0140	163-0520	5000.000	LF	\$14.03363	CONSTR AND REMOVE TEMP PIPE SLOPE DRAIN	\$70,168.15
0155	163-0528	1200.000	LF	\$3.81889	CONSTR AND REM FAB CK DAM -TP C SLT FN	\$4,582.67
0150	165-0010	3000.000	LF	\$0.56931	MAINT OF TEMP SILT FENCE, TP A	\$1,707.93
0160	165-0041	600.000	LF	\$0.85659	MAINT OF CHECK DAMS - ALL TYPES	\$513.95
0090	165-0101	10.000	EA	\$533.21324	MAINT OF CONST EXIT	\$5,332.13
0130	167-1000	4.000	EA	\$365.60794	WATER QUALITY MONITORING AND SAMPLING	\$1,462.43
0135	167-1500	9.000	MO	\$560.85557	WATER QUALITY INSPECTIONS	\$5,047.70
0145	171-0010	6000.000	LF	\$1.99288	TEMPORARY SILT FENCE, TYPE A	\$11,957.28
0065	207-0203	100.000	CY	\$51.64482	FOUND BKFILL MATL, TP II	\$5,164.48
0075	210-0100	1.000	LS	\$100,000.00000	GRADING COMPLETE - 0011730	\$100,000.00
0025	310-5060	3000.000	SY	\$11.81448	GR AGGR BS CRS 6IN INCL MATL	\$35,443.44
0020	310-5120	7000.000	SY	\$21.86713	GR AGGR BS CRS 12IN INCL MATL	\$153,069.91
0080	318-3000	50.000	TN	\$29.87213	AGGR SURF CRS	\$1,493.61
0085	402-1812	500.000	TN	\$94.20574	RECYL AC LEVELING,INC BM&HL	\$47,102.87
0015	402-3121	1900.000	TN	\$81.11738	RECYL AC 25MM SP,GP1/2,BM&HL	\$154,123.02
0005	402-3130	600.000	TN	\$106.44780	RECYL AC 12.5MM SP,GP2,BM&HL	\$63,868.68
0010	402-3190	800.000	TN	\$88.48633	RECYL AC 19 MM SP,GP 1 OR 2 ,INC BM&HL	\$70,789.06
0030	413-1000	1700.000	GL	\$2.36866	BITUM TACK COAT	\$4,026.72
0330	441-0105	5700.000	SY	\$21.00000	CONC SIDEWALK, 5 IN	\$119,700.00
0315	441-0303	5.000	EA	\$1,651.81673	CONC SPILLWAY, TP 3	\$8,259.08
0190	441-0304	4.000	EA	\$1,602.46593	CONC SPILLWAY, TP 4	\$6,409.86
0355	441-0748	1600.000	SY	\$47.42983	CONC MEDIAN, 6 IN	\$75,887.73
0340	441-6222	5700.000	LF	\$24.82529	CONC CURB & GUTTER/ 8"X30"TP2	\$141,504.15
0170	446-1100	3000.000	LF	\$3.75724	PVMT REF FAB STRIPS, TP2,18 INCH WIDTH	\$11,271.72
0195	500-3200	10.000	CY	\$533.35724	CL B CONC	\$5,333.57
0200	511-1000	100.000	LB	\$2.75926	BAR REINF STEEL	\$275.93
0050	550-1180	4275.000	LF	\$30.60429	STM DR PIPE 18",H 1-10	\$130,833.34
0345	550-1300	1425.000	LF	\$53.93861	STM DR PIPE 30",H 1-10	\$76,862.52
0040	550-2180	240.000	LF	\$28.86492	SIDE DR PIPE 18",H 1-10	\$6,927.58
0350	550-3330	6.000	EA	\$1,230.00000	SAFETY END SECTION 30",STD,4:1	\$7,380.00
0055	550-3518	6.000	EA	\$609.68527	SAFETY END SECTION 18",STD,6:1	\$3,658.11
0045	550-3618	20.000	EA	\$484.86751	SAFETY END SECTION 18",SD,6:1	\$9,697.35
0175	603-2180	20.000	SY	\$63.68052	STN DUMPED RIP RAP, TP 3, 12"	\$1,273.61
0185	603-6006	10.000	SY	\$125.00000	SAND-CEMENT BAG RIP RAP, 6 IN	\$1,250.00
0180	603-7000	20.000	SY	\$4.06340	PLASTIC FILTER FABRIC	\$81.27
0335	610-0355	3600.000	LF	\$10.00000	REM CONC CURB & GUTTER ALL SIZ	\$36,000.00

# DETAILED COST ESTIMATE



**Job: 0011730**

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0280	634-1200	20.000	EA	\$109.99179	RIGHT OF WAY MARKERS	\$2,199.84
0275	636-1020	300.000	SF	\$13.40404	HWY SGN,TP1MAT,REFL SH TP3	\$4,021.21
0270	636-1033	100.000	SF	\$16.02709	HWY SIGNS, TP1MAT,REFL SH TP 9	\$1,602.71
0265	636-2070	700.000	LF	\$6.07935	GALV STEEL POSTS, TP 7	\$4,255.55
0260	636-2080	200.000	LF	\$9.20924	GALV STEEL POSTS, TP 8	\$1,841.85
0305	639-5000	4.000	EA	\$6,443.14061	PRESTRESSED CONC STR POLE, TP- 0011730	\$25,772.56
0165	643-8200	500.000	LF	\$1.82342	BARRIER FENCE (ORANGE), 4 FT	\$911.71
0295	647-1000	1.000	LS	\$80,000.00000	TRAF SIGNAL INSTALLATION NO - TRAFFIC SIGNAL	\$80,000.00
0230	653-0120	30.000	EA	\$73.32751	THERM PVMT MARK, ARROW, TP 2	\$2,199.83
0220	653-1501	5700.000	LF	\$0.46953	THERMO SOLID TRAF ST 5 IN, WHI	\$2,676.32
0215	653-1502	3600.000	LF	\$0.54066	THERMO SOLID TRAF ST, 5 IN YEL	\$1,946.38
0235	653-1704	200.000	LF	\$5.74181	THERM SOLID TRAF STRIPE,24",WH	\$1,148.36
0245	653-1804	1500.000	LF	\$2.27310	THERM SOLID TRAF STRIPE, 8",WH	\$3,409.65
0225	653-3501	1000.000	GLF	\$0.28717	THERMO SKIP TRAF ST, 5 IN, WHI	\$287.17
0240	653-3502	1000.000	GLF	\$0.33023	THERMO SKIP TRAF ST, 5 IN, YEL	\$330.23
0255	653-6004	1000.000	SY	\$3.23203	THERM TRAF STRIPING, WHITE	\$3,232.03
0250	653-6006	900.000	SY	\$3.27676	THERM TRAF STRIPING, YELLOW	\$2,949.08
0210	654-1002	200.000	EA	\$3.16118	RAISED PVMT MARKERS TP 2	\$632.24
0205	654-1003	200.000	EA	\$4.12258	RAISED PVMT MARKERS TP 3	\$824.52
0325	668-1100	10.000	EA	\$2,177.22934	CATCH BASIN, GP 1	\$21,772.29
0290	668-2100	10.000	EA	\$1,754.34219	DROP INLET, GP 1	\$17,543.42
0320	668-4300	5.000	EA	\$1,821.49070	STORM SEW MANHOLE, TP 1	\$9,107.45
0310	682-6233	500.000	LF	\$10.00000	CONDUIT, NONMETL, TP 3, 2 IN	\$5,000.00
0300	682-9950	700.000	LF	\$30.00000	DIRECTIONAL BORE - 0011730	\$21,000.00
0100	700-6910	15.000	AC	\$904.31000	PERMANENT GRASSING	\$13,564.65
0105	700-7000	10.000	TN	\$105.31555	AGRICULTURAL LIME	\$1,053.16
0110	700-8000	10.000	TN	\$556.78165	FERTILIZER MIXED GRADE	\$5,567.82
0115	700-8100	600.000	LB	\$1.97733	FERTILIZER NITROGEN CONTENT	\$1,186.40
0095	716-2000	20000.000	SY	\$1.18608	EROSION CONTROL MATS, SLOPES	\$23,721.60
<b>SUBTOTAL FOR :</b>						<b>\$1,797,344.48</b>

**TOTALS FOR JOB 0011730**

<b>ITEMS COST:</b>	<b>\$1,797,344.48</b>
<b>COST GROUP COST:</b>	<b>\$0.00</b>
<b>ESTIMATED COST:</b>	<b>\$1,797,344.48</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>\$1,797,344.48</b>

**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA**

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INTERDEPARTMENT CORRESPONDENCE

FILE P.I. No. 11730

OFFICE District 5 Road Design,  
Jesup GA

**PROJECT DESCRIPTION**

INTERSECTION IMPROVEMENT @ US84/SR38 AND CR73/OLD  
SUNBURY RD. SIGNAL INSTALLATION AND CR  
REALIGNMENTS.

DATE September 24, 2014

From: Keith R. Stewart, D5 Road Design

To: Lisa L. Myers, State Project Review Engineer

Subject: **REVISIONS TO PROGRAMMED COSTS**

PROJECT MANAGER Michelle Wright

MGMT LET DATE 17-May

MGMT ROW DATE 16-Feb

**PROGRAMMED COSTS (TPro W/OUT INFLATION)**

**LAST ESTIMATE UPDATE**

CONSTRUCTION \$ 1,512,811.00

DATE 6/28/2012

RIGHT OF WAY \$ 542,000.00

DATE 7/17/2013

UTILITIES \$ 40,000.00

DATE 11/4/2013

**REVISED COST ESTIMATES**

CONSTRUCTION\* \$ 2,146,335.33

RIGHT OF WAY \$ 568,000.00

UTILITIES \$ 42,000.00

\*Cost Contains 10 % Contingency

**REASONS FOR COST INCREASE AND CONTINGENCY JUSTIFICATION:**

Annual update costs increased due to updated prices in C.E.S.

# CONTINGENCY SUMMARY

<b>A. CONSTRUCTION COST ESTIMATE:</b>	\$	1,797,344.48	Base Estimate From CES
<b>B. ENGINEERING AND INSPECTION (E &amp; I):</b>	\$	89,867.22	Base Estimate (A) x <span style="border: 1px solid black; padding: 2px 5px;">5</span> %
<b>C. CONTINGENCY:</b>	\$	188,721.17	Base Estimate (A) + E & I (B) x <span style="border: 1px solid black; padding: 2px 5px;">10</span> % <a href="#">See % Table in "Risk Based Cost Estimation" Memo</a>
<b>D. TOTAL LIQUID AC ADJUSTMENT:</b>	\$	70,402.46	Total From Liquid AC Spreadsheet
<b>E. CONSTRUCTION TOTAL:</b>	\$	2,146,335.33	(A + B + C + D = E)

## REIMBURSABLE UTILITY COSTS

UTILITY OWNER	REIMBURSABLE COST
ATLANTA GAS LIGHT	\$ -
GEORGIA POWER - DISTRIBUTION	\$ 15,750.00
COMCAST	\$ 10,500.00
CENTURY LINK	\$ 15,750.00
CITY OF FLEMINGTON - WATER	\$ -
CITY OF FLEMINGTON - SEWER (ADJUST M.H.)	\$ -
<b>TOTAL</b>	<b>\$ 42,000.00</b>

**ATTACHMENTS:**

Detailed Cost Estimate Printout From TRAQS Liquid AC Adjustment Spreadsheet
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PROJ. NO. [REDACTED]  
P.I. NO. 0011730  
DATE 9/24/2014

CALL NO. 9/29/2009

INDEX (TYPE)	DATE	INDEX
REG. UNLEADED	Sep-14	\$ 3.335
DIESEL		\$ 3.765
LIQUID AC		\$ 681.00

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)				<b>67419</b>	\$	<b>67,419.00</b>
Monthly Asphalt Cement Price month placed (APM)	Max. Cap	60%	\$	1,089.60		
Monthly Asphalt Cement Price month project let (APL)			\$	681.00		
Total Monthly Tonnage of asphalt cement (TMT)				165		

ASPHALT	Tons	%AC	AC ton
Leveling		5.0%	0
12.5 OGFC		5.0%	0
12.5 mm	600	5.0%	30
9.5 mm SP		5.0%	0
25 mm SP	1900	5.0%	95
19 mm SP	800	5.0%	40
	<b>3300</b>		<b>165</b>

**BITUMINOUS TACK COAT**

Price Adjustment (PA)				\$	<b>2,983.46</b>	\$	<b>2,983.46</b>
Monthly Asphalt Cement Price month placed (APM)	Max. Cap	60%	\$	1,089.60			
Monthly Asphalt Cement Price month project let (APL)			\$	681.00			
Total Monthly Tonnage of asphalt cement (TMT)				7.301671567			

Bitum Tack

Gals	gals/ton	tons
1700	232.8234	7.30167157

**BITUMINOUS TACK COAT (surface treatment)**

Price Adjustment (PA)				\$	<b>0</b>	\$	<b>-</b>
Monthly Asphalt Cement Price month placed (APM)	Max. Cap	60%	\$	1,089.60			
Monthly Asphalt Cement Price month project let (APL)			\$	681.00			
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 \$ 70,402.46**

# Department of Transportation State of Georgia

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Interdepartmental Correspondence

**FILE** R/W Cost Estimate **OFFICE** Atlanta  
**DATE** September 08, 2014

**FROM** Phil Copeland, Right of Way Administrator  
LaShone Alexander, Right of Way Cost Estimator

**TO** Keith Stewart, Project Manager

**SUBJECT** **Preliminary Right of Way Cost Estimate**  
**Project: 0011730 (Liberty County)**  
**P.I. No.: 0011730 (Alternative) No Right Way**  
**Description: Flemington Curve**

As per your request, attached is a copy of the approved Preliminary Right of Way Cost Estimates on the above referenced projects.

If you have any questions, please contact LaShone Alexander at One Georgia Center 600 West Parkway Street, NW Atlanta, GA 30308, Right of Way Office at (478) 553-1569 or (478) 232-4045.

