

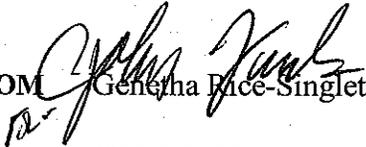
**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

INTERDEPARTMENT CORRESPONDENCE

FILE P.I. No. 0008275, Chatham County
CSMLP-0008-00(275)
SR 21 at CR 9/Crossgate Road/Gulfstream Road -
Intersection Improvements

OFFICE: Program Control

DATE: September 29, 2009

FROM  Geneva Rice-Singleton, Program Control Administrator

TO SEE DISTRIBUTION

SUBJECT APPROVED PROJECT CONCEPT REPORT

Attached for your files is the approval for subject project.

Attachment

DISTRIBUTION:

Ron Wishon
Glenn Bowman
Ken Thompson
Michael Henry
Keith Golden
Glenn Durrence
Paul Liles
Brad Saxon
Dennis Odom
Keith Stewart
BOARD MEMBER

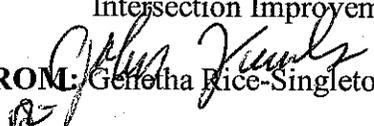
**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

INTERDEPARTMENTAL CORRESPONDENCE

FILE: P.I. No. 0008275, Chatham County
CSMLP-0008-00(275)
SR 21 at CR 9/Crossgate Road/Gulfstream Road -
Intersection Improvements

OFFICE: Program Control

DATE: August 27, 2009

FROM:  Genetha Rice-Singleton, Program Control Administrator

TO: Gerald M. Ross, P.E., Chief Engineer

SUBJECT: *PROJECT CONCEPT REPORT*

This project is the intersection improvements of SR 21 at CR 9/Crossgate Road/Gulfstream Road located northwest of Savannah in Chatham County. SR 21 is a four lane divided road with a grassed median. It has exclusive left and right turn lanes at the intersection. The posted speed is 50 MPH in both directions. Crossgate Road, the westbound approach intersecting with SR 21, is a two lane roadway with an exclusive eastbound right turn lane at this intersection. The posted speed is 45 MPH in both directions. The eastbound approach intersecting with SR 21 at the intersection is Gulfstream Road. Gulfstream Road is a two-lane roadway with an exclusive eastbound right turn lane at the intersection. The posted speed is 35 MPH in both directions. There is an existing at-grade CSX railroad crossing on Gulfstream Road located approximately 70' west of the intersection at SR 21. The Gulfstream Aerospace Corporation facility located to the west of the intersection on Gulfstream Road is a major traffic generator in the vicinity. The existing (2007) average daily traffic (ADT) for SR 21 is 29,800 and 30,740 vehicles per day for north and south of the intersection respectively, and the existing ADT for CR 9/Crossgate Road and Gulfstream Road is 5,120 and 10,120 vehicles per day. For the design year (2034), the ADT for SR 21 is projected to be 44,840 and 46,240 VPD for north and south of the intersection respectively, and the projected traffic for Crossgate Road and Gulfstream Road will be 7,780 and 15,860 VPD. This intersection is controlled by traffic signal with railroad preemption. Currently the intersection operates at a level of service (LOS) "D" and "E". Without improvements, the intersection will operate at LOS "F".

The proposed project consists of adding an exclusive left-turn lane to the eastbound, westbound and northbound approaches of the intersection, improvement to the existing northbound and southbound left turn lanes, and the extension of the existing exclusive right-turn lane for all approaches. The existing traffic signal will be upgraded based on the proposed lane configurations. Traffic will be maintained at all times via stage construction.

Environmental concerns include requiring a Categorical Exclusion be prepared; a public hearing is not required; time saving procedures are appropriate.

The estimated costs for this project are:

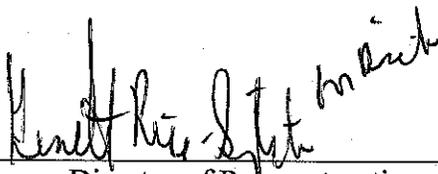
	<u>PROPOSED</u>	<u>APPROVED</u>	<u>FUNDING</u>	<u>PROG DATE</u>
Construction (includes E&C)	\$2,569,944	\$ 7,785,317	L240	2012(proposed)
Right-of-way	\$ 19,200	\$ 786,477	L240	2011(proposed)
Utilities*	\$ 162,500			

* Notification letter sent to Chatham/Port Wentworth /Savannah 5-19-2006.

I recommend this project concept be approved and the description be revised to reflect the project herein.

GRS: JDQ
Attachment

CONCUR



Director of Preconstruction

APPROVED



Gerald M. Ross, P.E., Chief Engineer

PRECONSTRUCTION STATUS REPORT FOR PI:0008275,0008276

MGMT LET DATE: 12/15/2011
 MGMT ROW DATE: 12/15/2010
 SCHED LET DATE: 6/7/2012
 WHO LETS?: GDOT Let
 LET WITH: 0008276

CONG. DIST: 12
 BIKE: Y
 MEASURE: E
 NEEDS SCORE: 4
 BRIDGE SUFF:

CR-9/GULFSTREAM RD E/W OF GULFSTREAM FACILITY TO SR-21
 SR 21 AT CR 9/CROSSCANE/GULFSTREAM ROAD - TEMP SR 1181 & 1181A
 DOT DIST: 5
 SAVANNAH TMA

PROJ ID: 0008275
 COUNTY: Chatham
 LENGTH (MI):
 PROJ NO.: CSMLP-0008-00(275)
 PROJ MGR: Odum, Dennis
 AOHD Initials: 2KSIKS
 OFFICE: District 5
 CONSULTANT: Consultant Design (DOT contract)
 SPONSOR: GDOT
 DESIGN FIRM: Parsons Transportation Group, Inc.

SCHED START	SCHED FINISH	TASKS	ACTUAL START	ACTUAL FINISH	%	Activity	Approved	Proposed	Cost	Fund	Status	Date Auth
10/8/2009	10/8/2009	Concept Development	3/13/2007	5/13/2009	45	PE	2008	2008	476,563.64	1,240	AUTHORIZED	12/17/2007
8/28/2009	10/8/2009	Concept Meeting	5/13/2009	6/23/2009	100	ROW	2010	2011	786,477.60	1,240	PRECST	
10/8/2009	10/8/2009	PM Submit Concept Report	6/23/2009		100	CST	2009	2012	7,785,317.53	1,240	PRECST	
10/23/2009	10/8/2009	Receive Preconstruction Concept Approval			0							
10/23/2009	10/8/2009	Management Concept Approval Complete			0							
10/23/2009	10/8/2009	Public Information Open House Held			0							
11/18/2010	10/8/2009	Environmental Approval	1/6/2009		17							
9/18/2009	10/1/2009	Mapping			0							
10/26/2009	11/13/2009	Field Surveys/SDE			0							
11/17/2009	6/14/2010	Preliminary Plans			0							
10/9/2009	2/18/2010	Underground Storage Tanks			0							
3/7/2011	6/17/2011	404 Permit Obtainment			0							
12/10/2010	12/13/2010	PFPR Inspection			0							
12/14/2010	2/21/2011	R/W Plans Preparation			0							
2/22/2011	4/18/2011	R/W Plans Final Approval			0							
1/19/2011	1/21/2011	L & D Approval			0							
4/19/2011	4/6/2012	R/W Acquisition			0							
7/26/2011	8/8/2011	Stake R/W			0							
1/24/2011	1/2/2012	Soil Survey		12/5/2007	100	PE Cost Est Amt:	476,563.64	5/1/2006	5/1/2006	100,000.00		
1/24/2012	1/25/2012	Final Design			0	ROW Cost Est Amt:	600,000.00	6/21/2007	6/21/2007	735,025.80		
2/8/2012	2/21/2012	FFPR Inspection			0	CST Cost Est Amt:	6,100,000.00	6/21/2007	6/21/2007	6,100,000.00		
		Submit FFPR Responses (OES)			0							

STIP AMOUNTS	Activity	Cost	Fund
PE Cost Est Amt:	476,563.64	5/1/2006	100,000.00
ROW Cost Est Amt:	600,000.00	6/21/2007	735,025.80
CST Cost Est Amt:	6,100,000.00	6/21/2007	6,100,000.00

Bridge: NO BRIDGE REQUIRED
Design: Submitted Final Concept Report for approval
EIS: SMART-CE/OnSchForROW(7-29-09)
LGPA: NOTIFICATION LETTER SENT TO CHATHAM/PORT WENTWORTH/SAVANNAH 5-19-06.
Planning: Bike facilities recommended by Chatham Bikeway Plan; Coastal Georgia Bike/Ped Plan
Prog. Develop: PE STIP AMENDMENT #42 5-07RW STIP AMENDMENT #39A-3-09
Programming: THIS PROJECT IS BEING SPLIT FROM PI# 000581 (TEMP SR 1181 & 1181A) # 7-09
Utility: SUE
EMG: RECSY/REHAB (WIDENING), C-M/S/D

District Comments
 ADO/08-06-09/Annual cost estimates submitted 05-27-09 but not updated due to balancing and STIP.

Acquired by: DOT
Acquisition MGR:
R/W Cert Date:

DEEDS CT:

Pre. Parcel CT: 11
Under Review:
Released:

Total Parcel in ROW System:
Options - Pending:
Condemnations- Pend:

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

MEMORANDUM

FILE CSMLP – 0008-00(275) Chatham County OFFICE Planning
P.I. 0008275
DATE 6/25/09

FROM 
Angela T. Alexander, State Transportation Planning Administrator

TO Genetha Rice-Singleton, Assistant Director of Preconstruction

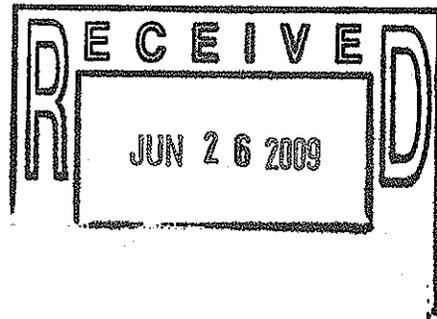
SUBJECT Project Concept Report – Intersection of SR 21 at Crossgate and Gulfstream Rd
CSMLP – 0008-00(275), P.I. 0008275

The Planning Office was requested by Preconstruction to verify if the subject project was identified in the current FY 08-11 Chatham County MPO TIP. PE was authorized in 2008 for P.I. 221875. The Right-of-Way phase is proposed for FY 11 and Construction phase for FY 12. This project as defined in this revised concept report, is currently not consistent with the project description which appears in the current FY 08-11 TIP. However, during the development of the FY 10-13 TIP, the Office of Planning will request that project description in TPRO to concur with the revised concept report which indicates an intersection improvement project.

ATA:kbm

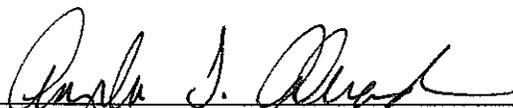
Attachment

CC: Matthew Fowler
Radney Simpson
Keith Stewart



Date:

6/25/09


State Transportation Planning Administrator

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

District 5

PROJECT CONCEPT REPORT

Project Number: CSMLP-0008-00(275)

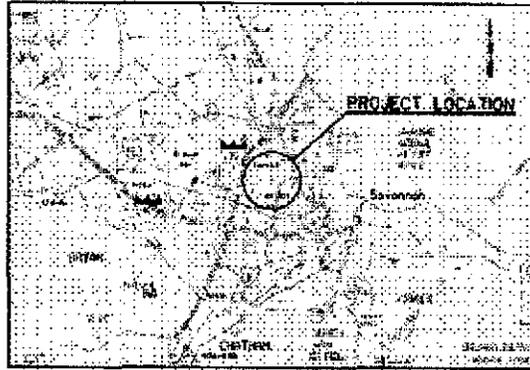
County: Chatham

P. I. Number: 0008275

Federal Route Number: N/A

State Route Number: SR 21

Intersection of SR 21 at Crossgate Road/Gulfstream Road



Recommendation for approval:

DATE 6-17-09

DATE 6-13-09

Dennis Johnson
Project Manager
Richard W. Anderson
District 5 Preconstruction Engineer

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

DATE 8/31/09

DATE _____

DATE _____

DATE 7-20-09

DATE 6/23/09

DATE _____

Angela S. Adams
State Transportation Planning Administrator
State Transportation Financial Management
Administrator
State Environment/Location Engineer
Sheed Smith
State Traffic Safety and Design Engineer
Robert Smith
District Engineer
Project Review Engineer

★ The project description in the LRTP/ TIP/STIP as appropriate may be modified to reflect the revised concept report following consultation with the MPO and approval by the Director of Planning.

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

INTERDEPARTMENT CORRESPONDENCE

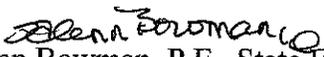
FILE: P.I. No. 0008275

OFFICE: Environment/Location

PROJECT No. CSMLP-0008-00(275) / CHATHAM
County

DATE: 7/6/09

Intersection of SR 21 at Crossgate Road / Gulfstream Road

FROM: 
Glenn Bowman, P.E., State Environmental/Location Engineer

TO: Genetha Rice-Singleton, Assistant Director of Preconstruction

SUBJECT: PROJECT CONCEPT REPORT REVIEW

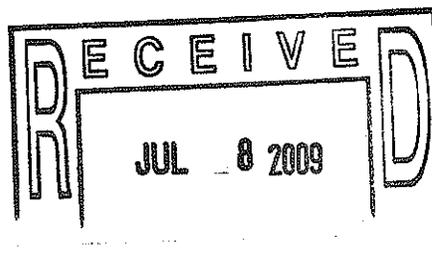
The Concept Report for the above project has been reviewed and appears satisfactory subject to the following comments:

1. In the Environmental Concerns section under NEPA, it notes that coordination with FAA is required. I would think this is more of a design requirement than a NEPA requirement.
2. Please list who is responsible for completing Environmental in the Project Responsibilities section.
3. Eligible RxR (CSX Railroad) in project corridor. If there are significant impacts (adverse) to this historic 4(f) resource that cannot be avoided, then the proposed environmental schedule must be revised significantly.

If you have any questions, please contact Glenn Bowman at (404) 699-4401.

GB:lc

cc: Ron Wishon
Angela Whitworth
Keith Golden
Angela Alexander
Glenn Durrence
Paul Liles



**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

District 5

PROJECT CONCEPT REPORT

Project Number: CSMLP-0008-00(275)

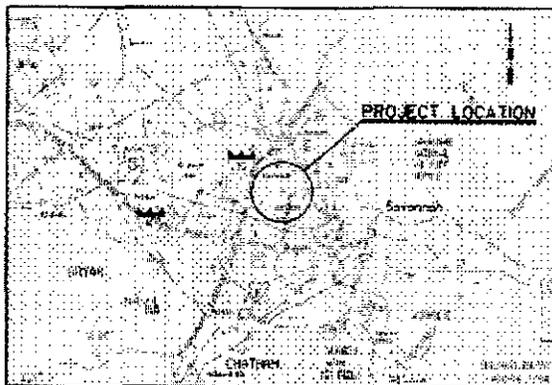
County: Chatham

P. I. Number: 0008275

Federal Route Number: N/A

State Route Number: SR 21

Intersection of SR 21 at Crossgate Road/Gulfstream Road



Recommendation for approval:

DATE 6-17-09

Dennis Johnson
Project Manager

DATE 6-13-09

Richard W. Ayers
District 5 Preconstruction Engineer

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

DATE _____

State Transportation Planning Administrator

DATE _____

State Transportation Financial Management Administrator

DATE 7/6/09

Dennis Bowman
State Environment/Location Engineer

DATE _____

State Traffic Safety and Design Engineer

DATE 6/23/09

[Signature]
District Engineer

DATE _____

Project Review Engineer

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

District 5

PROJECT CONCEPT REPORT

Project Number: CSMLP-0008-00(275)

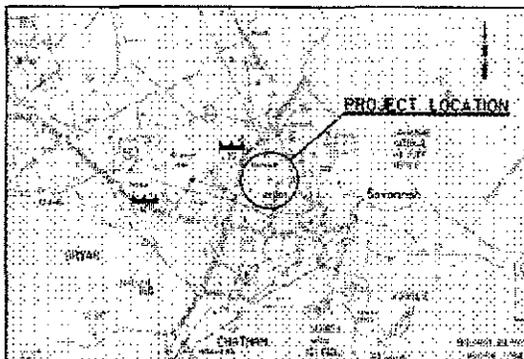
County: Chatham

P. I. Number: 0008275

Federal Route Number: N/A

State Route Number: SR 21

Intersection of SR 21 at Crossgate Road/Gulfstream Road



Recommendation for approval:

DATE 6-17-09

DATE 6-23-09

Dennis Johnson
Project Manager
Richard W. Ayers
District 5 Preconstruction Engineer

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

DATE _____

DATE 6-26-09

DATE _____

DATE _____

DATE 6/25/09

DATE _____

State Transportation Planning Administrator
Angela D. Whitworth 
Financial Management Administrator

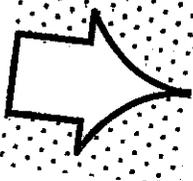
State Environment/Location Engineer

State Traffic Safety and Design Engineer

[Signature]
District Engineer

Project Review Engineer

HERE



**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

INTERDEPARTMENT CORRESPONDENCE

FILE Project # CSMLP-0008-00(275) Chatham County **OFFICE** Jesup, Design
Description: Intersection of SR21 @ Crossgate
and Gulfstream Road
P. I. No. 0008275 **DATE** 6/23/2009

FROM Glenn W. Durrence, P.E., District Engineer 

TO Genetha Rice-Singleton, Assistant Director of Preconstruction

SUBJECT **Project Concept Report**

Attached is the original copy of the Concept Report for your further handling for approval in accordance with the Plan Development Process (PDP).

This project includes the addition of an exclusive left-turn lane to eastbound and westbound and northbound approaches of the intersection, improvement to the existing northbound and southbound left turn lanes, and the extension of the existing exclusive right-turn lane for all approaches. The existing traffic signal will be upgraded based on the proposed lane configurations.

Should you have any questions or need any additional information, please contact the Project Manager, Dennis Odom at 912-427-5716.

GWD:ADO: krs
Attachments

cc:

General File Unit, Atlanta
Glenn Bowman, Office of Environment / Location
Angela Alexander, Office of Planning
Ron Wishon, Office of Engineering Services
Paul Liles, Office of Bridge Design
Angela Whitworth, Office of Financial Management
Keith Golden, Office of Traffic Safety and Design
Teresa Scott, District Planning and Programming
Jesup Files

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

District 5

PROJECT CONCEPT REPORT

Project Number: CSMLP-0008-00(275)

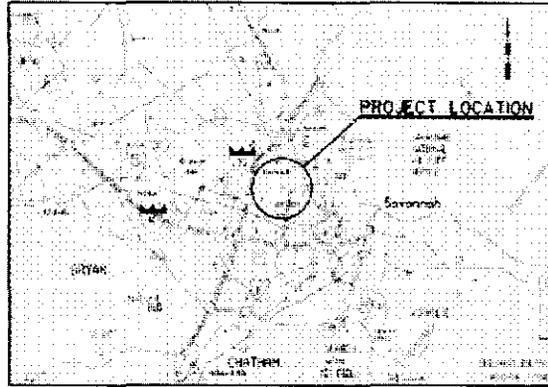
County: Chatham

P. I. Number: 0008275

Federal Route Number: N/A

State Route Number: SR 21

Intersection of SR 21 at Crossgate Road/Gulfstream Road



Recommendation for approval:

DATE 6-17-09

DATE 6-23-09


Project Manager


District 5 Preconstruction Engineer

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

DATE _____

State Transportation Planning Administrator

DATE _____

State Transportation Financial Management Administrator

DATE _____

State Environment/Location Engineer

DATE _____

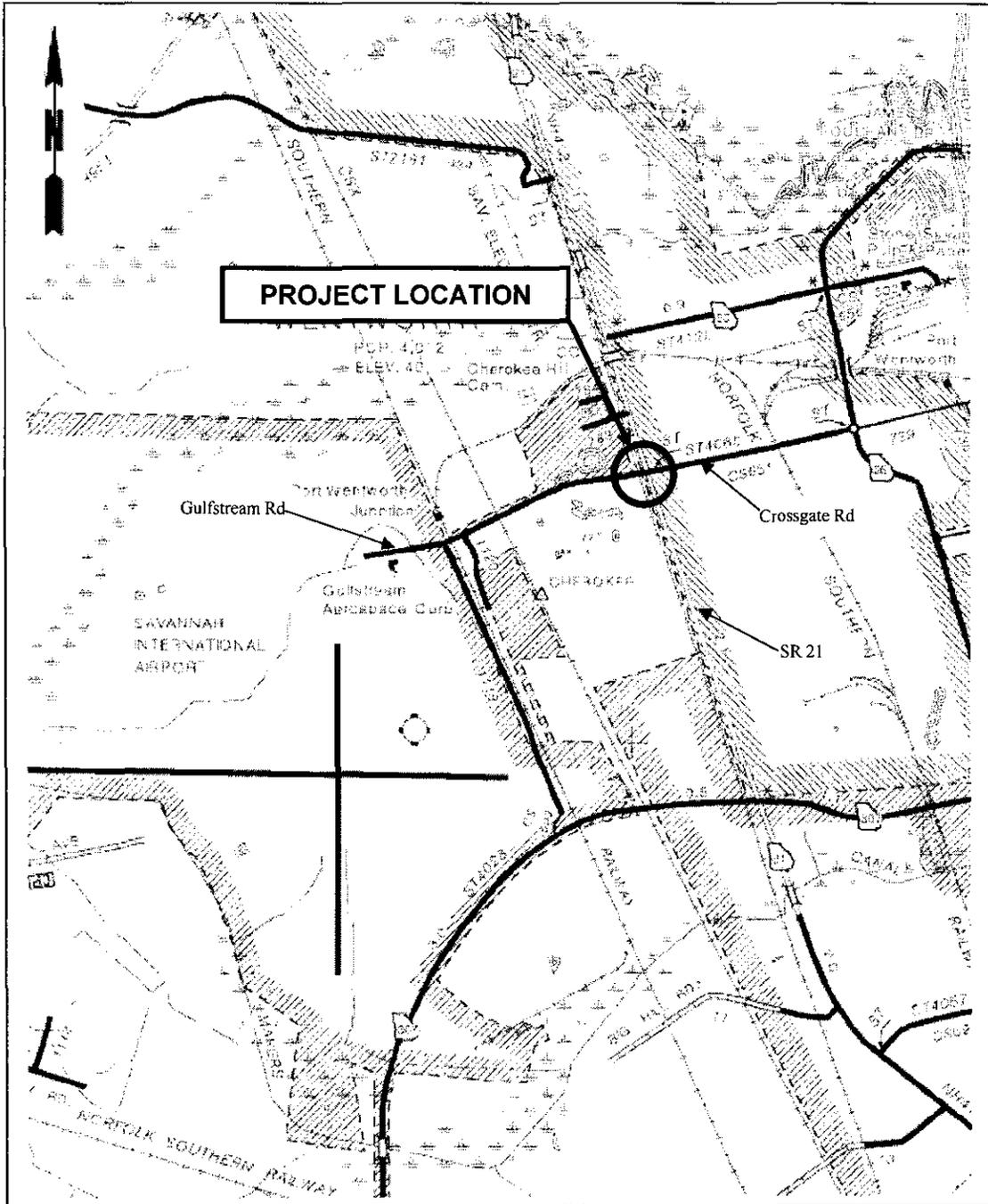
State Traffic Safety and Design Engineer

DATE 6/23/09


District Engineer

DATE _____

Project Review Engineer



PROJECT LOCATION MAP

Project No. CSMLP-0008-00(275), P. I. No. 0008275
Chatham County, Georgia
Intersection of SR 21 at Crossgate Road/Gulfstream Road

Need and Purpose

The purpose of the project is to alleviate congestion and improve traffic operation at this intersection of SR 21 at Crossgate Road/Gulfstream Road by adding additional turn lanes and upgrading the existing traffic signal.

The existing (2007) average daily traffic (ADT) for SR 21 is 29,800 and 30,740 vehicles per day for north and south of Crossgate Road/Gulfstream Road, respectively. The existing ADT for Crossgate Road and Gulfstream Road is 5,120 and 10,120 vehicles per day, respectively. It is estimated that for design year (2034), the ADT for SR 21 will be 44,840 and 46,240 vehicles per day for north and south of Crossgate Road/Gulfstream Road, respectively, and the ADT for Crossgate Road and Gulfstream Road will be 7,780 and 15,860 vehicles per day, respectively.

This intersection currently operates at LOS E and D during the a.m. and p.m. peak hour, respectively. In the a.m. peak hour, all left-turn movements operate at LOS F; and in the p.m. peak hour, they operate at LOS E or F. The capacity for left-turn traffic is exceeded or being approached for the present traffic.

Without improvements, the intersection will operate at LOS F during both peak hours with high vehicle delay in the design year. In the a.m. peak hour, all left-turn movements and SR 21 southbound through movement will operate at LOS F; and in the p.m. peak hour, all left-turn movements and SR 21 northbound through movement will operate at LOS F. The analysis results indicate the need of additional capacity for left-turn traffic as well as through traffic on SR 21.

Historical accident analysis indicates that a total of 19, 20 and 17 accidents occurred in 2005, 2006 and 2007 with an accident rate of 133, 142, and 123 accidents per 100 million entering vehicles, respectively (Georgia DOT does not maintain statewide average accident rates for intersections). A total of 32 injuries and no fatalities occurred during the three years period. Among the total of 56 accidents that occurred in the three years, 38 were rear-end accidents, accounting for 68 percent of the total accidents. The large amount of rear-end accidents is an indication of that vehicles experience high delay at a congested signalized intersection.

Description of the Proposed Project

The intersection of SR 21 at Crossgate Road/Gulfstream Road is located northwest of Savannah in Chatham County. The project begins 1167 feet west of the intersection along Gulfstream Road and extends to 884 feet east of the intersection along Crossgate Road. Along SR 21, the project extends from 1043 feet south of the intersection to 838 feet north of the intersection.

The project includes the addition of an exclusive left-turn lane to eastbound and westbound and northbound approach of the intersection, improvement to the existing northbound and southbound left turn lanes, and the extension of the existing exclusive right-turn lane for all approaches. The existing traffic signal will be upgraded based on the proposed lane configurations.