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PC:LA  
Attachments  
c: File

GEORGIA DEPARTMENT OF TRANSPORTATION  
PRELIMINARY ROW COST ESTIMATE SUMMARY

Date: 9/8/2014 Project: 0011730  
 Revised: County: Liberty  
 PI: 0011730 Preferred Alt

Description: Flemington Curve  
 Project Termini: Flemington Curve

Existing ROW: Varies  
 Required ROW: Varies  
 Parcels: 7

Land and Improvements \_\_\_\_\_ \$365,943.75

Proximity Damage	\$0.00
Consequential Damage	\$0.00
Cost to Cures	\$0.00
Trade Fixtures	\$0.00
Improvements	\$95,000.00

Valuation Services \_\_\_\_\_ \$43,750.00

Legal Services \_\_\_\_\_ \$79,725.00

Relocation \_\_\_\_\_ \$14,000.00

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

Administrative \_\_\_\_\_ \$64,000.00

TOTAL ESTIMATED COSTS \_\_\_\_\_ \$567,418.75

**TOTAL ESTIMATED COSTS (ROUNDED) \_\_\_\_\_ \$568,000.00**

Preparation Credits	Hours	Signature

Prepared By: Dashone Alexander CG#: 286999 09/08/2014 (TE)  
 Approved By: Dashone Alexander CG#: 286999 09/08/2014 (TE)

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

# DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA

## INTERDEPARTMENT CORRESPONDENCE

FILE P.I. # 0011730 Liberty County

OFFICE Jesup

DATE 8-27-2014

FROM Dallory Rozier, District Utilities Engineer

TO Michelle Wright, Project Manager

SUBJECT UPDATED UTILITY COST ESTIMATE

As requested by your office, we are furnishing you with an Updated Utility Cost Estimate of each Utility with facilities potentially located within the above referenced project limits.

Facility Owner	Non-Reimbursable	Reimbursable	Comments
Atlanta Gas Light	\$ 52,500.00		
Georgia Power - Distribution	\$ 21,000.00	\$ 15,750.00	
Comcast	\$ 21,000.00	\$ 10,500.00	
Century Link	\$ 10,500.00	\$ 15,750.00	
City of Flemington - Water	\$ 0.00		
City of Flemington - Sewer	\$ 2,500.00		Adjust manhole
<b>Totals</b>	<b>\$ 107,500.00</b>	<b>\$ 42,000.00</b>	
<b>Total Reimbursement</b>		<b>\$ 42,000.00</b>	

CC; Angie Robinson, Office of Financial Management;

Lee Upkins, Assistant State Utilities Engineer

District Office File

Utilities Office File

DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA

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INTERDEPARTMENT CORRESPONDENCE

**FILE** P.I. No. 0011730

**OFFICE** Environmental Services

**DATE** August 27, 2014

**FROM**   
Hiral Patel, P.E., State Environmental Administrator

**TO** Michelle Wright, Project Manager

**SUBJECT** Preliminary Mitigation Cost Estimate

As requested by your office, we are furnishing you with a preliminary cost estimate for the subject project. This project will provide an intersection improvement with a traffic signal installation at the intersection of a four lane section of US 84/SR 38 and a two lane section of CR 73/Old Sunbury Road in Liberty County. After reviewing the concept and based on the information provided, the proposed project would not impact any waters of the U.S. Therefore, no mitigation credits would be needed.

**DISCLAIMER: This information is based solely on a desktop review of the information available. Only after a field reconnaissance, can a more detailed and accurate cost be estimated.**

If you have any questions or need additional information, please contact Lisa Westberry (404) 631-1772 of our office.

GB/HDC/lmw

cc: General File  
Keith Stewart

# Department of Transportation State of Georgia

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## INTERDEPARTMENT CORRESPONDENCE

**FILE** Liberty County **OFFICE** Planning  
P.I. # 0011730 **DATE** December 12, 2013

**FROM** Cynthia L. VanDyke, State Transportation Planning Administrator

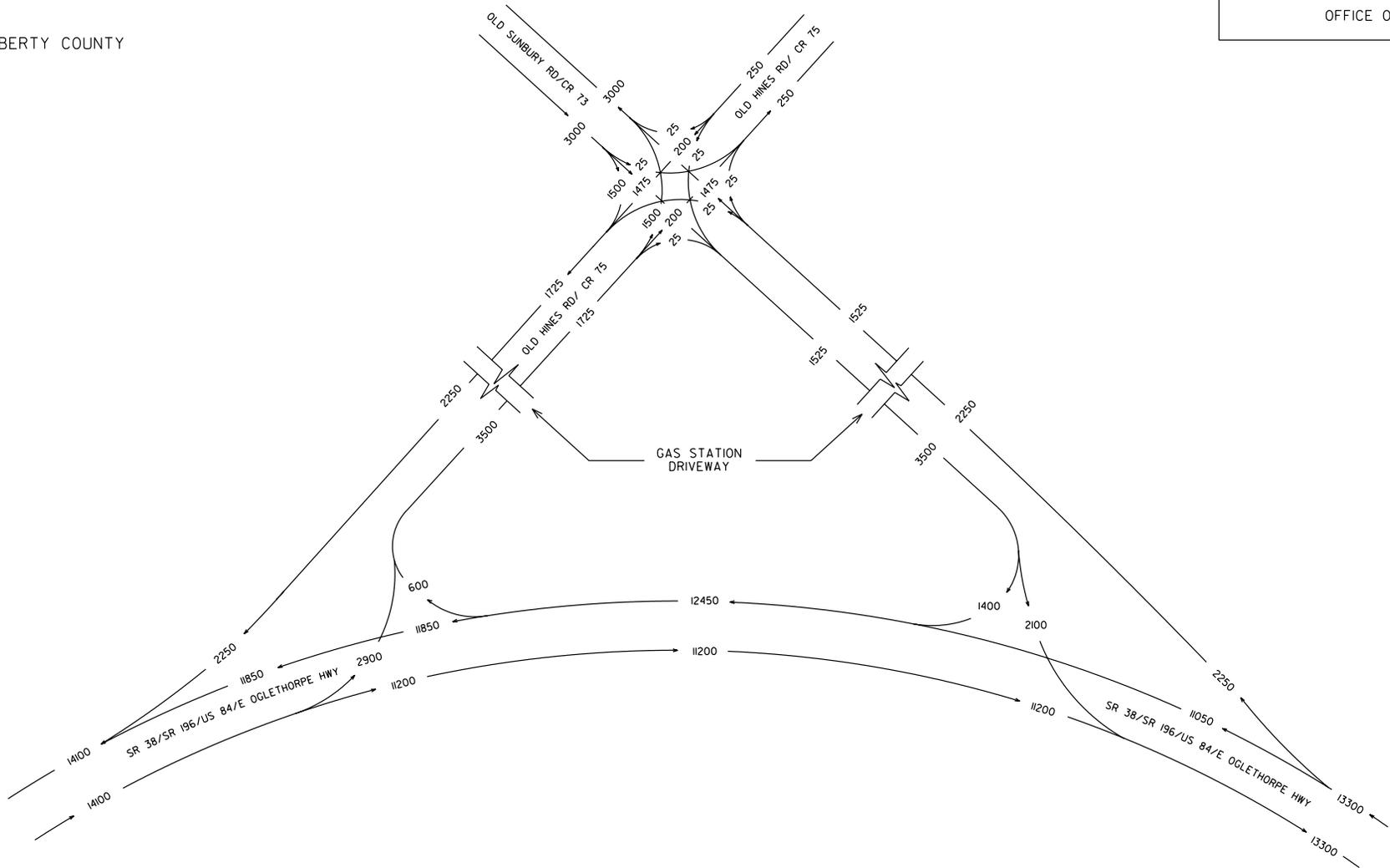
**TO** Genetha Rice-Singleton, State Program Delivery Engineer  
**Attention:** Kenneth Franks

**SUBJECT** **Design Traffic Review** for SR 38/SR 196/ US 84/E Oglethorpe Hwy at CR 73/Old Sunbury Rd.

We have reviewed the consultant's Design Traffic for the above project. It is approved.

If you have any questions concerning this information or want to meet to discuss the traffic, please contact Rhonda Niles at (404) 631-1924.