Project Concept Report page 4
 Project Number: CSMLP-0008-00(275)
 P. I. Number: 0008275
 County: Chatham

Is the project located in a Non-attainment area? _____ Yes X No.

PDP Classification: Major _____ Minor X

Federal Oversight: Full Oversight (), Exempt (), State Funded (X), or Other ()

Functional Classification:

SR 21: Urban Principal Arterial
 Crossgate Road: Urban Collector Street
 Gulfstream Road : Urban Collector Street

U. S. Route Number(s):

SR 21: N/A
 Crossgate Road: N/A
 Gulfstream Road: N/A

State Route Number(s):

SR 21: 21
 Crossgate Road: N/A
 Gulfstream Road: N/A

Traffic (AADT):

Current and Design Year ADT (Vehicles/Day)

	Current Year (2007)	Design Year (2034)
SR 21	30,740	46,240
Crossgate Road	5,120	7,780
Gulfstream Road	10,120	15,860

Existing design features:

SR 21

- Typical Section: Two 12 ft. wide lanes in each direction with grass median and an exclusive left-turn and an exclusive right-turn lane at Crossgate Road/Gulfstream Road intersection. No curb and gutter present except for the northeast quadrant of the intersection. No sidewalk present.
- Posted speed: 50 mph
- Minimum radius for curve: N/A
- Maximum super-elevation rate for curve: NA
- Maximum grade: 2%
- Width of right-of-way: 298 ft ~ 325 ft +/-
- Major structures: None

Project Concept Report page 6
Project Number: CSMLP-0008-00(275)
P. I. Number: 0008275
County: Chatham

- Proposed Maximum grade Side Street N/A Maximum grade allowable N/A
- Proposed Maximum grade driveway 10%
- Proposed Maximum degree of curve N/A Maximum degree allowable 6.882
- Right-of-Way
 - Width 298 ~ 325 ft +/-
 - Easements: Temporary (), Permanent (), Utility (), Other (X).
 - Type of access control: Full (), Partial (), By Permit (X), Other ().
 - Number of parcels: 0 Number of displacements:
 - Business: 0
 - Residences: 0
 - Mobile homes: 0
 - Other: 0
- Structures:
 - Bridges: N/A
 - Retaining walls: N/A

Crossgate Road

- Proposed typical section(s): One 12 ft. wide lane in each direction with an exclusive left-turn lane and an exclusive right-turn lane at SR 21 intersection. No curb and gutter except for northeast and southeast quadrants of the intersection. No sidewalk.
- Proposed Design Speed: 45 mph
- Proposed Maximum grade Mainline 2% Maximum grade allowable 8%
- Proposed Maximum grade Side Street N/A Maximum grade allowable N/A
- Proposed Maximum grade driveway 10%
- Proposed Maximum degree of curve NA Maximum degree allowable 8.063
- Right-of-Way
 - Width 80 ft. +/-
 - Easements: Temporary (), Permanent (), Utility (), Other (X).
 - Type of access control: Full (), Partial (), By Permit (), Other (X).
 - Number of parcels: 0 Number of displacements:
 - Business: 0
 - Residences: 0
 - Mobile homes: 0
 - Other: 0
- Structures:
 - Bridges: N/A
 - Retaining walls: N/A

Gulfstream Road

- Proposed typical section(s): One 12 ft. wide lane in each direction with an exclusive left-turn lane and an exclusive right-turn lane at SR 21 intersection without curb, gutter, and sidewalk.
- Proposed Design Speed: 45 mph

- Proposed Maximum grade Mainline 0.5% Maximum grade allowable 8%
- Proposed Maximum grade Side Street 7% Maximum grade allowable 7%
- Proposed Maximum grade driveway 10%
- Proposed Maximum degree of curve NA Maximum degree allowable 8.063
- Right-of-Way
 - Width 140 ft.
 - Easements: Temporary (), Permanent (), Utility (), Other (X).
 - Type of access control: Full (), Partial (), By Permit (), Other (X).
 - Number of parcels: 1 Number of displacements:
 - Business: 0
 - Residences: 0
 - Mobile homes: 0
 - Other: 0
- Structures:
 - Bridges: N/A
 - Retaining walls: N/A

SR 21, Crossgate Road and Gulfstream Road

- Major intersections and interchanges
The intersection of SR 21 at Crossgate Road/Gulfstream Road: This intersection will be improved by addition of an exclusive left-turn lane to eastbound and westbound and northbound approach of the intersection, improvement to the existing northbound and southbound left turn lanes, and the extension of the existing exclusive right-turn lane for all approaches. The existing traffic signal will be upgraded based on the proposed lane configurations.
- Traffic control during construction: Two-lane traffic will be maintained for each direction of SR 21, and two-way two-lane traffic will be maintained for Crossgate Road and Gulfstream Road at all time. Construction of this intersection will be performed in three stages.
- Design Exceptions to controlling criteria anticipated:

	<u>UNDETERMINED</u>	<u>YES</u>	<u>NO</u>
HORIZONTAL ALIGNMENT:	()	()	(X)
ROADWAY WIDTH:	()	()	(X)
SHOULDER WIDTH:	()	()	(X)
VERTICAL GRADES:	()	()	(X)
CROSS SLOPES:	()	()	(X)
STOPPING SIGHT DISTANCE:	()	()	(X)
SUPERELEVATION RATES:	()	()	(X)
HORIZONTAL CLEARANCE:	()	()	(X)
SPEED DESIGN:	()	()	(X)
VERTICAL CLEARANCE:	()	()	(X)
BRIDGE WIDTH:	()	()	(X)
BRIDGE STRUCTURAL CAPACITY:	()	()	(X)

- Design Variances: No variances are anticipated.

Project Concept Report page 8
Project Number: CSMLP-0008-00(275)
P. I. Number: 0008275
County: Chatham

- Environmental concerns:
 - Air: CO analysis required.
 - Archaeology: short form for negative findings.
 - Ecology: USACE 404 Nationwide Permit 23 with Preconstruction Notification required for impacts to Waters of the US; no stream buffer variance.
 - History: Assessment of Effects required for railroad. No adverse effect anticipated.
 - NEPA: FAA coordination required
 - Noise: not required
- Level of environmental analysis:
 - Are Time Savings Procedures appropriate? Yes (X), No (),
 - Categorical exclusion (X),
 - Environmental Assessment/Finding of No Significant Impact (FONSI) (), or
 - Environmental Impact Statement (EIS) ().
- Utility involvements:
 - Communications:
 - ⇒ Telephone - AT&T
Hargray
Qwest Communications
Verizon business technology MCI
 - ⇒ Cable - Comcast
 - Power: Georgia Power
 - Gas: Atlanta Gas and Light
 - Water: City of Savannah
 - Petroleum: N/A
 - ITS: N/A
 - Railroads: CSX Railroad
- VE Study Required Yes() No(X)

Project responsibilities:

- Design: Consultant
- Right-of-Way Acquisition: GDOT
- Relocation of Utilities: GDOT
- Letting to contract: GDOT
- Supervision of construction: GDOT
- Providing material pits: Contractor
- Providing detours: N/A

Coordination

- Initial Concept Meeting date and brief summary: To be added.
- Concept meeting date and brief summary: To be added.
- P A R meetings, dates and results: Not anticipated.
- FEMA, USCG, and/or TVA: Not anticipated.

Project Concept Report page 9
Project Number: CSMLP-0008-00(275)
P. I. Number: 0008275
County: Chatham

- Public involvement: Not required.
- Local government comments: Not anticipated.
- Other projects in the area
 - Intersection of Gulfstream Road at Robert Miller Jr. Road (P.I. No. 0008276): Intersection improvements which was previously included in Gulfstream Road Widening from West of Gulfstream Facility to SR 21 [Project No. CSMLP-0008-00(276), P.I. No. 008276]
 - Jimmy Deloach Connector from State Route 21 near Smith Avenue to State Route 21 near Interstate 95 (P.I. No. 0008690): This project is sponsored by the Georgia Ports Authority and will provide enhanced roadway connection from the Ports area to I-95.
- Railroads: There is an existing at grade CSX railroad crossing on Gulfstream Road located approximately 70 feet west of the intersection at SR 21.
- Other coordination to date: To be added.

Scheduling – Responsible Parties’ Estimate

- Time to complete the environmental process: 14 Months.
- Time to complete preliminary construction plans: 12 Months.
- Time to complete right-of-way plans: 3 Months.
- Time to complete the Section 404 Permit: 3 Months.
- Time to complete final construction plans: 15 Months.
- Time to complete to purchase right-of-way: 5 Months.
- List other major items that will affect the project schedule: N/A Months.

Other alternates considered:

1. Build Alternative with “Jug Handle”: This alternative includes diverting eastbound and northbound left-turn traffic to a “Jug Handle” in the southeast quadrant of the intersection and to pass the intersection with northbound and westbound through traffic, respectively. For this alternative, the intersection would operate at a better level of service compared to the preferred alternative. However, more right-of-way would be required and construction cost would be higher.
2. No-Build Alternative: This alternative does not address the safety and operation needs of the intersection.

Comments: To be added as applicable.

Project Concept Report page 10
Project Number: CSMLP-0008-00(275)
P. I. Number: 0008275
County: Chatham

Attachments:

1. Cost Estimates:
 - a. Construction including E&C
 - b. Right-of-Way, and
 - c. Utilities
2. Sketch location map
3. Typical sections
4. Need and Purpose
5. Preferred alternate layout
6. Accident summaries
7. Capacity analysis
8. Minutes of Initial Concept and Concept meetings

Project Concept Report page 11
Project Number: CSMLP-0008-00(275)
P. I. Number: 0008275
County: Chatham

ATTACHMENT 1 COST ESTIMATE

DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE PROJECT No. CSMLP-0008-00(275), Chatham County
SR 21 @ Crossgate Road Intersection
Improvement
P.I. No. 0008275

OFFICE Jesup, GA

DATE 5/8/2009

FROM Glenn Durrence, District Five Engineer

TO Brian Summers, P.E., Project Review Engineer

SUBJECT REVISIONS TO PROGRAMMED COSTS

PROJECT MANAGER Keith Stewart

MNGT LET DATE 12/15/2011

MNGT R/W DATE 12/15/2010

PROGRAMMED COST (TPro W/OUT INFLATION)

LAST ESTIMATE UPDATE

CONSTRUCTION \$ 2,100,000.00

DATE 6/21/2007

RIGHT OF WAY \$ 200,000.00

DATE 6/21/2007

UTILITIES \$ NA

DATE

REVISED COST ESTIMATES

CONSTRUCTION* \$ 2,569,944.71

RIGHT OF WAY \$ 19,200.00

UTILITIES** \$ 162,500.00

* Costs contain 10% Engineering and Inspection and 3% Construction Contingencies and Fuel and Liquid AC Adjustments.

** Costs contain 30% contingency.

REASON FOR COST INCREASE: The reason for change in cost estimate is modification in type of project improvement.

CONTINGENCY SUMMARY

Construction Cost Estimate:	\$ 1,996,216.33	(Base Estimate)
Engineering and Inspection:	\$ 199,621.63	(Base Estimate x 10 %)
Construction Contingency:	\$ 59,886.49	(Base Estimate x 3 %) (The Construction Contingency is based on the Project Improvement Type in TPro.)
Total Fuel Adjustment	\$ 106,665.17	(From attached worksheet)
Total Liquid AC Adjustment	\$ 207,555.39	(From attached worksheet)
Construction Total:	\$ 2,569,944.71	
Utility Cost Estimate:	\$ 125,000.00	
Utility Contingency:	\$37,500	30 %
Utility Total:	\$ 162,500.00	

REIMBURSABLE UTILITY COST

Utility Owner	Reimbursable Costs
.....
.....
.....
.....
.....
.....
.....
.....

JBB: NA

Attachments: Detailed Cost Estimate, Fuel Adjustment Worksheet

c: Genetha Rice - Singleton, Assistant Director of Preconstruction
Angela Whitworth, Financial Management Administrator

Estimate Report for file "Crossgate Rd-SR21 (ALT 1B)_2009-03-12"

Section 1) ROADWAY ITEMS					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
150-1000	1	LS	107082.55	TRAFFIC CONTROL - STPN-164-1(49)	107082.55
153-1300	1	EA	69892.88	FIELD ENGINEERS OFFICE TP 3	69892.88
210-0100	1	LS	80000.00	GRADING COMPLETE - STPN-164-1(49)	80000.00
310-1101	15348	TN	17.99	GR AGGR BASE CRS 12", INCL MATL	276110.52
318-3000	100	TN	21.06	AGGR SURF CRS	2106.00
402-3121	3674	TN	60.11	RECYCLED ASPH CONC 25 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME	220844.14
402-3130	2702	TN	64.00	RECYCLED ASPH CONC 12.5 MM SUPERPAVE, GP 2 ONLY, INCL BITUM MATL & H LIME	172928.00
402-3190	3603	TN	68.26	RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME	245940.78
413-1000	1926	GL	2.15	BITUM TACK COAT	4140.90
436-1000	750	LF	8.00	ASPHALTIC CONCRETE CURB - 5 IN	6000.00
446-1100	3520	LF	5.20	PVMT REINF FABRIC STRIPS, TP 2, 18 INCH WIDTH	18304.00
634-1200	50	EA	96.88	RIGHT OF WAY MARKERS	4844.00
641-1200	750	LF	18.14	GUARDRAIL, TP W	13605.00
641-5001	6	EA	675.50	GUARDRAIL ANCHORAGE, TP 1	4053.00
641-5012	6	EA	1864.63	GUARDRAIL ANCHORAGE, TP 12	11187.78
Section Sub Total:					\$1,237,039.55

Section 2) DRAINAGE ITEMS					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
550-1180	1150	LF	38.29	STORM DRAIN PIPE, 18 IN, H 1-10	44033.50
550-1240	75	LF	45.52	STORM DRAIN PIPE, 24 IN, H 1-10	3414.00
550-1360	175	LF	66.11	STORM DRAIN PIPE, 36 IN, H 1-10	11569.25
550-2180	550	LF	33.42	SIDE DRAIN PIPE, 18 IN, H 1-10	18381.00
550-4118	40	EA	413.69	FLARED END SECTION 18 IN, SIDE DRAIN	16547.60
550-4218	12	EA	606.17	FLARED END SECTION 18 IN, STORM DRAIN	7274.04
550-4224	4	EA	744.88	FLARED END SECTION 24 IN, STORM DRAIN	2979.52
550-4236	4	EA	1068.75	FLARED END SECTION 36 IN, STORM DRAIN	4275.00
668-2100	25	EA	2455.35	DROP INLET, GP 1	61383.75
Section Sub Total:					\$169,857.66

Section 3) PERMANENT EROSION CONTROL ITEMS					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
441-6222	2500	LF	16.15	CONC CURB & GUTTER, 8 IN X 30 IN, TP 2	40375.00
603-2181	250	SY	35.36	STN DUMPED RIP RAP, TP 3, 18 IN	8840.00
603-7000	250	SY	4.35	PLASTIC FILTER FABRIC	1087.50
700-6910	8	AC	824.81	PERMANENT GRASSING	6598.48
700-7000	15	TN	65.41	AGRICULTURAL LIME	981.15
700-7010	19	GL	22.15	LIQUID LIME	420.85
700-8000	6	TN	458.16	FERTILIZER MIXED GRADE	2748.96
700-8100	734	LB	2.34	FERTILIZER NITROGEN CONTENT	1717.56
715-2200	7500	SY	1.59	BITUMINOUS TREATED ROVING, WATERWAYS	11925.00
Section Sub Total:					\$74,694.50

Section 4) TEMPORARY EROSION CONTROL ITEMS					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
163-0232	4	AC	375.19	TEMPORARY GRASSING	1500.76
163-0240	107	TN	164.91	MULCH	17645.37
163-0300	8	EA	1220.17	CONSTRUCTION EXIT	9761.36
163-0503	20	EA	454.35	CONSTRUCT AND REMOVE SILT CONTROL GATE, TP 3	9087.00
163-0522	175	EA	92.93	CONSTRUCT AND REMOVE TEMPORARY DITCH CHECKS - TYPE A SILT FENCE	16262.75
163-0523	125	EA	144.07	CONSTRUCT AND REMOVE TEMPORARY DITCH CHECKS - TYPE C SILT FENCE	18008.75
				CONSTRUCT AND REMOVE TEMPORARY DITCH	

163-0524	50	EA	178.74	CHECKS - STONE PLAIN RIP RAP/SAND BAGS	8937.00
163-0550	20	EA	208.95	CONSTRUCT AND REMOVE INLET SEDIMENT TRAP	4179.00
165-0010	5000	LF	0.73	MAINTENANCE OF TEMPORARY SILT FENCE, TP A	3650.00
165-0030	2500	LF	0.79	MAINTENANCE OF TEMPORARY SILT FENCE, TP C	1975.00
165-0040	294	EA	55.80	MAINTENANCE OF EROSION CONTROL CHECKDAMS/DITCH CHECKS	16405.20
165-0087	20	EA	112.19	MAINTENANCE OF SILT CONTROL GATE, TP 3	2243.80
165-0101	8	EA	500.48	MAINTENANCE OF CONSTRUCTION EXIT	4003.84
165-0105	20	EA	85.71	MAINTENANCE OF INLET SEDIMENT TRAP	1714.20
167-1000	2	EA	559.68	WATER QUALITY MONITORING AND SAMPLING	1119.36
167-1500	12	MO	746.02	WATER QUALITY INSPECTIONS	8952.24
171-0010	10000	LF	2.38	TEMPORARY SILT FENCE, TYPE A	23800.00
171-0030	5000	LF	3.67	TEMPORARY SILT FENCE, TYPE C	18350.00
Section Sub Total:					\$167,595.63

Section 5) SIGNING AND MARKING ITEMS					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
636-1020	125	SF	16.66	HIGHWAY SIGNS, TP 1 MATL, REFL SHEETING, TP 3	2082.50
636-1033	175	SF	20.25	HIGHWAY SIGNS, TP 1 MATL, REFL SHEETING, TP 9	3543.75
636-1041	130	SF	45.57	HIGHWAY SIGNS, TP 2 MATL, REFL SHEETING, TP 9	5924.10
636-2070	650	LF	9.01	GALV STEEL POSTS, TP 7	5856.50
653-0120	30	EA	75.17	THERMOPLASTIC PVMT MARKING, ARROW, TP 2	2255.10
653-1501	12500	LF	0.46	THERMOPLASTIC SOLID TRAF STRIPE, 5 IN, WHITE	5750.00
653-1502	15000	LF	0.46	THERMOPLASTIC SOLID TRAF STRIPE, 5 IN, YELLOW	6900.00
653-1704	300	LF	3.46	THERMOPLASTIC SOLID TRAF STRIPE, 24 IN, WHITE	1038.00
653-1804	2500	LF	1.68	THERMOPLASTIC SOLID TRAF STRIPE, 8 IN, WHITE	4200.00
653-3501	750	GLF	0.32	THERMOPLASTIC SKIP TRAF STRIPE, 5 IN, WHITE	240.00
653-6004	750	SY	2.74	THERMOPLASTIC TRAF STRIPING, WHITE	2055.00
653-6006	750	SY	2.68	THERMOPLASTIC TRAF STRIPING, YELLOW	2010.00
654-1001	200	EA	3.05	RAISED PVMT MARKERS TP 1	610.00
654-1003	60	EA	3.26	RAISED PVMT MARKERS TP 3	195.60
Section Sub Total:					\$42,660.55

Section 6) TRAFFIC SIGNAL ITEMS					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
636-1041	171	SF	45.57	HIGHWAY SIGNS, TP 2 MATL, REFL SHEETING, TP 9	7792.47
639-2001	1500	LF	2.69	STEEL WIRE STRAND CABLE, 1/4 IN	4035.00
639-4004	4	EA	5869.88	STRAIN POLE, TP IV	23479.52
647-1000	1	LS	55375.96	TRAFFIC SIGNAL INSTALLATION NO 1 - STPN-164-1(49)	55375.96
936-1001	1	EA	6506.50	CCTV SYSTEM, TYPE B	6506.50
936-8000	1	LS	5460.00	TESTING	5460.00
936-8500	1	LS	0.00	TRAINING	0.00
939-4040	1	EA	1718.99	TYPE D CABINET	1718.99
Section Sub Total:					\$104,368.44

Section 7) RAILROAD CROSSING					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
900-0000	1	EA	200000.00	RAILROAD CROSSING IMPROVEMENT	200000.00
Section Sub Total:					\$200,000.00

Total Estimated Cost: \$1,996,216.33

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

INTERDEPARTMENT CORRESPONDENCE

FILE CSMLP-0008-00(275) Chatham
P.I. # 0008275

OFFICE Jesup

DATE 04/29/2009

FROM Karon Ivery
District Utilities Engineer

TO Rajeev Shah, Parsons
ATTN

SUBJECT PRELIMINARY UTILITY COST (ESTIMATE)

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

FACILITY OWNER	NON- REIMBURSABLE	REIMBURSABLE
Atlanta Gas Light	\$50,000	0
Bellsouth/ATT	\$10,800	\$15,000
City of Savannah	0	0
Hargray	\$4,500	0
Georgia Power	\$50,000	\$110,000
Comcast	\$5,000	0
<hr/>		
Totals	\$120,300	\$125,000
30% Utilities Contingency:		\$37,500
Total Reimbursement Cost:		\$ 162,500

C: Jeff Baker, State Utilities Engineer;
Angela Whitworth, Office of Financial Management;
Lee Upkins, State Utilities preconstruction Engineer
District Office file

PROJ. NO. CSMLP-0008-00(275)
P.I. NO. 67131
DATE 5/8/2009

INDEX (TYPE)	DATE	INDEX
REG. UNLEADED	May-09	\$ 1.903
DIESEL		\$ 2.137
LIQUID AC		\$ 341.00

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

ASPHALT ADJUSTMENTS

PA=[((APM-APL)/APL)-0.05]xTMTxAPL

Asphalt

Price Adjustment (PA)			\$	204,170.34	\$	204,170.34
Monthly Asphalt Cement Price month placed (APM)	Max. Cap	125%	\$	767.25		
Monthly Asphalt Cement Price month project let (APL)			\$	341.00		
Total Monthly Tonnage of asphalt cement (TMT)				498.95		

ASPHALT	Tons	%AC	AC ton
Leveling		5.0%	0
12.5 OGFC		5.0%	0
12.5 mm	2702	5.0%	135.1
9.5 mm SP		5.0%	0
25 mm SP	3674	5.0%	183.7
19 mm SP	3603	5.0%	180.15
	9979		498.95

BITUMINOUS TACK COAT

Price Adjustment (PA)			\$	3,385.05	\$	3,385.05
Monthly Asphalt Cement Price month placed (APM)	Max. Cap	125%	\$	767.25		
Monthly Asphalt Cement Price month project let (APL)			\$	341.00		
Total Monthly Tonnage of asphalt cement (TMT)				8.272364376		

Bitum Tack

Gals	gals/ton	tons
1926	232.8234	8.27236438

CRACK SEAL ADJUSTMENTS

PROJ. NO.	CSMLP-0008-00(275)
P.I. NO.	67131
DATE	5/8/2009



FPA = (((FPM-FPL)/FPL)-.10)xQxF)FPL

GRADED AGGREGATE BASE			REGULAR UNLEADED	DIESEL	TOTALS
Fuel Price Adjustment (FPA)			\$ 8,061.20	\$ 10,938.36	\$ 18,999.56
Monthly Fuel Price for month work was accomplished (FPM)	Max. Cap	125%	\$ 4.282	\$ 4.808	
Monthly Fuel Price for month when project was let (FPL)			\$ 1.903	\$ 2.137	
Quantity Placed (Q)		15348			
Fuel Usage Factor (F)			0.24	0.29	

ASPHALT			REGULAR UNLEADED	DIESEL	
Fuel Price Adjustment (FPA)			\$ 15,505.37	\$ 71,119.29	\$ 86,624.65
Monthly Fuel Price for month work was accomplished (FPM)	Max. Cap	125%	\$ 4.282	\$ 4.808	
Monthly Fuel Price for month when project was let (FPL)			\$ 1.903	\$ 2.137	
Quantity Placed (Q)		9979			
Fuel Usage Factor (F)			0.71	2.90	

EARTHWORK			REGULAR UNLEADED	DIESEL	
Fuel Price Adjustment (FPA)			\$ 328.27	\$ 712.69	\$ 1,040.96
Monthly Fuel Price for month work was accomplished (FPM)	Max. Cap	125%	\$ 4.282	\$ 4.808	
Monthly Fuel Price for month when project was let (FPL)			\$ 1.903	\$ 2.137	
Quantity Placed (Q)	Cy	1000			
Fuel Usage Factor (F)			0.15	0.29	



PROJ. NO.
P.I. NO.
DATE

CSMLP-0008-00(275)
67131
5/8/2009

DETAILED CALCULATIONS

FPA = (((FPM-FPL)/FPL)-.10)x(Qx F/1000))FPL

		REGULAR		
		UNLEADED	DIESEL	TOTALS
Fuel Price Adjustment (FPA)		\$ -	\$ -	\$ -
Monthly Fuel Price for month work was accomplished (FPM)	125%	\$ 4.282	\$ 4.808	
Monthly Fuel Price for month when project was let (FPL)		\$ 1.903	\$ 2.137	
Quantity Placed (Q)	\$ -			
Fuel Usage Factor (F)		1.5	8	

Section	Cost
211 Bridge Excavation	\$ -
500 Superstr Conc Cl AA	\$ -
500 Class A Concrete	
500 Class AA Concrete	\$ -
500 Concrete Handrail	
500 Concrete Barrier	\$ -
501 Structural Steel	
507 Prestressed Conc Beams	\$ -
511 Super Reinforcement	\$ -
511 Bar Reinf Steel	\$ -
520 Piling	\$ -
520 Piling	
524 Drilled Caisson	\$ -
547 Pile Encasement	
547 Pile Encasement	
	\$ -