CLV/RFN



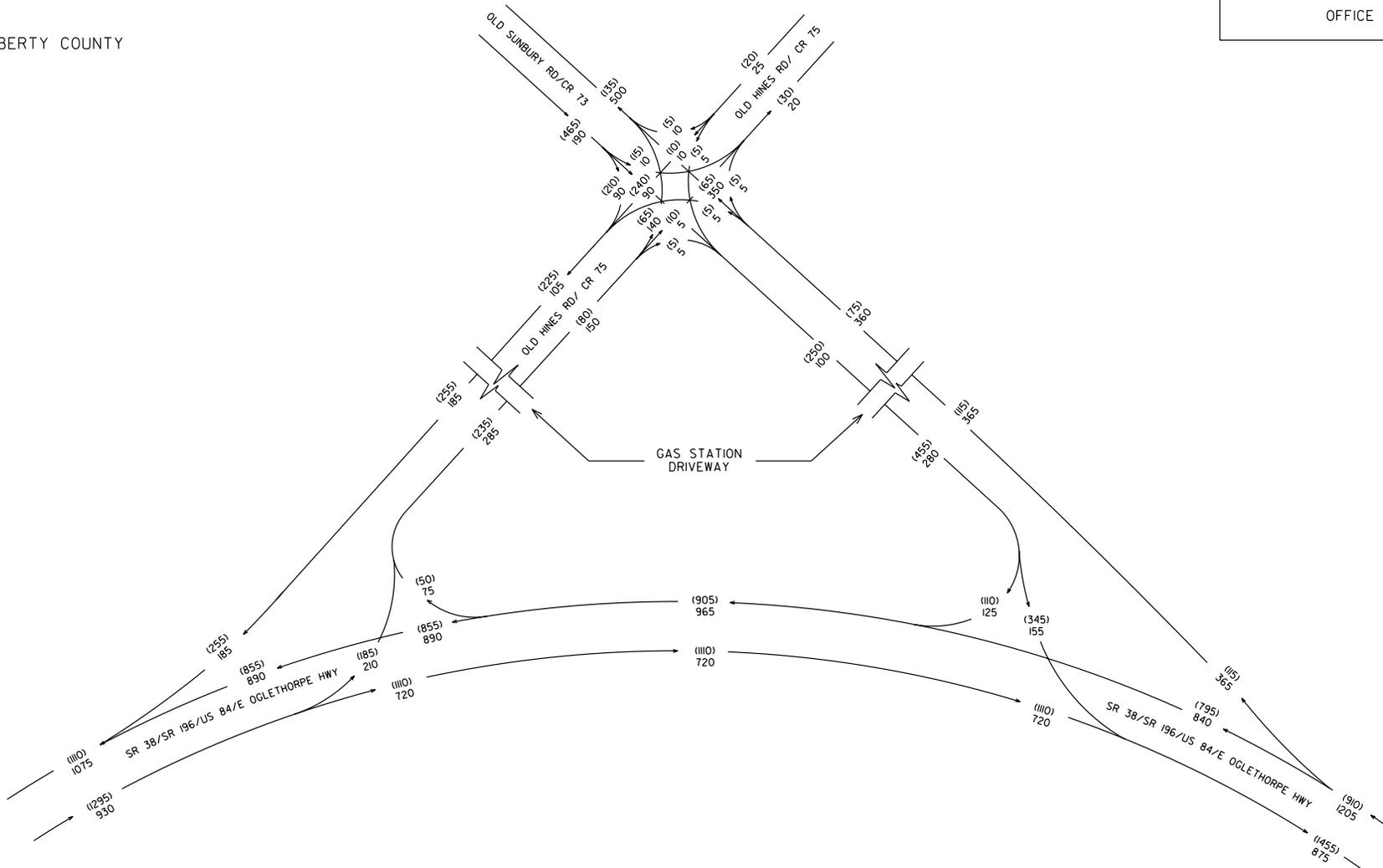
P.L.# 0011730  
LIBERTY COUNTY

SR 38/US 84 @ CR 73  
/OLD SUNBURY RD

2013 ADT = 000

24 HR. T = 10.5%  
S.U. = 5.5%  
COMB. = 5% HF  
12/13





P.I.# 001730  
LIBERTY COUNTY

SR 38/US 84 @ CR 73  
/OLD SUNBURY RD

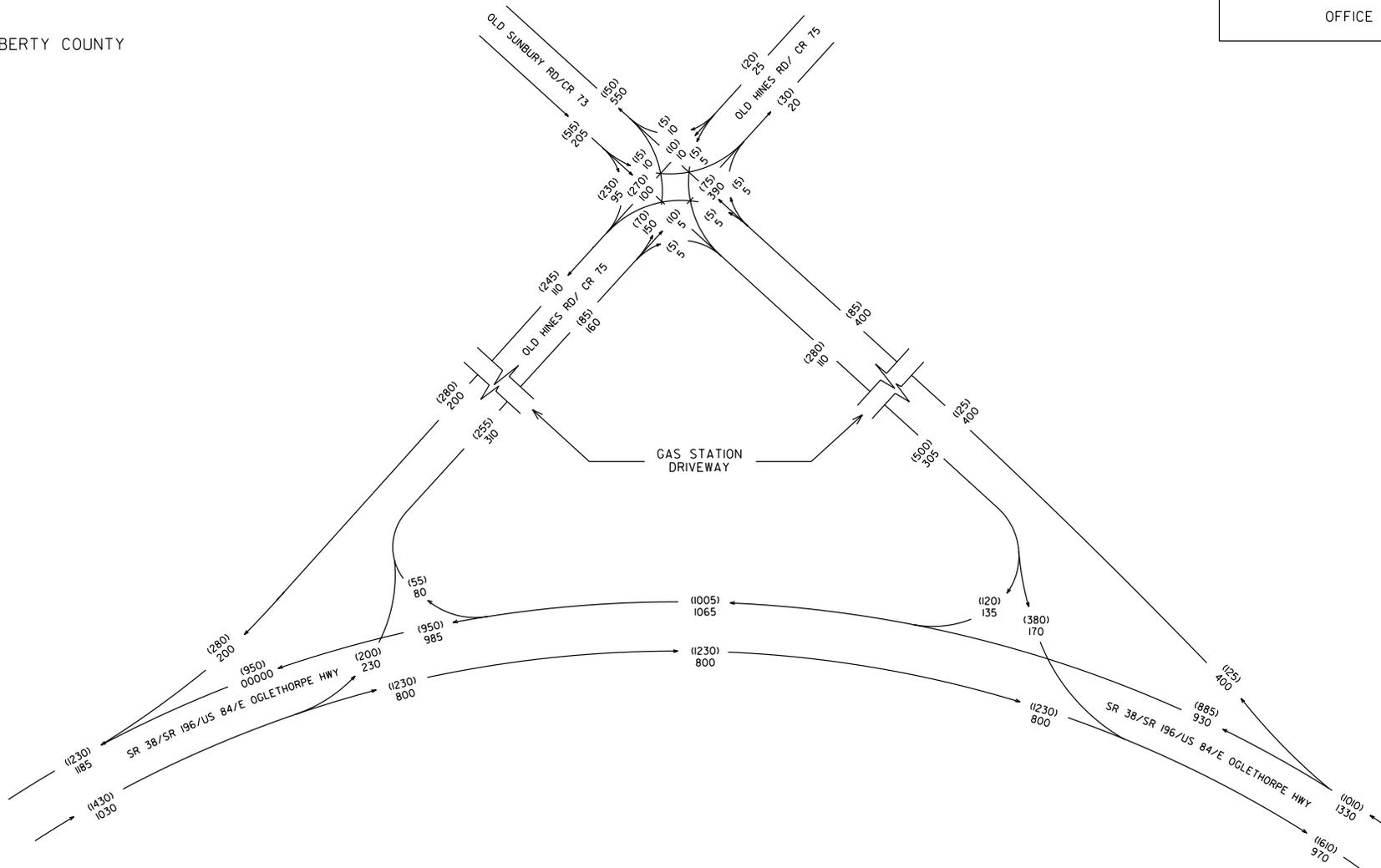
2013 PM DHV = (000)  
2013 AM DHV = 000

T = 10%  
S.U. = 5.5%  
COMB. = 4.5%

HF  
12/13







P.L.# 0011730  
LIBERTY COUNTY

SR 38/US 84 @ CR 73  
/OLD SUNBURY RD

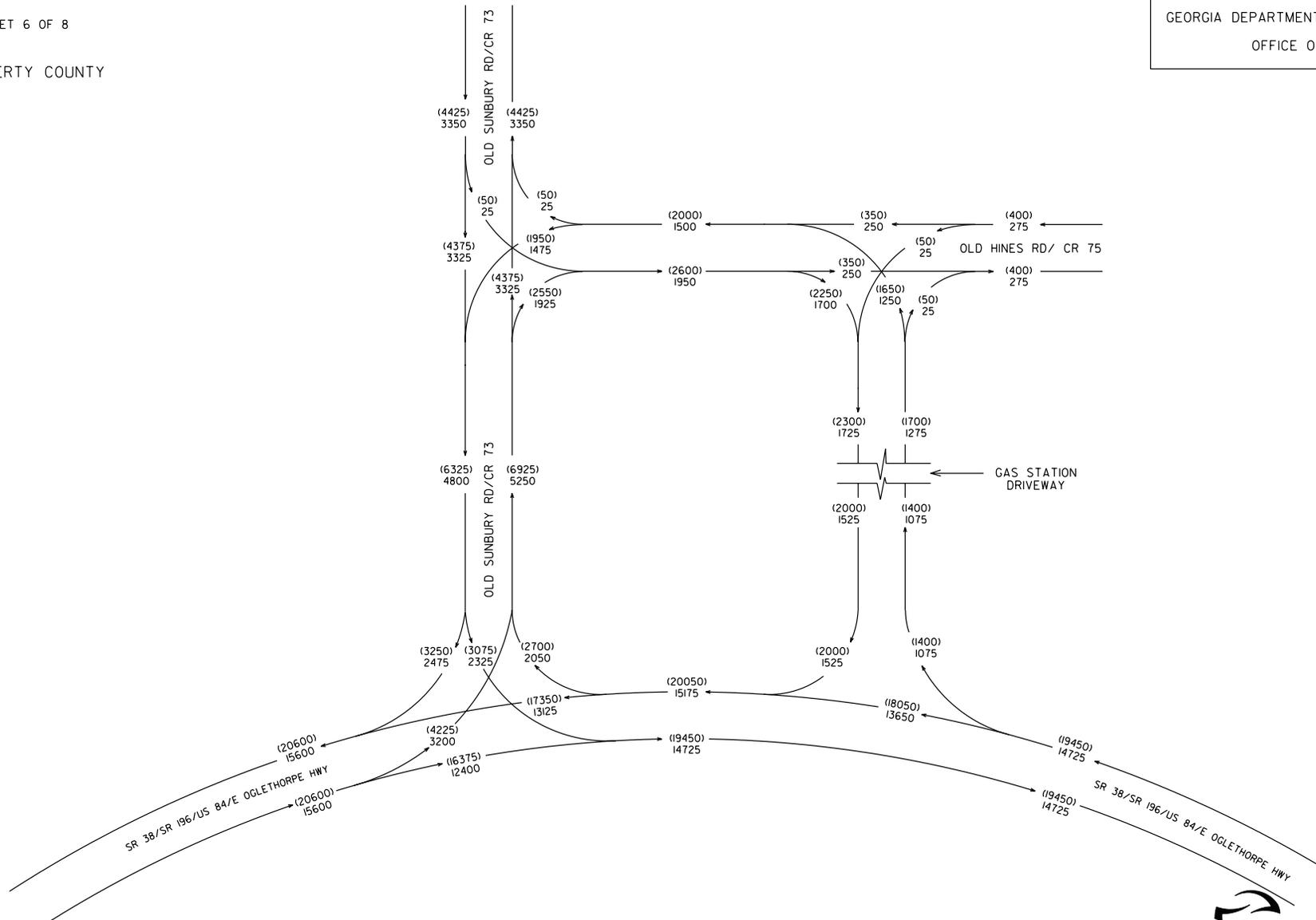
2019 NO BUILD PM DHV = (000)  
2019 NO BUILD AM DHV = 000