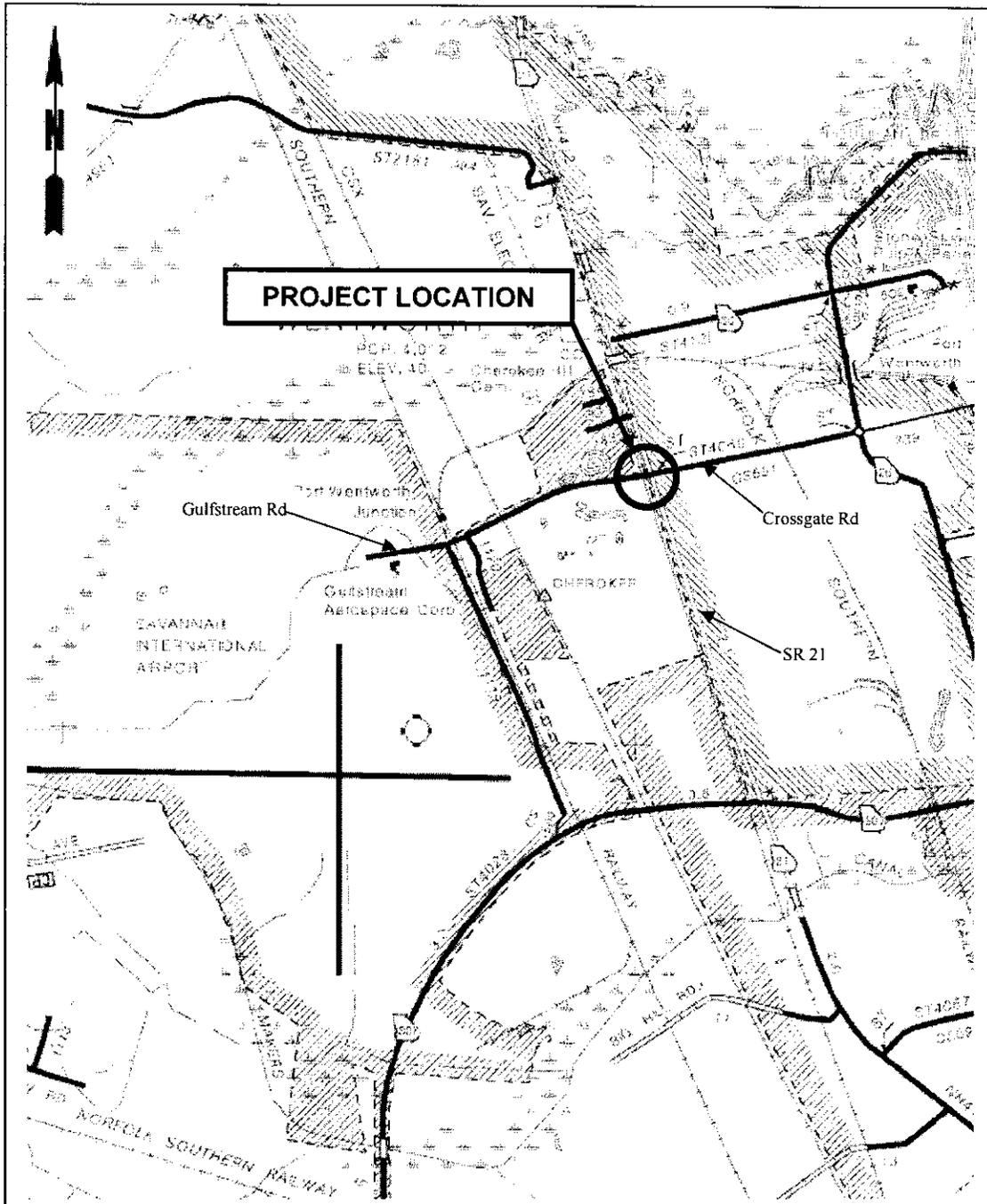
Assumes 80% of the estimated bridge cost will qualify for fuel adjustments

EST. BRIDGE		
COST	% COST WITH ADJ.	COST
	80%	\$ -
		\$ 106,665.17

BRIDGE ADJUSTMENTS

Project Concept Report page 12
Project Number: CSMLP-0008-00(275)
P. I. Number: 0008275
County: Chatham

ATTACHMENT 2
SKETCH LOCATION MAP

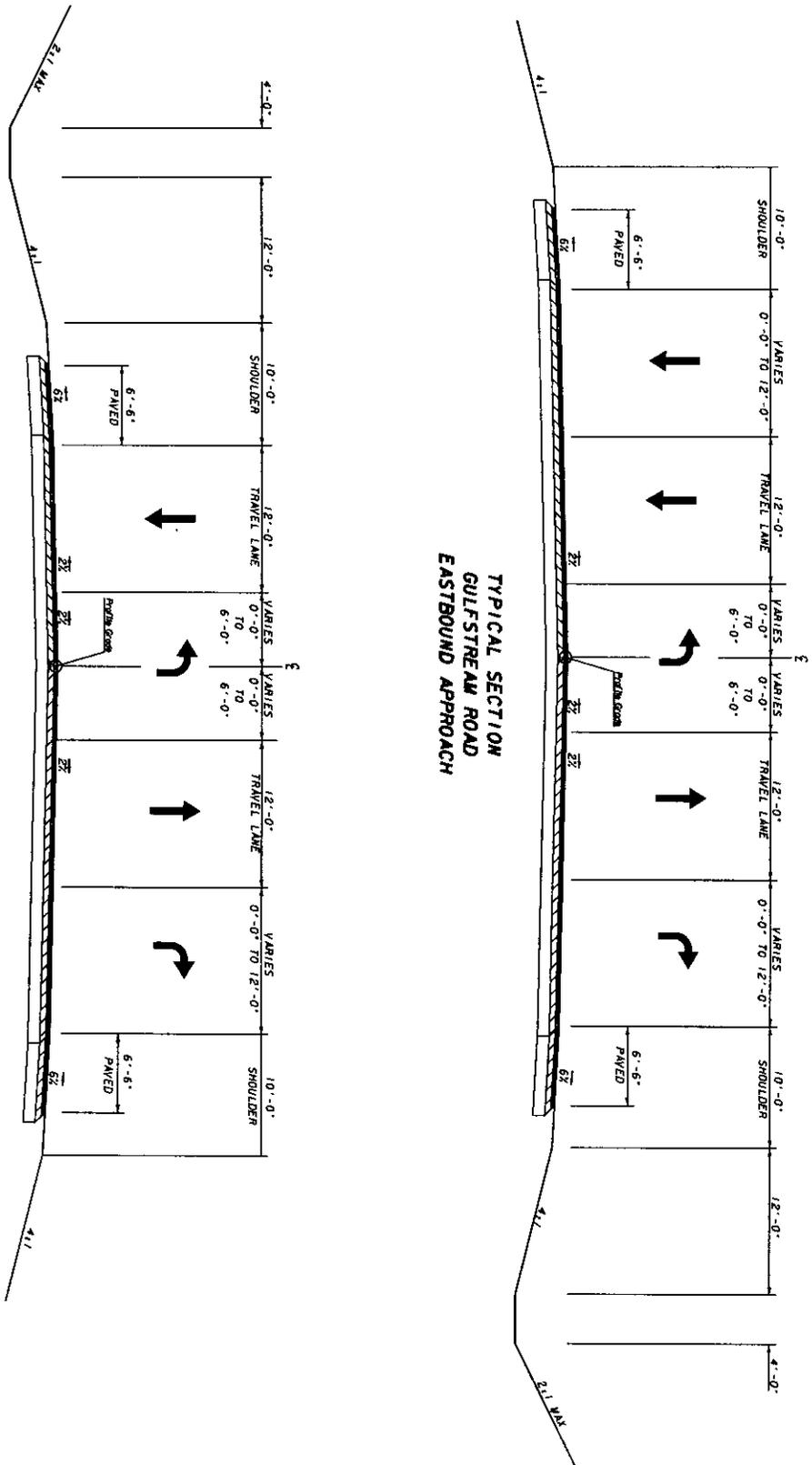


PROJECT LOCATION MAP

Project No. CSMLP-0008-00(275), P. I. No. 0008275
 Chatham County, Georgia
 Intersection of SR 21 at Crossgate Road/Gulfstream Road

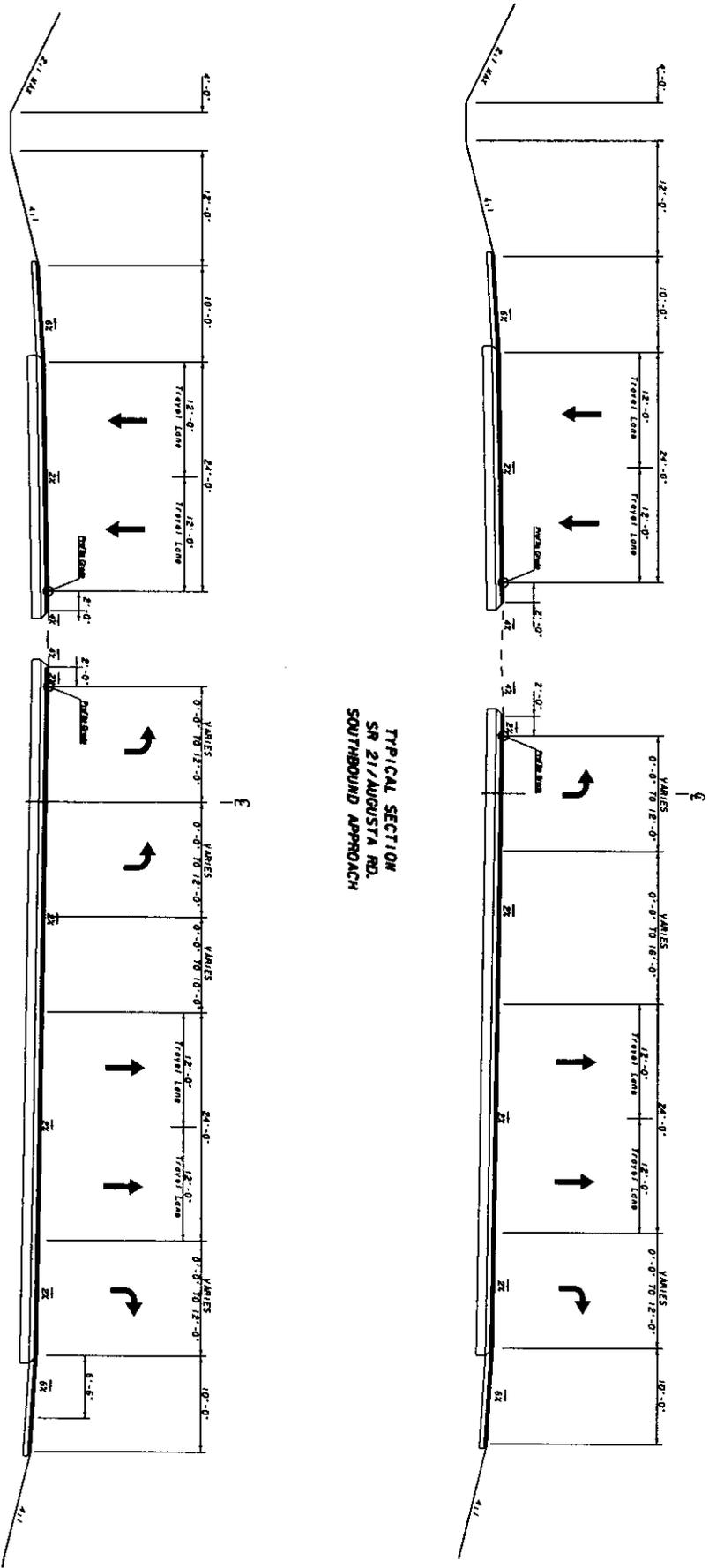
Project Concept Report page 13
Project Number: CSMLP-0008-00(275)
P. I. Number: 0008275
County: Chatham

ATTACHMENT 3 TYPICAL SECTIONS



TYPICAL SECTION
GULFSTREAM ROAD
EASTBOUND APPROACH

TYPICAL SECTION
CROSSGATE ROAD
WESTBOUND APPROACH



TYPICAL SECTION
SR 21/AUGUSTA RD.
SOUTHBOUND APPROACH

TYPICAL SECTION
SR 21/AUGUSTA RD.
NORTHBOUND APPROACH

Project Concept Report page 14
Project Number: CSMLP-0008-00(275)
P. I. Number: 0008275
County: Chatham

**ATTACHMENT 4
NEED AND PURPOSE**

Need and Purpose

Intersection of SR 21 at Crossgate Road/Gulfstream Road

Project No. CSMLP-0008-00(275)

P. I. No. 0008275

Chatham County

April 2009

(Draft)

1. Introduction

The G.D.O.T. Office of Financial Management added the project SR21 at CR9/Crossgate Road to the Department's Construction Work Program on April 12, 2005. The project background begins with a Traffic Engineering Report dated March 26, 1999 as requested by the City Administrator of Port Wentworth Georgia. The intersection was evaluated for the need of a traffic signal upgrade to include a protected left-turn phase. The report recognized the problem at peak hours that there is an increased volume of traffic on Gulfstream Road due to the shift change of both the Coastal State Prison and Gulfstream Aerospace. The report concludes that based on traffic volumes obtained during peak hours, there is a severe problem for motorists traveling eastbound on Gulfstream Road. Due to the extreme volume of left-turns, it was recommended that this intersection be upgraded to include a protected left-turn signal phase with widening to accommodate a 12 feet left-turn lane.

Within the study area, SR 21 is a four-lane divided road with a grass median. It has exclusive left-turn and right-turn lanes at the intersection at Crossgate Road/Gulfstream Road. The posted speed limit is 50 mph for both directions. Crossgate Road, the westbound approach intersecting with SR 21, is a two-way two-lane road with an exclusive right-turn lane at the intersection. The posted speed limit for Crossgate Road is 45 mph for both directions. The eastbound approach intersecting with SR 21 at the intersection is Gulfstream Road, which is a two-way two-lane road with an exclusive eastbound right-turn lane at this intersection. The posted speed limit is 35 mph for both directions. There is an existing at grade CSX railroad crossing on Gulfstream Road located approximately 70 feet west of the intersection at SR 21. Gulfstream Aerospace Corporation facility located to the west of the intersection on Gulfstream Road is a major traffic generator in the vicinity.

2. Traffic Operation

Currently the intersection of SR 21 at Crossgate Road/Gulfstream Road is controlled by a traffic signal with railroad preemption. The existing signal has split side street phases due to the shared left-through lane on Gulfstream Road and Crossgate Road. The right-turn movement for each approach is channelized with painted islands and under yield control. There are no sidewalks at this location, and no pedestrian signal is installed at this intersection.

The existing (2007) and design year (2034) no-build average daily traffic (ADT) volumes for SR 21, Crossgate Road and Gulfstream Road at this intersection are shown in Table 1.

Purpose and Need
 Project CSMLP-0008-00(275), Chatham County, PI No. 0008275
 Intersection of SR 21 at Crossgate Road/Gulfstream Road

Table 1 Existing and Future No-Build ADT

Road	Existing (2007)	Design Year (2034) No-Build
SR 21 North of Crossgate Road/Gulfstream Road	29,800	44,840
SR 21 South of Crossgate Road/Gulfstream Road	30,740	46,240
Crossgate Road	5,120	7,780
Gulfstream Road	10,120	15,860

The existing (2007) average daily traffic (ADT) for SR 21 is 29,800 and 30,740 vehicles per day for north and south of Crossgate Road/Gulfstream Road, respectively. The existing ADT for Crossgate Road and Gulfstream Road is 5,120 and 10,120 vehicles per day, respectively. It is estimated that for design year (2034), the ADT for SR 21 will be 44,840 and 46,240 vehicles per day for north and south of Crossgate Road/Gulfstream Road, respectively, and the ADT for Crossgate Road and Gulfstream Road will be 7,780 and 15,860 vehicles per day, respectively.

Capacity analysis is a set of procedures for estimating traffic-carrying ability of facilities over a range of defined operational conditions. It provides tools to assess facilities and to plan and design improved facilities [Highway Capacity Manual 2000]. Level of service (LOS) is a quality measure describing operational conditions, which is represented by six letters, from A to F, with LOS A representing the best operating conditions and LOS F the worst. For intersections capacity analysis, control delay is the measure of effectiveness (MOE) determining LOS. The LOS criteria for signalized intersections defined in Highway Capacity Manual 2000 are included in Table 2.

Table 2 LOS Criteria for Signalized Intersections

Level of Service	Control Delay Per Vehicle (sec/veh)
A	<=10
B	>10-20
C	>20-35
D	>35-55
E	>55-80
F	>80

Capacity analysis was conducted for existing (2007) and design year (2034) no-build conditions for the intersection of SR 21 at Crossgate Road/Gulfstream Road. The analysis results are summarized in Table 3.

Table 3 Capacity Analysis Results (Signalized)

Scenario \ Measure	AM		PM	
	y (sec/veh)	LOS	Delay (sec/veh)	LOS
2007 Existing	56.8	E	43.0	D
2034 No-Build	172.4	F	102.6	F

The analysis results indicate that this intersection currently operates at LOS E and D with corresponding delay of 56.8 sec/veh and 43.0 sec/veh during the a.m. and p.m. peak hour, respectively. The maximum volume to capacity (v/c) ratio is 1.03 for a.m. peak hour and no v/c ratio exceeds 1.0 in the p.m. peak hour. In the a.m. peak hour, all left-turn movements operate at LOS F; and in the p.m. peak hour, they operate at LOS E or F. The analysis results indicate that the capacity for left-turn traffic is exceeded or being approached for the present traffic.

Without improvements, the intersection will operate at LOS F during both peak hours with high vehicle delay in the design year. In the a.m. peak hour, all left-turn movements and SR 21 southbound through movement will operate at LOS F with significantly high delay, and the maximum v/c ratio will exceed 1.5. In the p.m. peak hour, all left-turn movements and SR 21 northbound through movement will operate at LOS F and the maximum v/c ratio will be 1.37. The analysis results indicate the need of additional capacity for left-turn traffic as well as through traffic on SR 21.

3. Land Use

Chatham County is one of the eastern most counties in Georgia with the state's fourth largest city, Savannah, located in the northeastern part of the county. The project is located in an urbanized area approximately seven miles northwest of central Savannah and to the east of the Savannah/Hilton Head International Airport. The land use within the project area is primarily commercial and industrial with a gas station in the northeast quadrant, an automotive dealership in the southeast quadrant, a landfill in the southwest quadrant, open waters in the northwest quadrant, and a CSX railroad parallel to SR 21 through the northwest and southwest quadrants. The area to the east of the intersection is primarily undeveloped wooded land. The Gulfstream Aerospace Corporation facility located approximately 0.9 mile west of the intersection on Gulfstream Road is one of the largest industrial facilities in Chatham County, and it is a major traffic generator in the vicinity.

4. Environmental Justice

The proposed project would not disproportionately burden any particular community. The proposed project is located entirely within Census Tract 107 within Block Groups 1, 3, and 4. Table 4 provides select demographic data for the census block groups, the census tract, and Chatham County for the purposes of comparison.

5. Relationship to Statewide and Local Transportation Plans

The improvement for this intersection was previously programmed with Project No. CSSTP-0007-00(141) and P.I. No. 0007141 included in the FY 2008 – 2011 Transportation Improvement Program (TIP) and was identified as a lump sum project. Related proposed projects in the vicinity of the project include the following:

- SR 21 from CR 590/Smith Ave to CS 661/Hendley Drive (P.I. No. M003350): This project is the milling and resurfacing of SR 21. This section of SR 21 needs resurfacing because the existing pavement is deteriorating. SR 21 was last resurfaced in 1995.

Purpose and Need
 Project CSMLP-0008-00(275), Chatham County, PI No. 0008275
 Intersection of SR 21 at Crossgate Road/Gulfstream Road

Table 4 Project Area Demographic Data (2000 US Census)

	Chatham County	Tract 107	Block Group 1	Block Group 3	Block Group 4
Total Population	232,048	4,484	2,328	928	654
Percent Minority	45.80%	32.80%	51.60%	8.30%	27.50%
Median Household Income	\$37,752	\$42,401	\$36,563	\$48,417	\$46,196
1999 Family Income for Household (percent of total households)					
\$0 to 25,000	25.00%	21.80%	28.00%	28.40%	18.30%
\$25,000 to 50,000	29.50%	31.30%	33.20%	26.30%	24.80%
\$50,000 to 75,000	19.90%	23.90%	19.70%	22.80%	35.60%
\$75,000 to 100,000	11.50%	16.80%	10.70%	13.30%	16.80%
\$100,000 or more	14.00%	6.20%	8.30%	8.80%	4.50%

- Intersection of Gulfstream Road at Robert Miller Jr. Road (P.I. No. 0008276): Intersection improvements which was previously included in Gulfstream Road Widening from West of Gulfstream Facility to SR 21 [Project No. CSMLP-0008-00(276), P.I. No. 008276]
- Jimmy Deloach Connector from State Route 21 near Smith Avenue to State Route 21 near Interstate 95 (P.I. No. 0008690): This project is sponsored by the Georgia Ports Authority and will provide enhanced roadway connection from the Ports area to I-95.

The intersection of SR 21 at Crossgate Road/Gulfstream Road is within the limits of the SR 21 milling and resurfacing project (P.I. No. M003350). The improvements for the intersection of Gulfstream Road at Robert Miller Jr. Road (P.I. No. 008276) will not have impact on the subject project (P.I. No. 008275). Jimmy Deloach Connector from State Route 21 near Smith Avenue to State Route 21 near Interstate 95 (P.I. No. 0008690) may potentially attract traffic, especially truck traffic from SR 21 after it is built.

6. Safety

Data for accidents occurring at this intersection for the latest available three years was collected from Georgia DOT, and intersection accident rates were calculated. The accident information is summarized in Table 5.

Table 5 Accident History for SR 21 at Crossgate Road/Gulfstream Road Intersection

Year	Rear End	Sideswipe	Angle	Head On	Struck Object	Run off Road	Total	Injury	Fatal	Accident Rate (Per 100M Entering Vehicles)
2005	12	3	3	1	-	-	19	12	0	133
2006	12	2	4	-	2	-	20	14	0	142
2007	14	-	2	-	1	-	17	6	0	123
Total	38	5	9	1	3	0	56	32	0	-
Percentage	68%	9%	16%	2%	5%	0%	100%	-	-	-

Purpose and Need
Project CSMLP-0008-00(275), Chatham County, PI No. 0008275
Intersection of SR 21 at Crossgate Road/Gulfstream Road

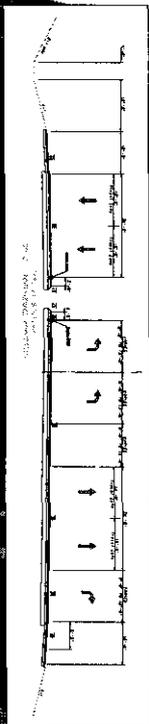
The accident data indicates that a total of 19, 20 and 17 accidents occurred in 2005, 2006 and 2007 with an accident rate of 133, 142, and 123 accidents per 100 million entering vehicles, respectively. (Georgia DOT does not maintain average/critical accident rates for intersections, so no comparison with statewide average rate was performed.) A total of 32 injuries and no fatalities were involved during the three years period. Among the total of 56 accidents that occurred in the three years, 38 were rear-end accidents, accounting for 68 percent of the total accidents. The large amount of rear-end accidents is an indication that vehicles experience high delay at the congested signalized intersection.

7. Need and Purpose Statement

The purpose of the project is to alleviate congestion and improve traffic operation and safety at this intersection by adding additional turn lanes as well as upgrading the traffic signal accordingly. In addition, the upgraded signal with appropriate phasing and timing would be beneficial for reducing the vehicle delay as well as improving safety.

Project Concept Report page 15
Project Number: CSMLP-0008-00(275)
P. I. Number: 0008275
County: Chatham