T = 10%  
S.U. = 5.5%  
COMB. = 4.5%

HF  
12/13





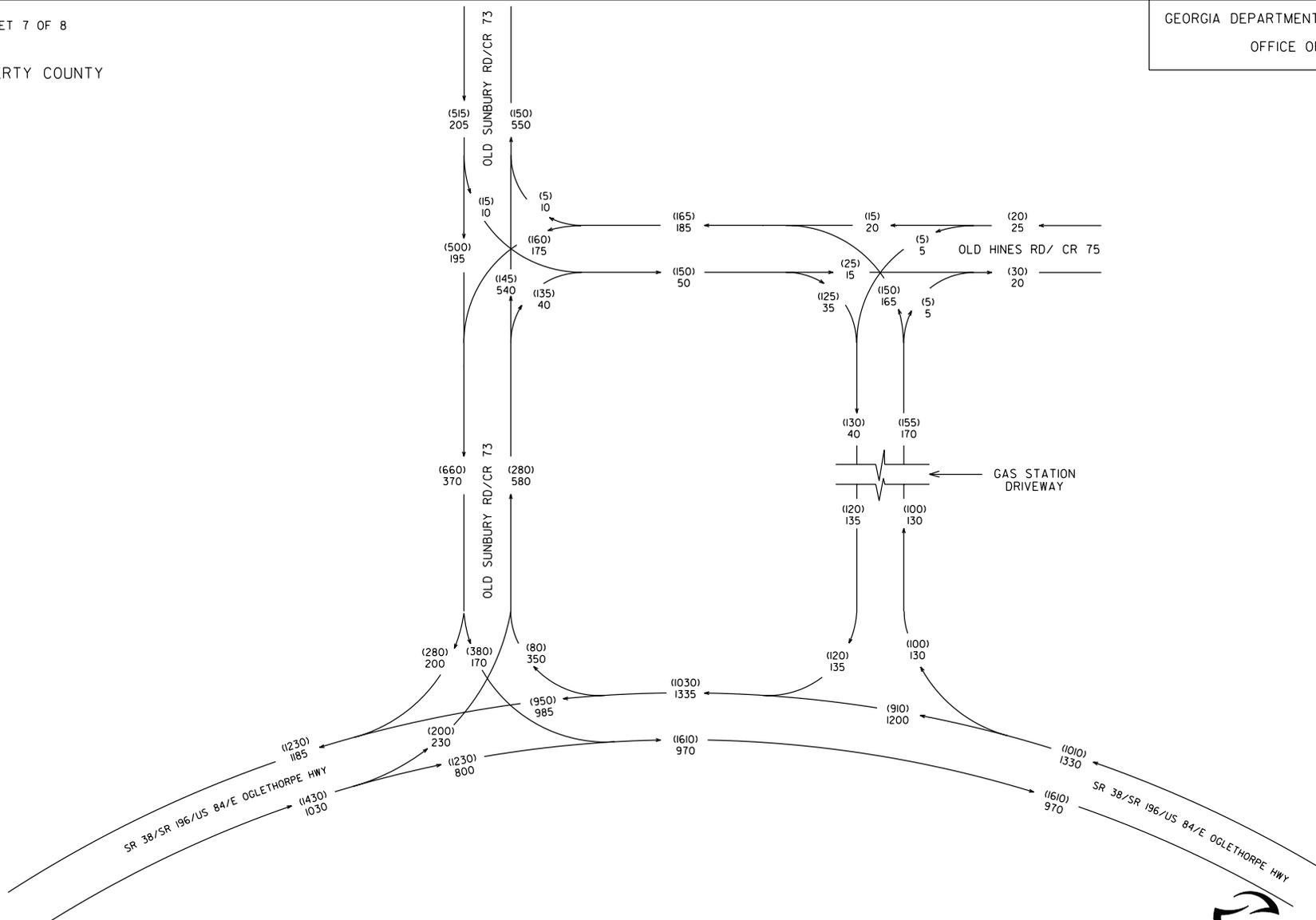


P.I.# 0011730  
LIBERTY COUNTY

SR 38/US 84 @ CR 73  
/OLD SUNBURY RD

2039 BUILD ADT = (000)  
2019 BUILD ADT = 000  
24 HR. T = 10.5%  
S.U. = 5.5% HF  
COMB. = 5% 12/13





SR 38/SR 196/US 84/E OGLETHORPE HWY

GAS STATION DRIVEWAY

OLD HINES RD/ CR 75

OLD SUNBURY RD/CR 73

OLD SUNBURY RD/CR 73

SR 38/SR 196/US 84/E OGLETHORPE HWY



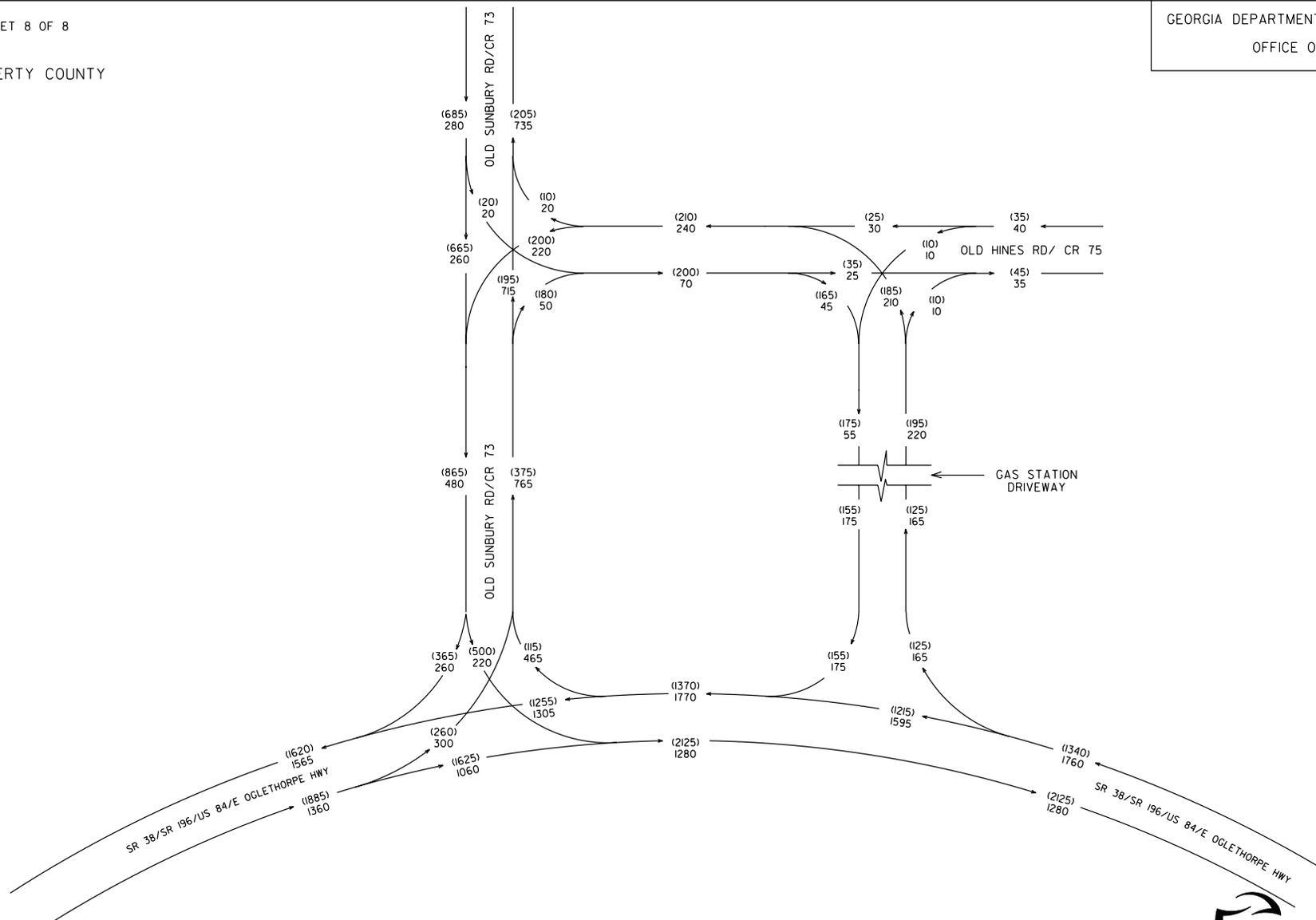
GRICE CONSULTING GROUP

P.I.# 001730  
LIBERTY COUNTY

SR 38/US 84 @ CR 73  
/OLD SUNBURY RD

2019 BUILD PM DHV = 1000  
2019 BUILD AM DHV = 000

T = 10% HF  
S.U. = 5.5%  
COMB. = 4.5% 12/13



P.I.# 0011730  
LIBERTY COUNTY

SR 38/US 84 @ CR 73  
/OLD SUNBURY RD

2039 BUILD PM DHV = 1000  
2039 BUILD AM DHV = 000

T = 10%  
S.U. = 5.5% HF  
COMB. = 4.5% 12/13

# **CAPACITY ANALYSIS SUMMARY**

**“TRAFFIC PROJECTIONS/FORECASTING  
SUMMARY SHEET”**

**Traffic Projections/Forecasting Summary Sheet**

SR 38/SR 196/US 84/E Oglethorpe Hwy at CR 73/Old Sunbury Rd

P.I. # 0011730

Liberty County

Year the counts were taken: 2013

**Growth Factors for SR 38/SR 196/US 84/E Oglethorpe Hwy**

***Build***

Existing Year to Base Year 1.7%

Base Year to Design Year 1.4%

AM K = 0.08, PM K = 0.09

AM D = 0.55, PM D = 0.60

***No-Build***

Existing Year to Base Year 1.7%

Base Year to Design Year 1.4%

AM K = 0.08, PM K = 0.09

AM D = 0.55, PM D = 0.60

**Assumptions**

- Base Year is 2019
- Design Year is 2039

SUMMARY OF T.E. STUDY/SIGNAL  
WARRANT ANALYSIS/CRASH SUMMARY



# MILITARY SURFACE DEPLOYMENT & DISTRIBUTION COMMAND

## FORT STEWART, GA TRAFFIC ENGINEERING STUDY 26 MAY 2011



1M1H1P

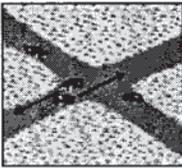
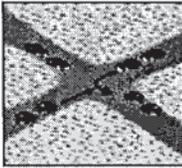
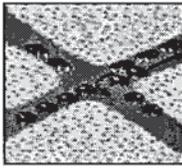
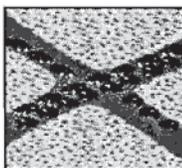
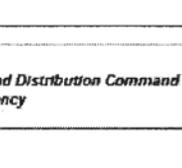
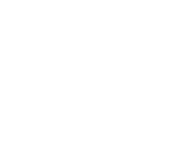


# Level of service at signalized and all-way stop controlled intersections



## CHAPTER 2 – TRAFFIC ENGINEERING STUDIES

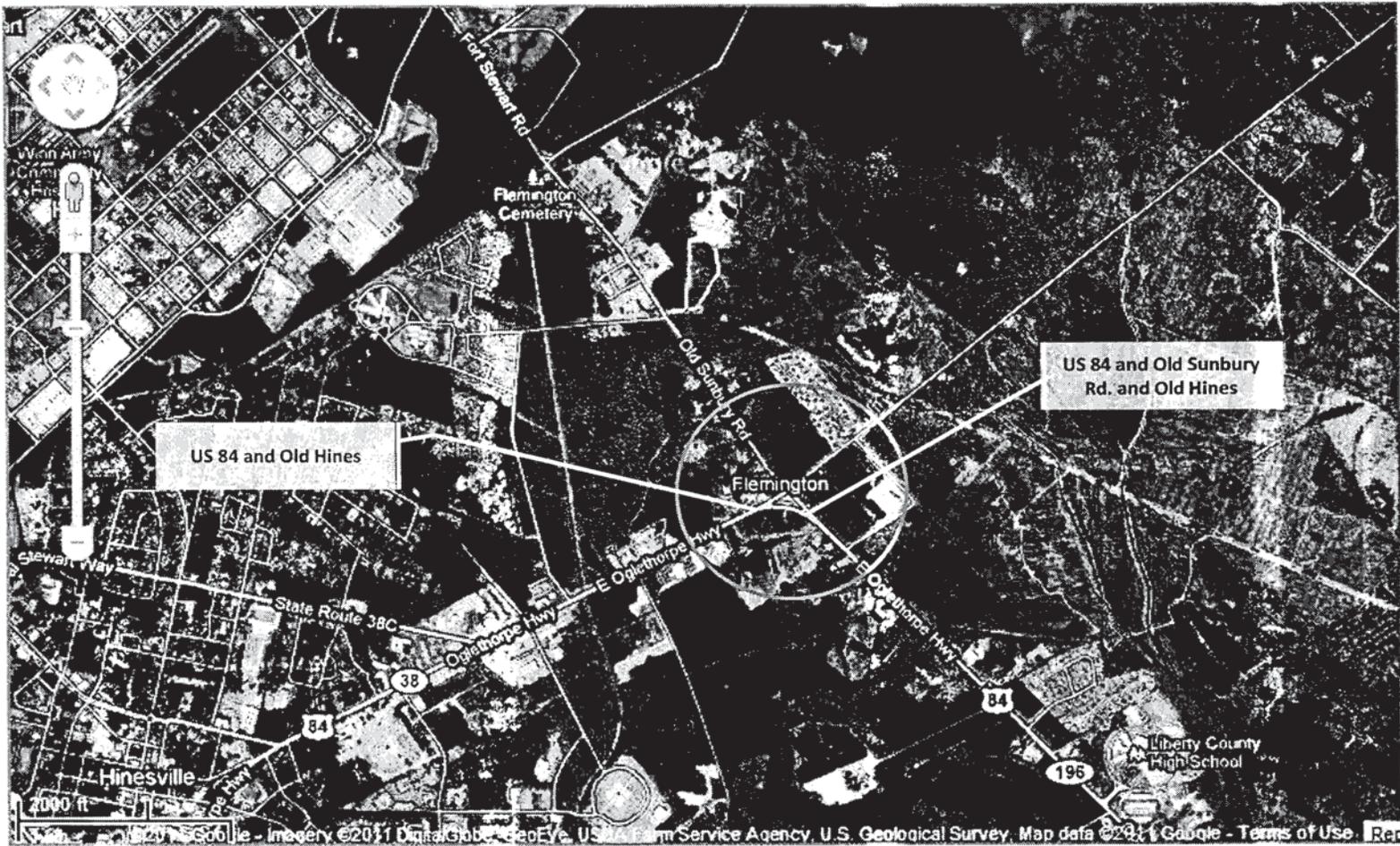
Exhibit 2.2: Level of Service Definitions

LOS	INTERSECTIONS		
	SIGNALIZED		UNSIGNALIZED
<b>A</b>	<ul style="list-style-type: none"> <li>✓ Very low delay, average less than 10.0 seconds per vehicle (spv)</li> <li>✓ Most vehicles arrive during green phase</li> <li>✓ Most vehicles do not need to stop</li> </ul>		<ul style="list-style-type: none"> <li>✓ Average delays less than 10.0 spv</li> <li>✓ Little or no delay to minor street traffic</li> </ul>
<b>B</b>	<ul style="list-style-type: none"> <li>✓ Average delay in range of 10.1-20.0 spv</li> <li>✓ More vehicles stop than LOS A</li> </ul>		<ul style="list-style-type: none"> <li>✓ Average delay in range of 10.1-15.0 spv</li> <li>✓ Short traffic delays to minor street traffic</li> </ul>
<b>C</b>	<ul style="list-style-type: none"> <li>✓ Average delay in range of 20.1-35.0 spv</li> <li>✓ Number of vehicles stopping is significant</li> <li>✓ Cycle failures may begin to appear</li> </ul>		<ul style="list-style-type: none"> <li>✓ Average delay in range of 15.1-25.0 spv</li> <li>✓ Average traffic delays to minor street traffic</li> </ul>
<b>D</b>	<ul style="list-style-type: none"> <li>✓ Average delay in range of 35.1-55.0 spv</li> <li>✓ Congestion more noticeable</li> <li>✓ Many vehicles stop</li> <li>✓ Cycle failures noticeable</li> </ul>		<ul style="list-style-type: none"> <li>✓ Average delay in range of 25.1-35.0 spv</li> <li>✓ Long traffic delays to minor street traffic</li> </ul>
<b>E</b>	<ul style="list-style-type: none"> <li>✓ Average delay in range of 55.1-80.0 spv</li> <li>✓ Cycle failures frequent</li> </ul>		<ul style="list-style-type: none"> <li>✓ Average delay in range of 35.1-50.0 spv</li> <li>✓ Very long delays to minor street traffic</li> </ul>
<b>F</b>	<ul style="list-style-type: none"> <li>✓ Average delay in excess of 80.0 spv</li> <li>✓ Delay unacceptable to most drivers</li> <li>✓ Many cycle failures</li> </ul>		<ul style="list-style-type: none"> <li>✓ Average delay in excess of 50.0 spv</li> <li>✓ Extreme delays with queuing</li> <li>✓ Congestion affects other intersections</li> <li>✓ Warrants improvement to intersection</li> </ul>





# 84 and Old Sunbury and Old Hines





# 84 and Old Sunbury and Old Hines



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- 03 Traffic control signals are often considered a panacea for all traffic problems at intersections. This belief has led to traffic control signals being installed at many locations where they are not needed, adversely affecting the safety and efficiency of vehicular, bicycle, and pedestrian traffic.
- 04 Traffic control signals, even when justified by traffic and roadway conditions, can be ill-designed, ineffectively placed, improperly operated, or poorly maintained. Improper or unjustified traffic control signals can result in one or more of the following disadvantages:
- A. Excessive delay.
  - B. Excessive disobedience of the signal indications.
  - C. Increased use of less adequate routes as road users attempt to avoid the traffic control signals, and
  - D. Significant increases in the frequency of collisions (especially rear-end collisions).

## Section 4B.04 Alternatives to Traffic Control Signals

### Guidance:

- 01 *Since vehicular delay and the frequency of some types of crashes are sometimes greater under traffic signal control than under STOP sign control, consideration should be given to providing alternatives to traffic control signals even if one or more of the signal warrants has been satisfied.*
- Option:
- 02 These alternatives may include, but are not limited to, the following:
- A. Installing signs along the major street to warn road users approaching the intersection;
  - B. Relocating the stop line(s) and making other changes to improve the sight distance at the intersection;
  - C. Installing measures designed to reduce speeds on the approaches;
  - D. Installing a flashing beacon at the intersection to supplement STOP sign control;
  - E. Installing flashing beacons on warning signs in advance of a STOP sign controlled intersection on major- and/or minor-street approaches;
  - F. Adding one or more lanes on a minor-street approach to reduce the number of vehicles per lane on the approach;
  - G. Revising the geometrics at the intersection to channelize vehicular movements and reduce the time required for a vehicle to complete a movement, which could also assist pedestrians;
  - H. Revising the geometrics at the intersection to add pedestrian median refuge islands and/or curb extensions;
  - I. Installing roadway lighting if a disproportionate number of crashes occur at night;
  - J. Restricting one or more turning movements, perhaps on a time-of-day basis, if alternate routes are available;
  - K. If the warrant is satisfied, installing multi-way STOP sign control;
  - L. Installing a pedestrian hybrid beacon (see Chapter 4F) or In-Roadway Warning Lights (see Chapter 4N) if pedestrian safety is the major concern;
  - M. Installing a roundabout; and
  - N. Employing other alternatives, depending on conditions at the intersection.

Most of these alternatives to a traffic control signal are not appropriate.



# 84 and Old Sunbury and Old Hines



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## CHAPTER 4C. TRAFFIC CONTROL SIGNAL NEEDS STUDIES

### Section 4C.01 Studies and Factors for Justifying Traffic Control Signals

#### Standard:

- 01 An engineering study of traffic conditions, pedestrian characteristics, and physical characteristics of the location shall be performed to determine whether installation of a traffic control signal is justified at a particular location.
- 02 The investigation of the need for a traffic control signal shall include an analysis of factors related to the existing operation and safety at the study location and the potential to improve these conditions, and the applicable factors contained in the following traffic signal warrants:
  - Warrant 1, Eight-Hour Vehicular Volume
  - Warrant 2, Four-Hour Vehicular Volume
  - Warrant 3, Peak Hour
  - Warrant 4, Pedestrian Volume
  - Warrant 5, School Crossing
  - Warrant 6, Coordinated Signal System
  - Warrant 7, Crash Experience
  - Warrant 8, Roadway Network
  - Warrant 9, Intersection Near a Grade Crossing
- 03 The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Signal is warranted by peak hour.

Did not check (but needs to be checked) for 8 or 4 hour warrants.

Due to safety issues because of curve, high speed and volume on 84, and the superelevation, a signal is warranted. Ball-bank indicator on 84 curve indicates drivers are comfortable driving 60 mph on 84.