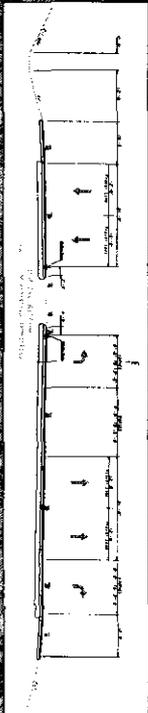
ATTACHMENT 5
PREFERRED ALTERNATE LAYOUT



BEGIN PROJECT
 CSMP1-0008-00(275)
 GULFSTREAM ROAD/CR 9
 STA 68+00.00

21

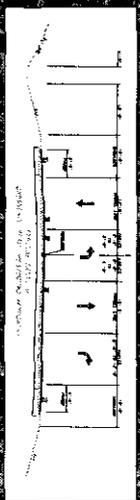
PETRA GAS STATION



GULFSTREAM ROAD
 STA 79+66.33
 SR 21 STA 208+62.21

CROSSGATE MOTORS

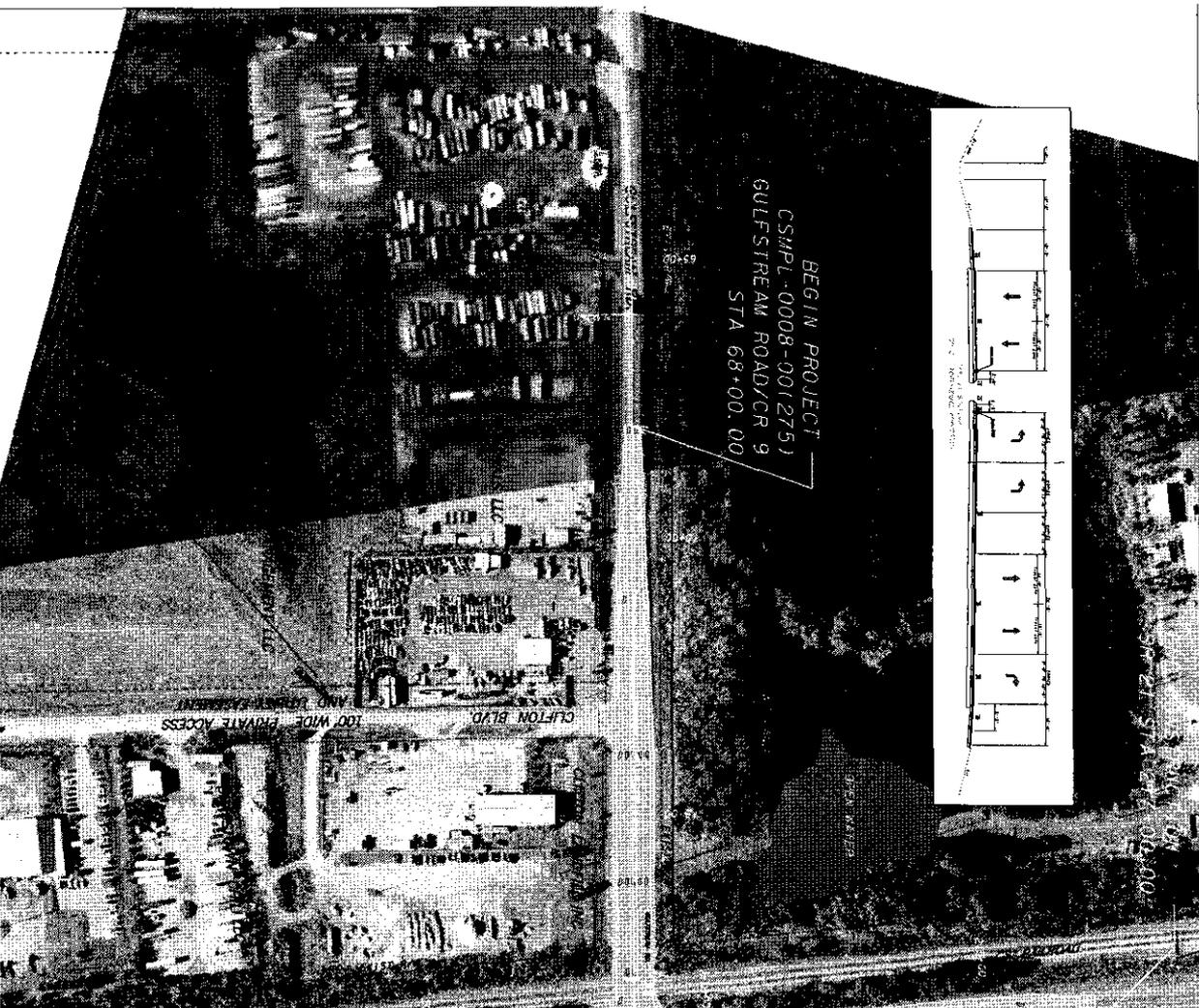
BEGIN PROJECT
 CSMP1-0008-00
 CROSSGATE ROAD
 STA 38+50.00



BEGIN CONSTRUCTION
 SR 21 STA 198+20.00

21

PREFERRED ALTERNATE
 INTERSECTION IMPROVEMENT OF
 SR 21 @ GULFSTREAM ROAD -
 CROSSGATE ROAD



CLEFTON BLVD
 100' WIDE PRIVATE ACCESS
 AND DRIVEWAY

Project Concept Report page 16
Project Number: CSMLP-0008-00(275)
P. I. Number: 0008275
County: Chatham

ATTACHMENT 6 ACCIDENT SUMMARIES

ACCIDENT SUMMARY

Data for accidents occurring at this intersection for the latest available three years was collected from Georgia DOT, and intersection accident rates were calculated. The accident information is summarized in Table 1.

Table 1 Accident History for SR 21 at Crossgate Road/Gulfstream Road Intersection

Year	Rear End	Sideswipe	Angle	Head On	Struck Object	Run off Road	Total	Injury	Fatal	Accident Rate (Per 100M Entering Vehicles)
2005	12	3	3	1	-	-	19	12	0	133
2006	12	2	4	-	2	-	20	14	0	142
2007	14	-	2	-	1	-	17	6	0	123
Total	38	5	9	1	3	0	56	32	0	-
Percentage	68%	9%	16%	2%	5%	0%	100%	-	-	-

The accident data indicates that a total of 19, 20 and 17 accidents occurred in 2005, 2006 and 2007 with an accident rate of 133, 142, and 123 accidents per 100 million entering vehicles, respectively. (Georgia DOT does not maintain average/critical accident rates for intersections, so no comparison with statewide average rate was performed.) A total of 32 injuries and no fatalities were involved during the three years period. Among the total of 56 accidents that occurred in the three years, 38 were rear-end accidents, accounting for 68 percent of the total accidents. The large amount of rear-end accidents is an indication that vehicles experience high delay at the congested signalized intersection.

Project Concept Report page 17
Project Number: CSMLP-0008-00(275)
P. I. Number: 0008275
County: Chatham

ATTACHMENT 7 CAPACITY ANALYSIS

1. Introduction

The intersection of SR 21 at Crossgate Road is located northwest of Savannah in Chatham County in the state of Georgia. The side road on the westbound approach of this intersection is known as Crossgate Road, and the side road on the eastbound approach is known as Gulfstream Road. Gulfstream Aerospace Facility located west of this intersection on Gulfstream Road is a major traffic generator in the vicinity. The purpose of this study is to facilitate concept development for SR 21 at Crossgate Road intersection improvement.

Traffic data was collected and capacity analysis was performed to identify the deficiencies of the existing condition and appropriate future improvements. A no-build and two build alternatives were analyzed and the analysis results were summarized in this report.

2. Existing Conditions

SR 21 is a four-lane divided road with grass median within the study area. It has exclusive left-turn and right-turn lanes at the intersection at Crossgate Road. The posted speed limit is 50 mph for both directions. The existing (2007) average daily traffic (ADT) is 29800 and 30740 vehicles per day for north and south of Crossgate Road, respectively. Crossgate Road, the westbound approach intersecting with SR 21, is a two-way two-lane road with an exclusive right-turn lane at the intersection. The posted speed limit for Crossgate Road is 45 mph for both directions and the existing ADT is 5120 vehicles per day. The eastbound approach intersecting with SR 21 at the intersection is Gulfstream Road. Gulfstream Road is a two-way two-lane road with an exclusive eastbound right-turn lane at this intersection. The posted speed limit is 35 mph for both directions. The existing ADT is 10120 vehicles per day. There is an existing at grade railroad crossing on Gulfstream Road located approximately 70 feet west of the intersection at SR 21.

Currently the intersection of SR 21 at Crossgate Road is controlled by a traffic signal with railroad preemption. The existing signal has split side street phase due to the shared left-through lane on Gulfstream Road and Crossgate Road. The right-turn movement for each approach is channelized with painted islands and under yield control. There are no sidewalks at this location, and no pedestrian signal is installed at this intersection.

3. Accident Analysis

Data for accidents occurring at this intersection for the latest available three years were collected from Georgia DOT and summarized in Table 1.

Table 1 Accident History for SR 21 at Crossgate Road Intersection

Year	Rear End	Sideswipe	Angle	Head On	Struck Object	Run off Road	Total	Injury	Fatal
2005	12	3	3	1	-	-	19	12	0
2006	12	2	4	-	2	-	20	14	0
2007	14	-	2	-	1	-	17	6	0
Total	38	5	9	1	3	0	56	32	0
Percentage	68%	9%	16%	2%	5%	0%	100%	-	-

The accident data indicates that a total of 19, 20 and 17 accidents occurred in 2005, 2006 and 2007, respectively. A total of 32 injuries and no fatalities were involved during the three years period. Among the total of 56 accidents that occurred in the three years, 38 were rear-end accidents, accounting for 68 percent of the total accidents.

4. Traffic Forecast

Traffic forecast was performed for opening year (2014) and design year (2034) for SR 21 at Crossgate Road intersection. Existing traffic count data were collected and used as the basis for the forecast. Georgia DOT historical traffic count data were reviewed and analyzed to determine future traffic growth rate. The impact of Gulfstream Aerospace facility expansion on future traffic was also considered in the traffic forecast.

4.1 Existing Traffic Data

Georgia DOT provided turning movement count data for the intersection of SR 21 at Crossgate Road collected in June 2007 and 24 hours count data for Gulfstream Road collected in September 2007 as well as heavy vehicle percentages calculated based on these counts. These data were used as the basis for the traffic forecast for this project. In addition, the following traffic count data were also reviewed and considered in the traffic forecast.

- Turning movement count data for SR 21 at Crossgate Road intersection and 24 hours count data for Gulfstream Road and SR 21 collected in 2006 for a proposed Gulfstream Road widening project;
- Turning movement count data for SR 21 at Crossgate Road intersection and 24 hours count data for each approach of the intersection collected in 2007 and included in a traffic study report for this intersection provided by Georgia DOT.

The existing 24 hours traffic count data indicated that the ratio of peak hour traffic to daily traffic, K factor, was approximately 0.1. Existing raw count data are included in Appendix A.

4.2 Traffic Growth Rate

Historical (1990-2007) traffic count data were collected from Georgia DOT for SR 21 south of Crossgate Road (TC No. 0116) and Crossgate Road east of SR 21 (TC No. 0821). They are the nearest count stations to the project. These data were reviewed and a regression analysis was performed to analyze both historical and future traffic growth in the project area. In addition, traffic forecast provided by Georgia DOT for Gulfstream Road was also reviewed. An average of 1.5 percent future traffic growth rate was determined for this project.

4.3 Trip Generation

The Gulfstream Aerospace Facility located west of this intersection on Gulfstream Road is a major traffic generator in this area. In a meeting with Gulfstream staff in January 2009, it was learned that the expansion of the Gulfstream facility originally planned to be completed by 2012 had already been completed by March 2008. Approximately 1,400 additional personnel have been employed since then. Trip generation for this study was conducted based on the number of added employees.

It was estimated that 2980, 560 and 500 vehicle traffic entering and exiting the facility had been generated during an average day, a.m. peak hour, and p.m. peak hour, respectively.

4.4 Traffic Forecast

Based on the existing traffic count data, the determined average traffic growth rate of 1.5 percent was applied in calculating opening year and design year traffic volumes. However, since the new traffic generated by the expanded Gulfstream facility was not included in the existing traffic, the estimated new traffic based on trip generation was added to the opening year and design year traffic volumes calculated using traffic growth rate. The projected opening year and design year traffic volumes are included in Appendix B.

5. Capacity Analysis

Capacity analysis is a set of procedures for estimating traffic-carrying ability of facilities over a range of defined operational conditions. It provides tools to assess facilities and to plan and design improved facilities [Highway Capacity Manual 2000]. Level of service (LOS) is a quality measure describing operational conditions, which is represented by six letters, from A to F, with LOS A representing the best operating conditions and LOS F the worst. For intersections capacity analysis, control delay is the measure of effectiveness (MOE) determining LOS. The LOS criteria for unsignalized and signalized intersections defined in Highway Capacity Manual 2000 are included in Table 2 and Table 3, respectively.

Table 2 LOS Criteria for Two-Way Stop-Controlled Intersections

Level of Service	Average Control Delay (sec/veh)
A	0-10
B	>10-15
C	>15-25
D	>25-35
E	>35-50
F	>50

Table 3 LOS Criteria for Signalized Intersections

Level of Service	Control Delay Per Vehicle (sec/veh)
A	<=10
B	>10-20
C	>20-35
D	>35-55
E	>55-80
F	>80

Capacity analysis was performed for a.m. and p.m. peak hours for existing (2007) conditions, opening year (2014) and design year (2034) no-build and build conditions in this study. *Synchro plus SimTraffic 7* software was used for the analysis and the Synchro and SimTraffic analysis reports are included in Appendix C.

5.1 Existing Conditions

Capacity analysis was performed for the existing geometric and control conditions for the intersection, and the analysis results are summarized in Table 4.

**Table 4 SR 21 at Crossgate Rd Intersection
Capacity Analysis Results for Existing (2007) Conditions (Signalized)**

A.M.		P.M.	
Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
56.8	E	43.0	D

The analysis results indicate that this intersection currently operates at LOS E and D with corresponding delay of 56.8 sec/veh and 43.0 sec/veh during the a.m. and p.m. peak hour, respectively. The maximum volume to capacity (v/c) ratio is 1.03 for a.m. peak hour and no v/c ratio exceeds 1.0 in the p.m. peak hour. In the a.m. peak hour, all left-turn movements operate at LOS F; and in the p.m. peak hour, they operate at LOS E or F.

5.2 No-Build Conditions

Capacity analysis was performed for no-build geometric conditions for the intersection for both a.m. and p.m. peak hours for open year and design year. The analysis results are included in Table 5.

**Table 5 SR 21 at Crossgate Rd Intersection
Capacity Analysis Results for No-Build Conditions (Signalized)**

Year	A.M.		P.M.	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2014	75.0	E	55.5	E
2034	172.4	F	102.6	F

The no-build analysis indicates that the intersection will operate at LOS E during both a.m. and p.m. peak hours in the opening year with the maximum v/c ratio exceeding 1.0. In the a.m. peak hour, all left-turn movements and SR 21 southbound through movement will operate at LOS F. The intersection delay indicates that the overall operation of the intersection is approaching LOS F (threshold delay 80.0 sec/veh) in the a.m. peak hour.

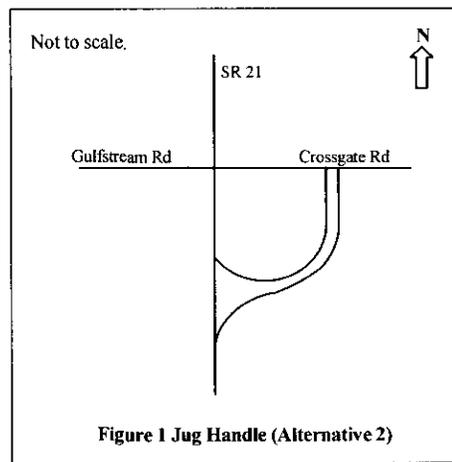
In the design year, the intersection will operate at LOS F during both peak hours with high vehicle delay. In the a.m. peak hour, all left-turn movements and SR 21 southbound through movement will operate at LOS F with significantly high delay, and the maximum v/c ratio will exceed 1.5. In the p.m. peak hour, all left-turn movements and SR 21 northbound through movement will operate at LOS F and the maximum v/c ratio will be 1.37.