# 84 and Old Sunbury and Old Hines Traffic Signal is warranted based on peak hour



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### Figure 4C-3. Warrant 3, Peak Hour

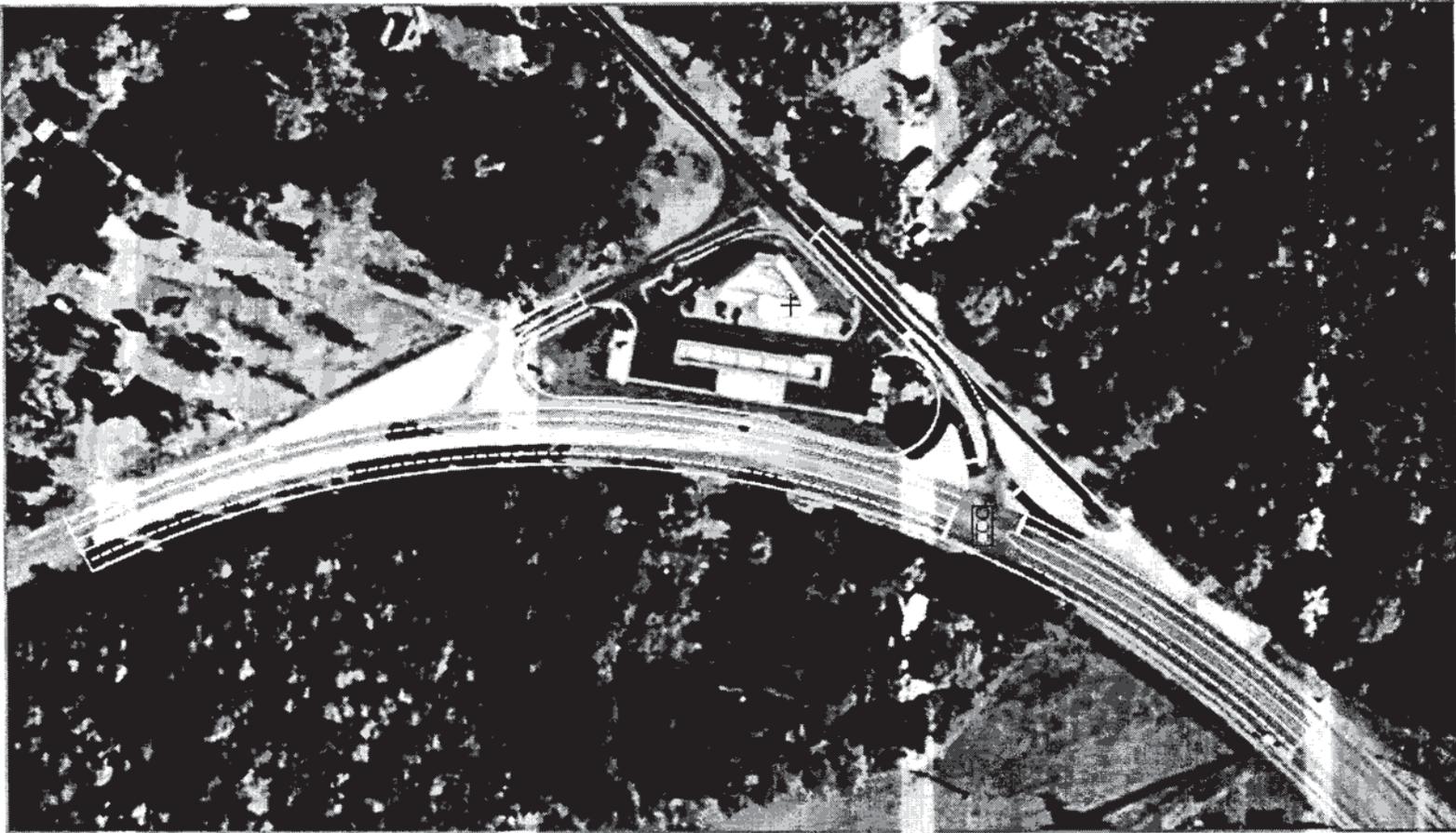


\*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Major street (Hwy 84) VPH is well over 1800, minor street (Old Sunbury and Old Hines combined) VPH is well over 300

**84 and Old Sunbury  
SDDCTEA Option 1**

**LOS B at signalized intersection for AM and PM 2031 traffic**





**84 and Old Sunbury**  
**SDDCTEA Option 2, signalized intersection**  
**LOS A for 2011 AM and PM traffic, B for 2031 AM and PM traffic**



# Traffic Signal Warrant Analysis

US 84/West Oglethorpe Highway at Old Hines Road

Prepared for:

FORT STEWART / HAAF  
GROWTH MANAGEMENT PARTNERSHIP



In cooperation with Hinesville Area Metropolitan Planning Organization

Prepared by:

**RS&H**  
**IMPROVING YOUR WORLD**

**September 27, 2011**

*This study was prepared with financial support from the Office of Economic Adjustment, Department of Defense. The content reflects the views of the participating local government entities and stakeholders of the Fort Stewart/HAAF region and does not necessarily reflect the views of the Office of Economic Adjustment.*

<p><i>Title</i> Traffic Signal Warrant Analysis US 84/West Oglethorpe Highway at Old Hines Road</p>	
<p><i>Prepared for</i> Fort Stewart Growth Management Partnership Hinesville Area MPO</p>	<p><i>Date</i> September 27, 2011</p>
<p><i>Prepared by</i> Reynolds, Smith and Hills, Inc. 7 E Congress Street, Ste 402E Savannah, GA 31401  912-236-5311</p>	<p><i>Principal Investigator</i> Whitney Shephard, PE  <i>Additional Investigator</i> Nick Arnio, PE, PTOE</p>
<p><i>Summary</i> RS&amp;H has prepared a traffic signal warrant analysis for the intersection of US 84/West Oglethorpe Highway and Old Hines Road in Flemington, Georgia. The study area includes the so-called Flemington Curve on US 84 and a triangular configuration formed by Old Sunbury Road to the east, Old Hines Road to the west, and US 84 to the south. In consideration of the intersection geometry changes that are proposed in conjunction with the installation of a traffic signal at the US 84/Old Hines Road intersection, it is anticipated that existing left-turning traffic from Old Sunbury Road onto US 84 Eastbound would turn at Old Hines Road. Therefore, projected traffic is the sum of existing traffic and left-turns from Old Sunbury Road onto US 84.</p> <p>There has been some discussion during review of the draft report regarding Warrant 7, Crash Experience. While in most cases, rear end collisions are excluded from traffic signal warrant analysis, the study team included applicable rear end collisions in the analysis due to the unique geometric conditions at the intersection of the Southbound Old Hines Road right-turn slip ramp and US 84. The geometry of this intersection includes an eleven degree (11°) angle of intersection between the slip ramp and the tangent to the US 84 horizontal curve. The ramp currently operates under yield control. Because the installation of a traffic signal would include closing the ramp, creating an angle of intersection significantly closer to perpendicular, and applying stop-control to the right-turn movement, the study team feels that the rear end collisions are susceptible to correction by a traffic control signal. In order to further address concerns regarding the inclusion of rear end collisions, the study team assessed non-calendar year 12-month periods and found that the period from July 1, 2008 to June 30, 2009 includes six non-rear end crashes, thereby satisfying the warrant without rear end crashes. We hope that this addresses any concerns related to the assessment of crash experience to the satisfaction of all interested parties.</p> <p>Per the <i>Manual on Uniform Traffic Control Devices</i> (MUTCD) 2009 Edition, Warrants 1, 2, 3, and 7 are satisfied. Based on the existing and projected traffic as well as crash history, the study team recommends the installation of a traffic control signal at the intersection of US 84/West Oglethorpe Highway and Old Hines Road.</p>	

## Conclusion and Recommendations

Table 3 Traffic Signal Warrant Analysis

Summary of MUTCD (2009) Warrants		US 84/Old Hines Road Intersection					
Warrant	Condition	Existing Traffic Reduced Threshold	Existing Traffic 100% Threshold	Projected Traffic Reduced Threshold	Projected Traffic 100% Threshold	Projected Traffic with Right-turn Reduction Reduced Threshold	Projected Traffic with Right-turn Reduction 100% Threshold
1	8-Hour Vehicular Volume	Satisfied Condition A	Satisfied Condition B	Satisfied Condition A	Satisfied Condition A	Satisfied Condition B	Satisfied Condition B
2	4-Hour Vehicular Volume	Satisfied	Satisfied	Satisfied	Satisfied	Satisfied	Satisfied
3	Peak Hour (Category B)	Satisfied	Satisfied	Satisfied	Satisfied	Satisfied	Satisfied
7	Crash Experience*	Satisfied Condition A	Satisfied Condition A	Satisfied Condition A	Satisfied Condition A	Satisfied Condition B	Satisfied Condition B

\*Note that Warrant 7 uses the 56% column as a reduced threshold and the 80% column as the full threshold.  
Existing traffic with right-turn reductions does not satisfy any warrants.

Based on the existing and projected traffic as well as crash history, the study team recommends the installation of a traffic control signal at the intersection of US 84/West Oglethorpe Highway and Old Hines Road.

Recommended by: \_\_\_\_\_ Date: \_\_\_\_\_  
RS&H

Recommended by: \_\_\_\_\_ Date: \_\_\_\_\_  
District Traffic Engineer

Recommended by: \_\_\_\_\_ Date: \_\_\_\_\_  
State Traffic Operations Engineer

Recommended by: \_\_\_\_\_ Date: \_\_\_\_\_  
Director of Operations

TRUMP Warrant Air 7/25



## Appendix D Crash Reports

ID	SOURCE	Accident Date	Time	WEEKDAY	YR	Severity	CONTRIBUTING code s	Contributing	VEHICLE TYPE code s	Vehicle Type	1ST HARMFUL code s	1st Impact	MANNER code s	Manner	COMMENTS	Note
1	GSP10	7/8/2008	8:20:00 AM	2.TUE	2008	PDO	4	FAILED TO YIELD	1 V 11	CAR V SUV	11	MOTOR VEHICLE IN MOTION	1	ANGLE	V1 TURNING FROM OLD SUN TO WB GA38 HIT V2 WB GA38	
2	GSP11	8/18/2008	4:10:00 PM	1.MON	2008	INI-1	10	DRIVER LOST CONTROL	2 V 1	PICKUP V CAR	11	MOTOR VEHICLE IN MOTION	1	ANGLE	V1 EB AT CURVE LOST CONTROL HIT V2 EB GA38, RAIN	
3	GSP12	8/22/2008	7:55:00 AM	5.FRI	2008	PDO	8,4	FAILED TO YIELD, WEATHER	1 V 2	CAR V PICKUP	11	MOTOR VEHICLE IN MOTION	1	ANGLE	V1 TURNING L ONTO EB GA38 FROM OLD SUN HIT V2 TURNING L ONTO OLD SUN FROM GA38	
4	GSP13	8/23/2008	6:13:00 PM	6.SAT	2008	INI-1	22, 10, 7	TOD FAST, LOST CONTROL, WRONG SIDE	11 V 11	SUV V SUV	11	MOTOR VEHICLE IN MOTION	3	ANGLE	V1 EB AT CURVE LOST CONTROL HIT V2 EB GA38, RAIN	
7	GSP20	4/2/2009	10:38:00 AM	4.THU	2009	PDO	13, 17	IMPROPER TURN, MISJUDGED CLEARANCE	4 V 2	TRACTOR/TRAILER V PICKUP	11	MOTOR VEHICLE IN MOTION	5	ANGLE	V1 TURNING ONTO GA38 FROM OLD HINES HIT V2 TURNING L FROM GA38	reported as sideswipe - opposite direction. See diagram
8	GSP21	4/3/2009	7:15:00 AM	5.FRI	2009	PDO	4	FAILED TO YIELD	2 V 1	PICKUP V CAR	11	MOTOR VEHICLE IN MOTION	1	ANGLE	V1 TURNING L FROM OLD SUN ONTO GA38 HIT V2 TURNING L ONTO OLD SUN FROM GA38	
10	GSP23	7/14/2009	5:49:00 PM	2.TUE	2009	PDO	4	FAILED TO YIELD	2 V 1	PICKUP V CAR	11	MOTOR VEHICLE IN MOTION	3	ANGLE	V1 TURNING EB ONTO GA38 FROM OLD SUN HIT V2 EB GA38	reported as rear end. See diagram.
12	GSP26	9/9/2009	9:04:00 AM	3.WED	2009	INI-1	3	FOLLOWING TOO CLOSE	1 V 1	CAR V CAR	11	MOTOR VEHICLE IN MOTION	3	REAR END	V1 WB OLD HINES ONTO GA38 REAR ENDED V2	
13	GSP28	10/28/2009	11:04:00 AM	3.WED	2009	INI-1	3	FOLLOWING TOO CLOSE	1 V 11	CAR V SUV	11	MOTOR VEHICLE IN MOTION	3	REAR END	V1 WB OLD HINES ONTO GA38 REAR ENDED V2	
14	GSP29	12/20/2009	5:48:00 AM	7.SUN	2009	PDO	4	FAILED TO YIELD	1 V 11	CAR V SUV	11	MOTOR VEHICLE IN MOTION	1	ANGLE	V2 TURNING ONTO OLD HINES FROM EB GA38 HIT V2 WB GA38	
16	GSP30	2/2/2010	10:16:00 AM	2.TUE	2010	INI-1	4	FAILED TO YIELD	1 V 11	CAR V SUV	11	MOTOR VEHICLE IN MOTION	1	ANGLE	V1 TURNING L ONTO OLD SUN FROM EB GA38 HIT V2 WB GA38	
17	GSP31	2/12/2010	12:24:00 PM	5.FRI	2010	PDO	4	FAILED TO YIELD	11 V 1	SUV V CAR	11	MOTOR VEHICLE IN MOTION	1	ANGLE	V1 TURNING L ONTO OLD SUN FROM EB GA38 HIT V2 WB GA38	
27	CS09	5/21/2010	10:00:00 AM	5.FRI	2010	PDO	3	FOLLOWING TOO CLOSE	1 V 1	CAR V CAR	11	MOTOR VEHICLE IN MOTION	3	REAR END	V1 WB OLD HINES ONTO GA38 REAR ENDED V2	
18	GSP33	6/11/2010	4:45:00 PM	5.FRI	2010	INI-1	4	FAILED TO YIELD	1 V 17	MOTORCYCLE	11	MOTOR VEHICLE IN MOTION	1	ANGLE	V1 EB GA38 TURNING ONTO OLD HINES HIT V2 WB GA38	
20	GSP37	11/17/2010	6:40:00 PM	3.WED	2010	INI-1	6	DISREGARD STOP SIGN	11 V 11	SUV V SUV	11	MOTOR VEHICLE IN MOTION	1	ANGLE	V1 FAILED TO STOP FROM SB OLD SUN AND HIT V2 WB GA38	
26	CS08	11/30/2010	5:20:00 PM	2.TUE	2010	PDO	4	FAILED TO YIELD	14 V 10	TRUCK W/ HOUSE TRAILER V VAN	11	MOTOR VEHICLE IN MOTION	3	REAR END	V1 WB OLD HINES ONTO GA38 REAR ENDED V2	
71	GSP38	12/27/2010	4:55:00 PM	1.MON	2010	INI-5	3	FOLLOWING TOO CLOSE	11 V 11	SUV V SUV	11	MOTOR VEHICLE IN MOTION	3	REAR END	V1 WB OLD HINES ONTO GA38 REAR ENDED V2	
<b>Excluded from Analysis</b>																
21	GSP7	6/18/2008	7:24:00 AM	3.WED	2008	INI-1	3	FOLLOWING TOO CLOSE	1 V 1	CAR V CAR	11	MOTOR VEHICLE IN MOTION	3	REAR END	V1 TURNING ONTO NB OLD SUN FROM OLD HINES REAR ENDED V2 AT STOP	x
22	GSP9	6/26/2008	6:32:00 PM	4.THU	2008	PDO	4	FAILED TO YIELD	14 V 1	TRUCK W/ HOUSE TRAILER V CAR	11	MOTOR VEHICLE IN MOTION	1	ANGLE	V1 TURNING NB OLD SUN FROM EB OLD HINES HIT V2 CROSSING OLD SUN	x
5	GSP17	11/26/2008	6:35:00 AM	3.WED	2008	PDO	4	FAILED TO YIELD	1 V 8 V 2	CAR V SINGLE UTRK V PICKUP	11	MOTOR VEHICLE IN MOTION	1	ANGLE	V1 TURNING L ONTO OLD SUN FROM GA38 HIT V2 AND V3	x
23	CS011	5/14/2009	9:49:00 PM	4.THU	2009	PDO	4	FAILED TO YIELD	10 V 11	VAN V SUV	11	MOTOR VEHICLE IN MOTION	1	ANGLE	V1 TURNING FROM PARKER'S ONTO OLD HINES HIT V2 WB OLD HINES	x
9	GSP22	7/6/2009	4:24:00 PM	1.MON	2009	INI-1	4	FAILED TO YIELD	1 V 1	CAR V CAR	11	MOTOR VEHICLE IN MOTION	1	ANGLE	V1 DRIVING ACROSS OLD SUN FROM OLD HINES HIT V2 ON OLD SUN	x
11	GSP24	8/4/2009	3:40:00 PM	2.TUE	2009	INI-1	4	FAILED TO YIELD	2 V 1	PICKUP V CAR	11	MOTOR VEHICLE IN MOTION	1	ANGLE	V1 SB OLD SUN TURNING ONTO OLD HINES WAS HIT BY V2 NB OLD SUN	x
25	CS06	8/24/2010	12:24:00 PM	2.TUE	2010	PDO	4	FAILED TO YIELD	1 V 2	CAR V PICKUP	11	MOTOR VEHICLE IN MOTION	4	SIDESWIPE - SAME	V1 FROM EB GA38 SIDESWIPE V2 NB OLD SUN JUST FROM GA38	x
19	GSP34	9/1/2010	8:24:00 AM	3.WED	2010	PDO	4	FAILED TO YIELD	11 V 11	SUV V SUV	11	MOTOR VEHICLE IN MOTION	2	HEAD ON	V1 WB OLD HINES FAILED TO YIELD TO V2 TURNING NB OLD HINES	x

**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA  
MS4 CONCEPT**

Project Type: Intersection  
Improvement

P.I. Number: 0011730

GDOT District: 5, Jesup GA

County: Liberty

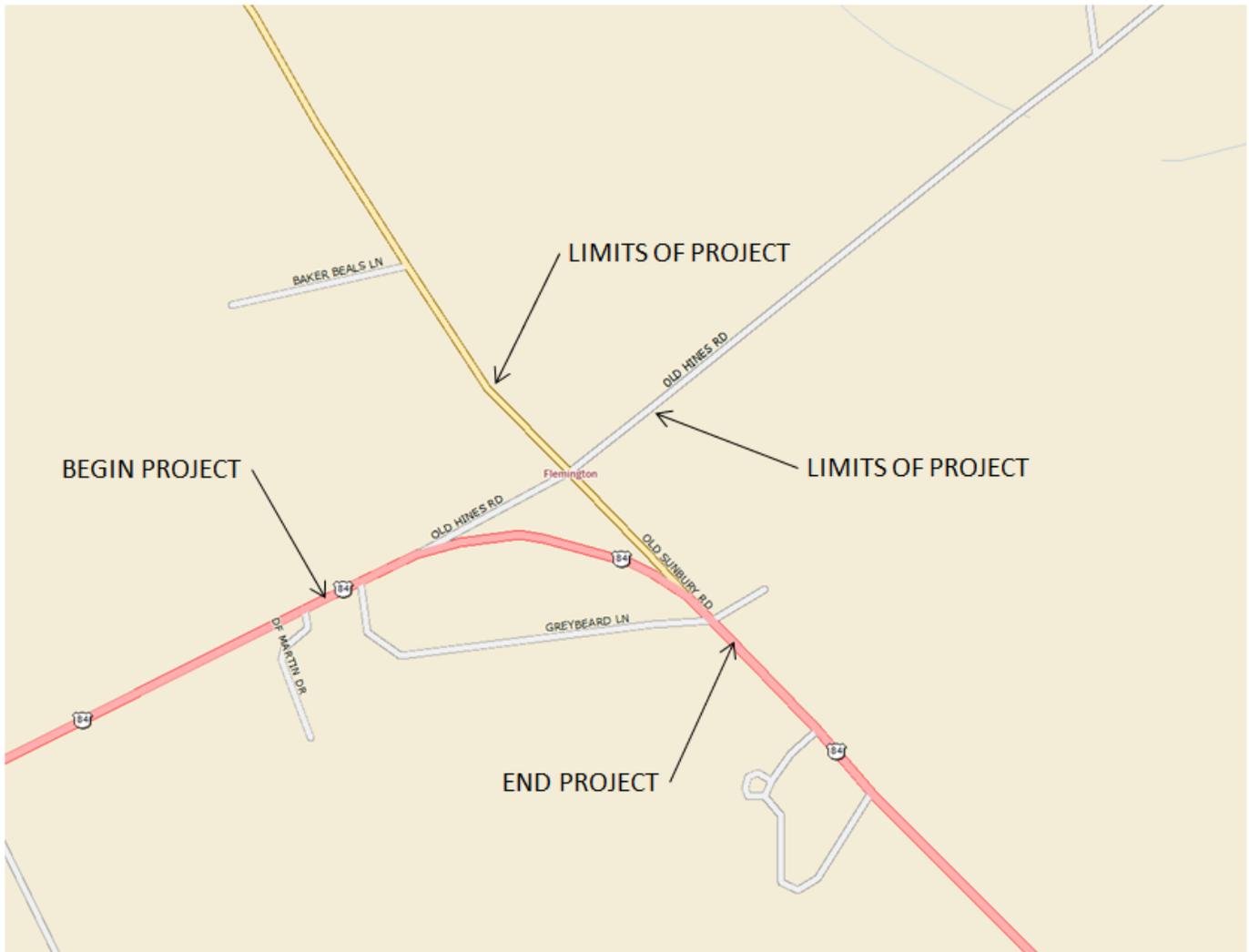
Federal Route Number: 84

State Route Number: 38

Project Number: 0011730

This project will provide an intersection improvement with a traffic signal installation at the intersection of a four lane section of US 84/SR 38 and a two lane section of CR 73/Old Sunbury Rd. to reduce the frequency and severity of crashes and enhance the level of service.

**PROJECT LOCATION**



**Description of the proposed project:** State Road 38/US 84 is a proposed four lane facility with a raised median and contains a near 90 degree curve with curb and gutter. It is proposed to install a traffic signal at SR 38/US 84 and CR73/Old Sunbury Road. Realignment is proposed for CR 73/Old Sunbury Road and Old Hines Road. The posted speed limit is 45 mph along the SR 38/US 84 corridor and 25 mph along the CR 73/Old Sunbury Road and Old Hines Road corridors. SR 38/US 84 is proposed to have a right lane for continuous traffic with a left lane and auxiliary left lane to stop at the traffic signal. A raised median is proposed between the right and left traffic lanes heading east on SR 38/US 84.

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

Because the project resides in a designated MS4 (Municipal Separate Storm Sewer Systems) area, a **concept-level (preliminary) hydrology study** for Detention/Water Quality is required.

**FEASIBILITY DETERMINATION FOR EACH OUTFALL:** Refer to MS4 Concept Proposal Layout sheet attachment for specific locations of each outfall. Refer to the MS4 Quad Map Layout sheet attachment for stream locations and drainage contour patterns.

Outfall #1: Melvin Swamp Southward to Peacock Creek. This outfall is representative of current outfall conditions in project area since 1986.

Outfall #2: Goshen Swamp Eastward to Peacock Creek. This outfall is representative of current outfall conditions in project area since 1986.

Outfall #3: Northward side drain ditches to tributary of Melvin Swamp. This outfall is representative of current outfall conditions in project area since 1986.

**NATURE OF HOW STORM WATER LEAVES OUTFALLS:** Refer to MS4 Concept Proposal Layout sheet attachment for locations of each outfall. Refer to the MS4 Quad Map Layout sheet attachment for stream locations and drainage contour patterns.

Outfall #1: A portion of urban stormwater project discharge on US84/SR38, as dictated by existing structures, proposed roadway crests, and superelevational criteria will be collected by Ga. Std. 1033D catch basins 1 and 2 as proposed on the MS4 Concept Proposal layout. Utilizing maximum 18" diameter longitudinal pipes, running westward per gravity flow, the longitudinal system will tie in to existing catch basin structure at Sta. 9+74.67. This discharge will be accommodated by utilizing existing structures and pipes for an approximate run of 2,730 linear feet westward through existing 24" maximum diameter longitudinal pipes until outfalling at the outlet end of an existing DBL 7x6 Box Culvert. This stream (Melvin Swamp) - as accommodated by the Box Culvert- will outfall the overall collected flow of the Outfall #1 portion of US84/SR38 and ultimately flows southward to Peacock Creek.

Outfall #2: A portion of urban stormwater project discharge on US84/SR38 , as dictated by existing structures, proposed roadway crests, and superelevational criteria will be collected by Ga. Std. 1033D catch basins 3, 4, and 5 as proposed on the MS4 Concept Proposal layout. Utilizing maximum 18" diameter longitudinal pipes, running eastward per gravity flow, the longitudinal system will tie in to existing catch basin structure at Sta. 24+64.67 at structure 5. This discharge will be accommodated by utilizing existing structures and pipes for an approximate run of 768 linear feet eastward through existing 24" maximum diameter longitudinal pipes until outfalling at an existing special designed 4 foot flat bottom ditch section. The ditch section runs southward approximately 1500 feet until outfalling at the outlet end of an existing DBL 4x5 Box Culvert. This stream (Goshen Swamp) - as accommodated by the Box Culvert- will outfall the overall collected flow of the Outfall #2 portion of US84/SR38 and ultimately flows eastward to Peacock Creek.

Outfall #3: This portion of stormwater project discharge will encompass drainage patterns as associated with new alignment rural roadways CR73/Old Sunbury Rd. and CR75/Old Hines Rd. Outfall #3/structure 6, as proposed on the MS4 Concept Proposal layout (and potentially other outfalls within the two roadways yet to be designated), will be accommodated by rural side drain ditch sections longitudinally paralleling the two roadway alignments. The resulting final accumulated stormwater outfalls will

ultimately discharge at the sidedrain ditch section that will parallel the west side alignment of CR73/Old Sunbury Rd, approximate Sta. 50+00.00 to approximate Sta. 55+69.96. The pipes utilized within the discharge patterns of the two roadways will most likely be a maximum of 18" in diameter. The release of this accumulated stormwater will flow along the side drain ditch northward and releasing into a tributary of Melvin Swamp as delineated per the MS4 Quad Map Layout sheet. Melvin Swamp ultimately releases into Peacock Creek.

**LOCATION OF IMPAIRED STREAMS RELATIVE TO OUTFALLS:** Refer to MS4 Concept Proposal Layout sheet attachment for specific locations of each outfall. Refer to the MS4 Quad Map Layout sheet attachment for stream locations and drainage contour patterns.

**RATIONALE BEHIND SELECTION OF STORM DRAIN STRUCTURES:** Primary Storm Drain structures will be urban Georgia Standard 1033D catch basins for one way roadway surface drainage patterns and Georgia Standard 1034D catch basins for low point roadway surface drainage patterns. Possible retainment of any/all existing structures will be studied. There will be yard drains to accommodate incidental drainage in low lying basins adjacent to project roadway alignments. Additional Catch Basins and/or Drop Inlets may be utilized accommodating the flow patterns resulting from the proposed raised median between the right and left traffic lanes heading east on SR 38/US 84. Stormwater discharge resulting from the raised median will be introduced into the proposed/existing longitudinal system as necessary. For rural roadway alignments, there will be side drain ditches to accommodate discharge.

For a conceptual study of the Hydrology and Hydraulics of the project area, archived plans were utilized of the area of the proposed project site (1983 with As Built Construction revision date 1986). Since construction of this project, no indication of hydrology or hydraulic problems (flooding) has been reported in the proposed project area. Therefore, an attempt to maximize the use of existing discharge patterns and structures in the project area was studied for this report so that continued hydraulic/hydrology efficiency would be maintained in addition to the cost saving measures that it would allow.

**SIZING OF STRUCTURES:** Reinforced Concrete piping will be used for this project. Pipes were sized, for purposes of this concept level report only, based upon:

1. Existing-current pipe sizes established in the 1983 archive plans. It is believed that pipe structures 18", 24", and possibly 30" in diameter (both urban longitudinally and rural cross drains) will be sufficient for the totality of project stormwater conveyance upon completion.
2. During post concept stage actual plan development, pipe sizing will be accomplished by utilizing current G.D.O.T. Drainage Manual standards and criteria based upon the rational method for both rural and urban drainage structures.

No indication of hydrology or hydraulic problems (flooding) has been reported in the proposed project area. Therefore, during actual plan development, an attempt will be made to maximize the use of existing discharge patterns and structures in the project area so that continued hydraulic/hydrology efficiency will be maintained in addition to cost saving measures that it would allow.

**RIGHT OF WAY NECESSARY FOR STORM WATER MANAGEMENT:**

Per Project Concept Report:

Proposed R/W SR38/US84: 120' – 150'

Proposed R/W Side road CR73/Old Sunbury Rd.: 70' – 140'

Proposed R/W Side road CR75/Old Hines Rd.: 60' – 140'

All above proposed R/W lengths per project concept report will be sufficient in area to handle anticipated drainage requirements for project completion. Random various locations for drainage construction easements are anticipated.

**PRELIMINARY COST ESTIMATE OF STORM DRAIN STRUCTURES**

Refer to itemized attachments per project concept report:

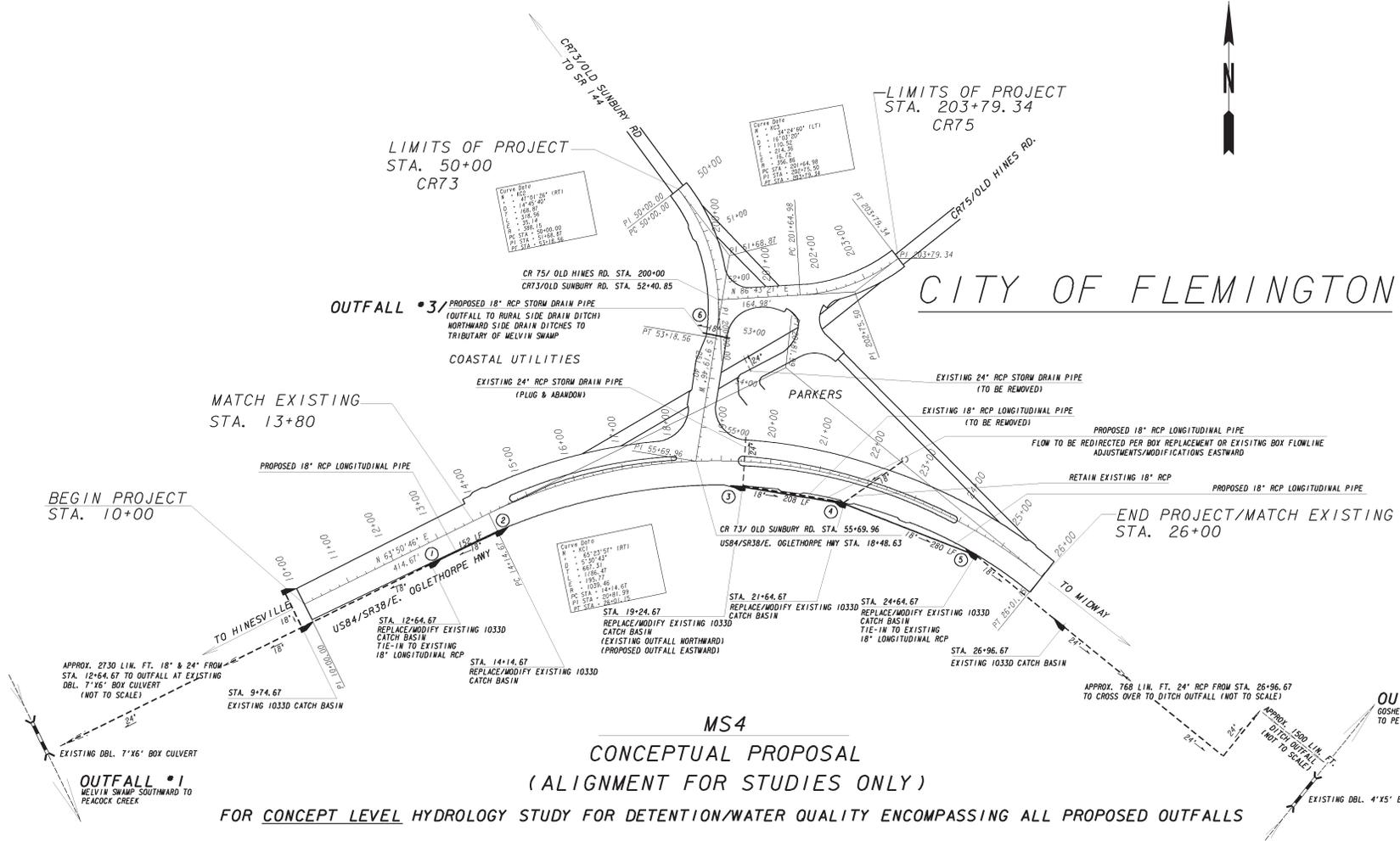
CES Concept Cost Estimate 9-24-14

ROW 0011730 Preferred Alternative 9-08-2014

**Attachments:**

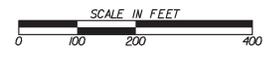
1. MS4 Concept Proposal Layout sheet
2. MS4 Quad Map Layout sheet
3. Detailed Cost Estimates:  
CES Concept Cost Estimate 9-24-14  
ROW 0011730 Preferred Alternative 9-08-14

# MS4 CONCEPT PROPOSAL

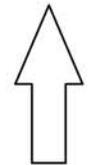


**MS4  
CONCEPTUAL PROPOSAL  
(ALIGNMENT FOR STUDIES ONLY)**

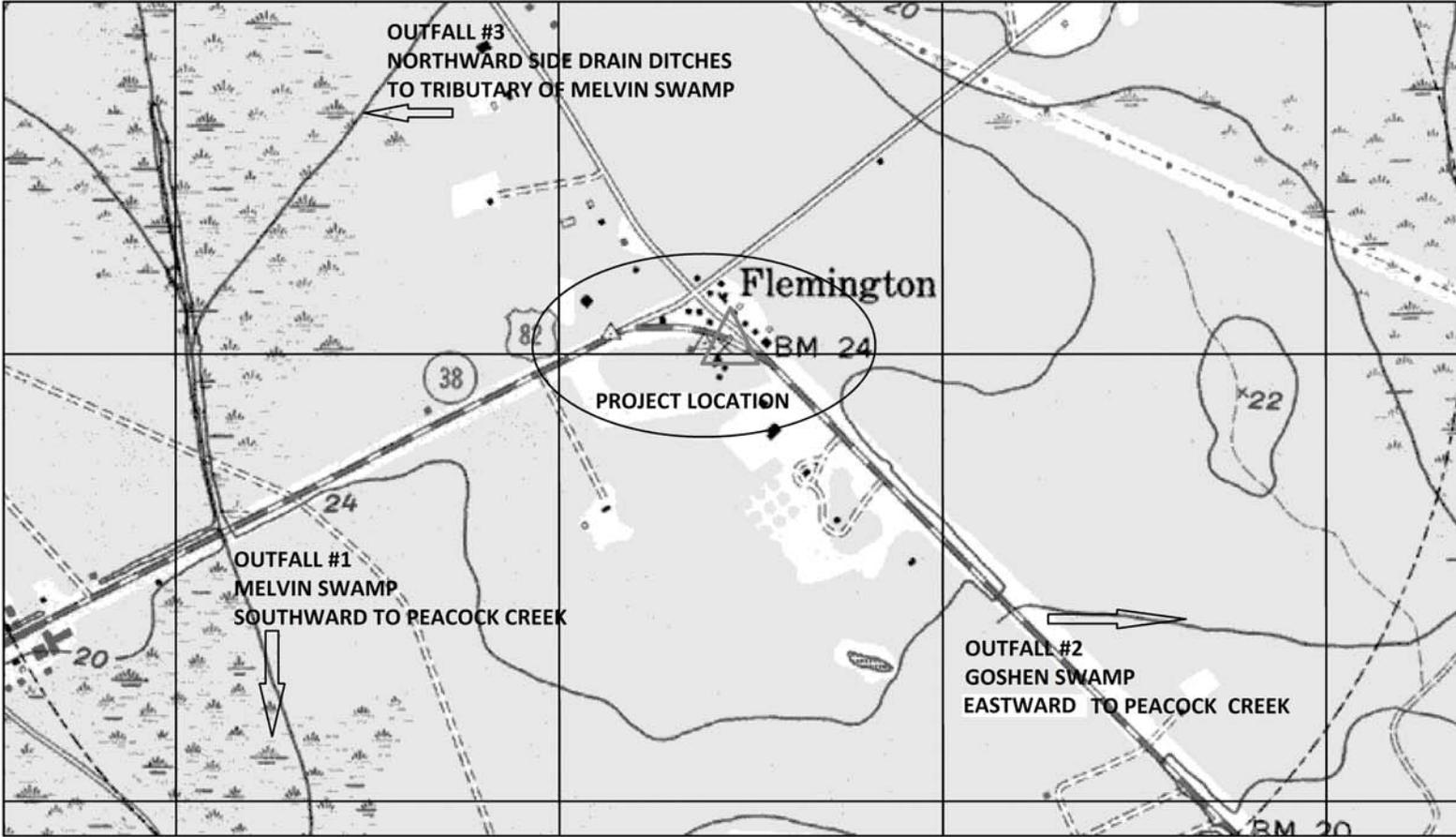
**FOR CONCEPT LEVEL HYDROLOGY STUDY FOR DETENTION/WATER QUALITY ENCOMPASSING ALL PROPOSED OUTFALLS**



REVISION DATES	STATE OF GEORGIA DEPARTMENT OF TRANSPORTATION OFFICE: DISTRICT 5 ROAD DESIGN
	<b>MS4 CONCEPT PROPOSAL</b>
	0011730
	PRELIMINARY HYDRAULICS
	LIBERTY COUNTY
	DRAWING NO. <b>1</b>



NORTH



# DETAILED COST ESTIMATE



**Job: 0011730**

**JOB NUMBER** 0011730

**FED/STATE PROJECT NUMBER** 0011730

**SPEC YEAR:** 01

**DESCRIPTION:** INTERSECTION IMPROVEMENT @ US84/SR38 AND CR73/OLD SUNBURY RD  
SIGNAL INSTALLATION AND CR REALIGNMENT

**ITEMS FOR JOB 0011730**

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0070	150-1000	1.000	LS	\$35,000.00000	TRAFFIC CONTROL - 0011730	\$35,000.00
0060	153-1300	1.000	EA	\$79,011.37786	FIELD ENGINEERS OFFICE TP 3	\$79,011.38
0120	163-0232	10.000	AC	\$347.55647	TEMPORARY GRASSING	\$3,475.56
0125	163-0240	200.000	TN	\$174.66245	MULCH	\$34,932.49
0035	163-0300	5.000	EA	\$1,341.43479	CONSTRUCTION EXIT	\$6,707.17
0140	163-0520	5000.000	LF	\$14.03363	CONSTR AND REMOVE TEMP PIPE SLOPE DRAIN	\$70,168.15
0155	163-0528	1200.000	LF	\$3.81889	CONSTR AND REM FAB CK DAM -TP C SLT FN	\$4,582.67
0150	165-0010	3000.000	LF	\$0.56931	MAINT OF TEMP SILT FENCE, TP A	\$1,707.93
0160	165-0041	600.000	LF	\$0.85659	MAINT OF CHECK DAMS - ALL TYPES	\$513.95
0090	165-0101	10.000	EA	\$533.21324	MAINT OF CONST EXIT	\$5,332.13
0130	167-1000	4.000	EA	\$365.60794	WATER QUALITY MONITORING AND SAMPLING	\$1,462.43
0135	167-1500	9.000	MO	\$560.85557	WATER QUALITY INSPECTIONS	\$5,047.70
0145	171-0010	6000.000	LF	\$1.99288	TEMPORARY SILT FENCE, TYPE A	\$11,957.28
0065	207-0203	100.000	CY	\$51.64482	FOUND BKFILL MATL, TP II	\$5,164.48
0075	210-0100	1.000	LS	\$100,000.00000	GRADING COMPLETE - 0011730	\$100,000.00
0025	310-5060	3000.000	SY	\$11.81448	GR AGGR BS CRS 6IN INCL MATL	\$35,443.44
0020	310-5120	7000.000	SY	\$21.86713	GR AGGR BS CRS 12IN INCL MATL	\$153,069.91
0080	318-3000	50.000	TN	\$29.87213	AGGR SURF CRS	\$1,493.61
0085	402-1812	500.000	TN	\$94.20574	RECYL AC LEVELING,INC BM&HL	\$47,102.87
0015	402-3121	1900.000	TN	\$81.11738	RECYL AC 25MM SP,GP1/2,BM&HL	\$154,123.02
0005	402-3130	600.000	TN	\$106.44780	RECYL AC 12.5MM SP,GP2,BM&HL	\$63,868.68
0010	402-3190	800.000	TN	\$88.48633	RECYL AC 19 MM SP,GP 1 OR 2 ,INC BM&HL	\$70,789.06
0030	413-1000	1700.000	GL	\$2.36866	BITUM TACK COAT	\$4,026.72
0330	441-0105	5700.000	SY	\$21.00000	CONC SIDEWALK, 5 IN	\$119,700.00
0315	441-0303	5.000	EA	\$1,651.81673	CONC SPILLWAY, TP 3	\$8,259.08
0190	441-0304	4.000	EA	\$1,602.46593	CONC SPILLWAY, TP 4	\$6,409.86
0355	441-0748	1600.000	SY	\$47.42983	CONC MEDIAN, 6 IN	\$75,887.73
0340	441-6222	5700.000	LF	\$24.82529	CONC CURB & GUTTER/ 8"X30"TP2	\$141,504.15
0170	446-1100	3000.000	LF	\$3.75724	PVMT REF FAB STRIPS, TP2,18 INCH WIDTH	\$11,271.72
0195	500-3200	10.000	CY	\$533.35724	CL B CONC	\$5,333.57
0200	511-1000	100.000	LB	\$2.75926	BAR REINF STEEL	\$275.93
0050	550-1180	4275.000	LF	\$30.60429	STM DR PIPE 18",H 1-10	\$130,833.34
0345	550-1300	1425.000	LF	\$53.93861	STM DR PIPE 30",H 1-10	\$76,862.52
0040	550-2180	240.000	LF	\$28.86492	SIDE DR PIPE 18",H 1-10	\$6,927.58
0350	550-3330	6.000	EA	\$1,230.00000	SAFETY END SECTION 30",STD,4:1	\$7,380.00
0055	550-3518	6.000	EA	\$609.68527	SAFETY END SECTION 18",STD,6:1	\$3,658.11
0045	550-3618	20.000	EA	\$484.86751	SAFETY END SECTION 18",SD,6:1	\$9,697.35
0175	603-2180	20.000	SY	\$63.68052	STN DUMPED RIP RAP, TP 3, 12"	\$1,273.61
0185	603-6006	10.000	SY	\$125.00000	SAND-CEMENT BAG RIP RAP, 6 IN	\$1,250.00
0180	603-7000	20.000	SY	\$4.06340	PLASTIC FILTER FABRIC	\$81.27
0335	610-0355	3600.000	LF	\$10.00000	REM CONC CURB & GUTTER ALL SIZ	\$36,000.00

# DETAILED COST ESTIMATE



**Job: 0011730**

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0280	634-1200	20.000	EA	\$109.99179	RIGHT OF WAY MARKERS	\$2,199.84
0275	636-1020	300.000	SF	\$13.40404	HWY SGN,TP1MAT,REFL SH TP3	\$4,021.21
0270	636-1033	100.000	SF	\$16.02709	HWY SIGNS, TP1MAT,REFL SH TP 9	\$1,602.71
0265	636-2070	700.000	LF	\$6.07935	GALV STEEL POSTS, TP 7	\$4,255.55
0260	636-2080	200.000	LF	\$9.20924	GALV STEEL POSTS, TP 8	\$1,841.85
0305	639-5000	4.000	EA	\$6,443.14061	PRESTRESSED CONC STR POLE, TP- 0011730	\$25,772.56
0165	643-8200	500.000	LF	\$1.82342	BARRIER FENCE (ORANGE), 4 FT	\$911.71
0295	647-1000	1.000	LS	\$80,000.00000	TRAF SIGNAL INSTALLATION NO - TRAFFIC SIGNAL	\$80,000.00
0230	653-0120	30.000	EA	\$73.32751	THERM PVMT MARK, ARROW, TP 2	\$2,199.83
0220	653-1501	5700.000	LF	\$0.46953	THERMO SOLID TRAF ST 5 IN, WHI	\$2,676.32
0215	653-1502	3600.000	LF	\$0.54066	THERMO SOLID TRAF ST, 5 IN YEL	\$1,946.38
0235	653-1704	200.000	LF	\$5.74181	THERM SOLID TRAF STRIPE,24",WH	\$1,148.36
0245	653-1804	1500.000	LF	\$2.27310	THERM SOLID TRAF STRIPE, 8",WH	\$3,409.65
0225	653-3501	1000.000	GLF	\$0.28717	THERMO SKIP TRAF ST, 5 IN, WHI	\$287.17
0240	653-3502	1000.000	GLF	\$0.33023	THERMO SKIP TRAF ST, 5 IN, YEL	\$330.23
0255	653-6004	1000.000	SY	\$3.23203	THERM TRAF STRIPING, WHITE	\$3,232.03
0250	653-6006	900.000	SY	\$3.27676	THERM TRAF STRIPING, YELLOW	\$2,949.08
0210	654-1002	200.000	EA	\$3.16118	RAISED PVMT MARKERS TP 2	\$632.24
0205	654-1003	200.000	EA	\$4.12258	RAISED PVMT MARKERS TP 3	\$824.52
0325	668-1100	10.000	EA	\$2,177.22934	CATCH BASIN, GP 1	\$21,772.29
0290	668-2100	10.000	EA	\$1,754.34219	DROP INLET, GP 1	\$17,543.42
0320	668-4300	5.000	EA	\$1,821.49070	STORM SEW MANHOLE, TP 1	\$9,107.45
0310	682-6233	500.000	LF	\$10.00000	CONDUIT, NONMETL, TP 3, 2 IN	\$5,000.00
0300	682-9950	700.000	LF	\$30.00000	DIRECTIONAL BORE - 0011730	\$21,000.00
0100	700-6910	15.000	AC	\$904.31000	PERMANENT GRASSING	\$13,564.65
0105	700-7000	10.000	TN	\$105.31555	AGRICULTURAL LIME	\$1,053.16
0110	700-8000	10.000	TN	\$556.78165	FERTILIZER MIXED GRADE	\$5,567.82
0115	700-8100	600.000	LB	\$1.97733	FERTILIZER NITROGEN CONTENT	\$1,186.40
0095	716-2000	20000.000	SY	\$1.18608	EROSION CONTROL MATS, SLOPES	\$23,721.60
<b>SUBTOTAL FOR :</b>						<b>\$1,797,344.48</b>

**TOTALS FOR JOB 0011730**

<b>ITEMS COST:</b>	<b>\$1,797,344.48</b>
<b>COST GROUP COST:</b>	<b>\$0.00</b>
<b>ESTIMATED COST:</b>	<b>\$1,797,344.48</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>\$1,797,344.48</b>

# Department of Transportation State of Georgia

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Interdepartmental Correspondence

**FILE** R/W Cost Estimate **OFFICE** Atlanta  
**DATE** September 08, 2014

**FROM** Phil Copeland, Right of Way Administrator  
LaShone Alexander, Right of Way Cost Estimator

**TO** Keith Stewart, Project Manager

**SUBJECT** **Preliminary Right of Way Cost Estimate**  
**Project: 0011730 (Liberty County)**  
**P.I. No.: 0011730 (Alternative) No Right Way**  
**Description: Flemington Curve**

As per your request, attached is a copy of the approved Preliminary Right of Way Cost Estimates on the above referenced projects.

If you have any questions, please contact LaShone Alexander at One Georgia Center 600 West Parkway Street, NW Atlanta, GA 30308, Right of Way Office at (478) 553-1569 or (478) 232-4045.

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PC:LA  
Attachments  
c: File

GEORGIA DEPARTMENT OF TRANSPORTATION  
PRELIMINARY ROW COST ESTIMATE SUMMARY

Date: 9/8/2014 Project: 0011730  
 Revised: County: Liberty  
 PI: 0011730 Preferred Alt

Description: Flemington Curve  
 Project Termini: Flemington Curve

Existing ROW: Varies  
 Required ROW: Varies  
 Parcels: 7

Land and Improvements \_\_\_\_\_ \$365,943.75

Proximity Damage	\$0.00
Consequential Damage	\$0.00
Cost to Cures	\$0.00
Trade Fixtures	\$0.00
Improvements	\$95,000.00

Valuation Services \_\_\_\_\_ \$43,750.00

Legal Services \_\_\_\_\_ \$79,725.00

Relocation \_\_\_\_\_ \$14,000.00

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

Administrative \_\_\_\_\_ \$64,000.00

TOTAL ESTIMATED COSTS \_\_\_\_\_ \$567,418.75

**TOTAL ESTIMATED COSTS (ROUNDED) \_\_\_\_\_ \$568,000.00**

Preparation Credits	Hours	Signature

Prepared By: Dashone Alexander CG#: 286999 09/08/2014 (TE)

Approved By: Dashone Alexander CG#: 286999 09/08/2014 (TE)

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

**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA**

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**INTERDEPARTMENT CORRESPONDENCE**

**SR38/US84 @ CR73/Old Sunbury Road  
Liberty County  
P. I. No.: 0011730**

**March 18, 2014 @ 9:30 AM  
Location: Liberty County Courthouse/Hinesville GA**

**Concept Team Meeting Minutes**

**Attendance**

Troy Pittman	GDOT	912-282-3880
Nils Gustavson	HAMPO	912-408-2039
Matt Bennett	GDOT	912-271-7404
Michelle Wright	GDOT	912-271-7562
Billy J. Smith	GDOT	912-427-5764
Cynthia Phillips	GDOT	912-427-5702
Maggie Yoder	GDOT	912-530-4369
Matthew Barrow	P.C. SIMONTON	912-368-5212
Paul Hawkins	CITY OF FLEMINGTON	912-376-2174
Anthony Tate	GDOT	404-631-1155
Paul Williams	GDOT	912-530-4406
Christy Lovett	GDOT	912-530-4420
Joey Brown	LCBOC	912-977-0600
Jeff Ricketson	LCPC	912-432-2235
Bryan Czech	GDOT	912-654-2940
Jeff Weathers	GDOT	912-654-2940
Brent Blocker	GDOT	912-654-2940
Keith Stewart	GDOT	912-530-4380

- Matt Bennett opened the meeting. Review of the Concept Report was then turned over to Troy Pittman.
- Troy read through the concept report. Questions were presented during the reading and after. The below questions were identified:
- Per Nils Gustavson:
  - Questioned the feasibility of additional ROW acquisition beyond scope of project in anticipation of additional lanes per the Design Year (2039). However, GDOT stated that FHWA would not allow at this time.
  - Stated that project is a high priority project with locals and Flemington political officials- Sooner the better and to please keep project accelerated.
- Per Matthew Barrow and discussions with GDOT:
  - Try to keep scope of all sidewalks, including TE portion, in our project.
  - Try to allocate funding for sidewalks in our project.
  - GDOT to determine cost for all sidewalks to the percentage of sidewalk cost per TE portion of project.
- Per Anthony Tate:
  - Need plans with definitive ROW lines before start of environmental survey can begin.
- Various questions:
- Inquiry concerning proposed green space between new alignment of Old Hines Road and Old Sunbury Road. City of Flemington showed an interest to develop with landscaping and lighting and inquired about installing conduit to facilitate said items ahead of construction. GDOT advised that it should be accomplished during construction.
- Check on Functional Classification of Mainline: Concept states “Urban Minor Arterial Street”. However, Hinesville Functional Classification Map identifies Mainline as “Principal Arterial”. Sunbury Road/CR73 is identified as “Major Collector”. Will revise info in Concept Report.
- Check on proposed Superelevation rate for side road design features. Concept states 6 %. Percentage to be verified and revised if determined to be incorrect.
- Check and verify distance of 2’ grass strip from back of curb to sidewalk.
- Revise Utility Involvements section in concept report to state that the GDOT is managing the coordination of all Utilities for project. Revise “Water and Sewer – Unknown Owner” to “Water and Sewer – City of Flemington”
- Check on Roundabout analysis for mainline signalization per Cynthia Phillips. This was verified at the end of the meeting by Traf Ops, the traffic study included all info for roundabout analysis, as well as approved signal warrants.
- In section “Other projects in the area”, revise the P.I. number to “PI# 0010591”. Revise callout of “US 85” to state “US 84”.

Please find the following compiled comments for your address (the emails of those contributing comments is attached):

I. **Comments from OFM:** On page 10, the RW estimate is over a year old and needs to be updated. **ROW estimate has been updated.**

II. **Comments from the State Traffic Engineer:**

- Design Vehicle should be a WB-67 **Done**
- Verify turning radius for the SB to EB left turn **All turning radii will be designed according to standard criteria once survey data has been processed and preliminary design stage begins.**
- Typical section for Old Sunbury Road does not match proposed drawing **New typical sections have been created and enclosed in Concept Report Package depicting the eliminated continuous free flow lane.**

III. **Comments from the District Office (District Traffic Operations and Preconstruction Offices):**

- The concept shows a free flow lane with median on SR 38 eastbound. Given that we have a pedestrian crossing on the east side, all traffic must stop. Design should be modified to eliminate the free flow lane and median separating the through lanes eastbound. **Continuous free flow lane has been eliminated**
- Unless there is a way to install as proposed and eliminate the pedestrian crossing across SR 38 at that location. If the pedestrian crossing is a must, then we can't allow a free flow lane. **Continuous free flow lane has been eliminated**

IV. **Comments from the District Utilities Engineer:**

- This project has had a late start but the PM says she can recover prior to the PFPR. **confirmed**
- There are some relocations necessary, so we will need plans by around May or June next year to be able to keep the schedule. **confirmed**
- SUE has been ordered for this project. **confirmed**

V. **Comments from the Assistant State Design Policy Engineer:**

1. Are right turn lane(s) needed for US 84 WB? **Right turn lane is now incorporated in concept**
2. Check spelling of "median" on typical section. **New typical sections have been incorporated in concept w/spelling errors addressed.**

3. Check detailed CST cost estimate for other required items such as Concrete Median paving. **Reviewed detailed CST cost estimate and addressed Concrete Median Paving**

#### **VI. Comments from the State Roadway Design Engineer:**

I hope it's not too late for comments: however, I am concerned with the safety of pedestrians crossing the continuous flow lane without any protection or advance warning for drivers approaching in that lane. If a pedestrian is on the Parkers side and pushes the ped. button to cross and has a walk sign what's going to keep them from stepping out into traffic in the continuous flow lane. Are we planning on putting up a beacon to stop vehicles in the continuous flow lane when a pedestrian is crossing? **Continuous Free Flow lane has been eliminated from concept.**

#### **VII. Comments from Design Policy and Support (Kim Phillips reviewer):**

- Can just a summary be provided as stated in the attachment list rather than the entire report. **Only a summary of TE Study, Signal Warrant Analysis, and Crash Summary have been incorporated in concept.**
- A signature line on the will be included for the State Roadway Design Engineer, since this project is to be designed in-house. **Signature line incorporated**
- The word safety was found in the project justification statement. Please replace with less subjective phrasing such as "reduces crash frequency and severity". **"Safety" word has been eliminated.**
- It was not selected whether traffic was ADT or AADT. **Traffic shown in concept "ADT".**
- It is recommended to better describe some of the major stakeholder's. For example, what is Parker's and why is it a stakeholder? **Major stakeholder's revised with comments per each**
- The info for ICTM and CTM was not filled out. It is recommend to complete this section even if none are anticipated. **ICTM and CTM information has been completed**
- Please be check the answer concerning pedestrians. The report even describes an adjoining pedestrian improvement project. **Under "complete streets: warrants met" section, Pedestrian has been included in concept.**
- Other coordination was left unanswered. **"Other coordination" has been addressed.**
- Cost estimates now require contingencies based on their risk assessment. Please follow the current guidelines. Please be sure the note with the asterisk under the cost table is

accurate when updating. **Construction cost estimate updated in CES using current guidelines. Note in Concept Cost Table now accurate.**

- The following cost estimates for this report are old: ROW, Utilities, and mitigation. **ROW, Utilities, and Mitigation Cost Estimates have all been revised and are current.**
- The cost for construction rose significantly from the preconstruction estimate.

**Confirmed**

- Is access to US 84 being restored to all owners which now have it? **Yes, access to US84 is being restored to all owners who currently have access under existing conditions.**
- Do all of the intersection meet sight and stopping distance requirements? **Possibly, however, when survey data is obtained and preliminary design phase begins, sight and stopping distance requirements will be obtained although these conditions may not be apparent under conceptual conditions now depicted.**
- The T-inter of Old Sunbury with Old Hines appears be only 150' from the new "entrance/exit intersection to Parker's". Does this meet the Driveway and Encroachment standards? **Alignment information is currently under conceptual depictions. When survey data is obtained and preliminary design phase begins, alignment design will be tweaked so that Driveway and Encroachment standards will be met.**
- The intersections are in very close proximity to each other please be sure they do not require variances. **Alignment information is currently under conceptual depictions. When survey data is obtained and preliminary design phase begins, alignment design will be tweaked so that Intersection proximity standards will be met.**
- Please check the intersection spacing, especially, if a beacon is required. **A beacon will not be required. Alignment information is currently under conceptual depictions. When survey data is obtained and preliminary design phase begins, alignment design will be tweaked so that Intersection spacing standards will be met.**