5.3 Build Conditions

Two build alternatives for the intersection were considered in this study. Alternative 1 includes the addition of an exclusive left-turn lane to eastbound and westbound approaches at the intersection

and an extension to the existing right-turn lanes for all approaches. A second exclusive left-turn lane is also proposed for this alternative to accommodate the high left-traffic volume in the a.m. peak hour.

Alternative 2 includes the addition of an exclusive left-turn lane on Crossgate Road westbound approach and an extension of the right-turn lanes to eastbound, westbound, and southbound approaches. Another major proposed improvement to this intersection is to build a “Jug Handle” at the southeast quadrant of the intersection to accommodate the northbound and eastbound left-turn traffic (See Figure 1). This alternative will create an additional at-grade intersection on Crossgate Road and SR 21, respectively. For the intersection on SR 21, it is proposed to build an acceleration lane to accommodate the traffic merging onto SR 21 northbound approach from the “Jug Handle”, and no control is proposed at this location.



Capacity analysis was performed for a.m. and p.m. peak hours for the opening year and design year for both build alternatives for the intersection of SR 21 at Crossgate Road. Based on a review on SR 21 median opening locations and the properties/businesses along SR 21, it was determined that the SR 21 northbound U-turn movement is not necessary at this intersection. However, the southbound U-turn at this intersection should still be allowed due to the access need for a property located to the north of the intersection on eastside of SR 21. Therefore, the SR 21 northbound U-turn traffic was eliminated while southbound U-turn was maintained in the analysis. The analysis results are summarized in Table 6.

**Table 6 SR 21 at Crossgate Road Intersection
Capacity Analysis Results for Build Conditions (Signalized)**

Year/Alternative		A.M.		P.M.	
		Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2014	Alternative 1	44.4	D	46.4	D
	Alternative 2	24.8	C	29.7	C
2034	Alternative 1	97.5	F	59.8	E
	Alternative 2	67.2	E	76.8	E

The capacity analysis indicates that for alternative 1, the intersection will operate at LOS D during both a.m. and p.m. peak hours in the opening year with an overall intersection delay less than 50 sec/veh. The maximum v/c ratio for a.m. and p.m. peak hour will be 1.00 and 1.08, respectively. In the a.m. peak hour, the westbound through movement, northbound and southbound left-turn movements will operate at LOS F with all other movements operating at LOS E or better. In the p.m. peak hour, all movements will operate at LOS E or better. In the design year, the intersection will operate at LOS F and E with corresponding intersection delay of 97.5 sec/veh and 57.8 sec/veh during the a.m. and p.m. peak hour, respectively. The maximum v/c ratio will be 1.31 and 1.16 for the a.m. and p.m. peak hour, respectively.

A breakdown analysis was performed for the build alternative 1 for the intersection. The analysis indicates that the operation of the intersection will drop to LOS F in 2030, which is 4 years before the design year.

For build alternative 2, the intersection of SR 21 at Crossgate Road will operate at LOS C during both peak hours in the opening year with an overall delay of 24.8 sec/veh and 29.7 sec/veh for a.m. and p.m. peak hour, respectively. SR 21 southbound left-turn movement will operate at LOS F during the p.m. peak hour; all other movements will operate at LOS E or better during both peak hours. The maximum v/c ratio for both peak hours will be less than 1.0.

In the design year, this intersection will operate at LOS E during both peak hours with an overall delay of 67.2 sec/veh and 79.2 sec/veh for the a.m. and p.m. peak hour, respectively. During the a.m. peak hour, the westbound through movement, southbound left-turn and southbound through movements will operate at LOS F and the maximum v/c ratio will be 1.16. During the p.m. peak hour, all right-turn movements and southbound through movement will operate at LOS A or B; however, all other movements will operate at LOS F and the maximum v/c ratio will be 1.37.

The operation of the new intersection on Crossgate Road associated with the “Jug Handle” was also analyzed and the results are summarized in Table 7.

Table 7 Crossgate Road at "Jug Handle" Intersection for Alternative 2

Year	A.M.		P.M.	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2014	13.4	B	13.6	B
2034	19.4	C	20.3	C

Note: The delay and LOS shown in the table are for northbound approach with critical movements.

The capacity analysis indicates that the critical movement at the intersection of Crossgate Road and the “Jug Handle” will operate at LOS C or better during both a.m. and p.m. peak hours in the opening year and design year with low delay.

To facilitate the determination of the turn lane length needed for each movement and appropriate spacing between intersections, traffic simulation was performed using SimTraffic for the build alternatives for the design year. In addition, Georgia DOT requirements on turning lanes and intersection spacing were also reviewed in determining the turn lane lengths. The storage lengths

estimated from SimTraffic, Georgia DOT minimum storage, taper and intersection spacing requirements, and recommendations are listed in Table 8 and 9 for alternative 1 and 2, respectively.

Traffic simulation also indicated that the traffic merging onto SR 21 northbound approach from the “Jug Handle” would operate well with a 95 percentile queue of 4 vehicles.

6. Conclusions

This traffic study indicated that the SR 21 at Crossgate Road intersection currently operates at LOS E and will continue to operate at the same LOS in the opening year for no-build conditions. However, in the opening year, the intersection delay indicated that the operation was approaching LOS F in the a.m. peak hour. In the design year, the intersection will operate at LOS F with high delay for no-build conditions. For the build alternative 1, the intersection will operate at LOS D in the opening year and the LOS will drop to F in 2030. For build alternative 2, the intersection will operate at LOS C and E in the opening year and design year, respectively. The northbound approach with critical movements at the new intersection associated with the “Jug handle” on Crossgate Road will operate at LOS B and C in the opening year and design year, respectively. The traffic merging onto SR 21 northbound approach from the “Jug Handle” will operate well.

Overall, the intersection of SR 21 at Crossgate Road will operate better for alternative 2 than alternative 1. However, alternative 2 will create additional traffic conflict points on both Crossgate Road and SR 21 although no operation issue would be caused.

Table 8 SR 21 at Crossgate Road Intersection Improvements (Alternative 1)

Approach	Movement	95 Percentile Queue Length Estimated from Traffic Analysis	Minimum Storage Length and Taper Required (GDOT Regulations for Driveway and Encroachment Control)	Full Width Storage Estimated Based on Number of Vehicles arriving during 1.5 Signal Cycle (GDOT Regulations for Driveway and Encroachment Control)	Recommendation
Gulfstream Road Eastbound	Left-Turn Movement	1250 ft	160 ft full width storage, 250 ft approach taper, 50' bay taper	435 ft	Add an exclusive left-turn lane with 435 ft full width storage plus 250 ft approach taper and 100 ft bay taper
	Through Movement	2000 ft	-	-	-
	Right-Turn Movement	1050 ft	100 ft full width storage, 50 ft taper	630 ft	Extend the existing right-turn full width storage to 630 ft plus 100 ft taper
Crossgate Road Westbound	Left-Turn Movement	100 ft	235 ft full width storage, 540 ft approach taper, 100' bay taper	75 ft	Add an exclusive left-turn lane with 235 ft full width storage plus 540 ft approach taper and 100 ft bay taper
	Through Movement	750 ft	-	-	-
	Right-Turn Movement	200 ft	175 ft full width storage, 100 ft taper	270 ft	Extend the existing right-turn full width storage to 200 ft plus 100 ft taper
	Departure Lanes		-	-	Add 750 ft full width lane and 250 ft taper (Estimated based on traffic analysis and MUTCD)
SR 21 Northbound	Left-Turn Movement	1250 ft	285 ft full width storage, 100 ft taper	525 ft	Add an exclusive left-turn lane with 525 ft full width storage plus 100 ft taper
	Through Movement	1600 ft	-	-	-
	Right-Turn Movement	1100 ft	225 ft full width storage, 100 ft taper	195 ft	Extend the existing right-turn full width storage to 225 ft plus 100 ft taper
SR 21 Southbound	Left-Turn Movement	750 ft	285 ft full width storage, 100 ft taper	195 ft	Extend the existing left-turn full width storage to 285 ft plus 100 ft taper
	Through Movement	1050 ft	-	-	-
	Right-Turn Movement	600 ft	225 ft full width storage, 100 ft taper	720 ft	Extend the existing right-turn full width storage to 600 ft plus 100 ft taper

Table 9 SR 21 at Crossgate Road Intersection Improvements (Alternative 2)

Approach	Movement	95 Percentile Queue Length Estimated from Traffic Analysis	Minimum Storage Length and Taper Required (GDOT Regulations for Driveway and Encroachment Control)	Full Width Storage Estimated Based on Number of Vehicles arriving during 1.5 Signal Cycle (GDOT Regulations for Driveway and Encroachment Control)	Recommendation
Gulfstream Road Eastbound at SR 21	Through Movement	1750 ft	-	-	-
	Right-Turn Movement	1200 ft	100 ft full width storage, 50 ft taper	630 ft	Extend the existing right-turn full width storage to 630 ft plus 100 ft taper
Crossgate Road Westbound at SR 21	Left-Turn Movement	1150 ft	235 ft full width storage, 540 ft approach taper, 100' bay taper	75 ft	Add an exclusive left-turn lane with 235 ft full width storage plus 540 ft approach taper and 100 ft bay taper
	Through Movement	1100 ft	-	-	-
	Right-Turn Movement	350 ft	175 ft full width storage, 100 ft taper	270 ft	Extend the existing right-turn full width storage to 350 ft plus 100 ft taper
SR 21 Northbound at Crossgate Road	Through Movement	1200 ft	-	-	-
SR 21 Southbound at Crossgate Road	Left-Turn Movement	500 ft	285 ft full width storage, 100 ft taper	195 ft	Extend the existing left-turn full width storage to 500 ft plus 100 ft taper
	Through Movement	900 ft	-	-	-
	Right-Turn Movement	550 ft	225 ft full width storage, 100 ft taper	720 ft	Extend the existing right-turn full width storage to 550 ft plus 100 ft taper
Crossgate Road Eastbound at "Jug Handle)	Through Movement	-	-	-	-
	Right-Turn Movement	-	175 ft full width storage, 100 ft taper	-	Add a right-turn full width storage to 175 ft plus 100 ft taper
"Jug Handle" Northbound at Crossgate Road	Left-Turn Movement	350 ft	235 ft full width storage, 100 ft taper	-	-
	Right-Turn Movement	350 ft	175 ft full width storage, 100 ft taper	-	Add a right-turn full width storage to 350 ft plus 100 ft taper
SR 21 Northbound at "Jug Handle" before Diverge Point	Deceleration Lane	-	225 ft full width storage, 100 ft taper	-	Add a right-turn full width storage to 225 ft plus 100 ft taper
SR 21 Northbound at "Jug Handle" before Merge Point	Through Movement	150 ft	-	-	-
SR 21 Northbound at "Jug Handle" after Merge Point	Acceleration Lane	-	50 ft taper	-	Add a full width acceleration lane of 300 ft plus 100 ft taper
Distance along Crossgate Road between SR 21 and "Jug Handle"	-	1100 ft	-	-	1100 ft
Distance along SR 21 between "Jug Handle" Diverge and Merge Points	-	150 ft	275 ft (between exit and entrance which were considered as driveways)	-	275 ft
Distance along SR 21 between "Jug Handle" Merge Point and Crossgate Road	-	1500 ft	-	-	1200 ft

Project Concept Report page 18
Project Number: CSMLP-0008-00(275)
P. I. Number: 0008275
County: Chatham

ATTACHMENT 8
MEETING MINUTES – INITIAL CONCEPT TEAM MEETING

Meeting Summary

PURPOSE: Initial Concept Team Meeting

PROJECT: Project CSMLP-0008-00(275), PI 0008275, and CSMLP-0008-00(276), PI 0008276, Chatham County Intersection Improvements of SR 21 @ Crossgate Rd and Gulfstream Road @ Robert Miller Jr. Road

DATE: May 13, 2009

TIME: 10:30 AM

PLACE: GDOT Area 5 Office
630 West Boundary Street
Savannah, GA 31402

RECORD BY: Rajeev Shah

DISCUSSIONS:

An Initial Concept Team meeting was held on May 13, 2009 at the Georgia Department of Transportation Area 5 Savannah Office to review the need and purpose statement and draft project concept report on both subject projects. Following the meeting GDOT and Parsons team members visited both project sites. A list of meeting attendees is attached to these meeting minutes.

The purpose of the meeting was:

- Present project need and purpose, concept alternatives and draft concept report
- Obtain feedback and identify any issues
- Determine next steps

Notes below summarize discussions and decisions from the meeting.

Keith Stewart conducted the meeting, and opened the meeting by providing a brief description of the two projects and by asking everyone to introduce themselves. The Parsons team presented need and purpose statements, draft concept reports and conceptual alternatives for both projects.

Parsons Team gave a brief overview of both projects describing the need, location, scope of work to be performed and schedule for both projects. Concept reports for both projects were read and all concept alternatives considered were presented, along with the reasons for the selection of the preferred alternative. Parsons Team presented a traffic simulation of the preferred alternatives for the design year 2034 traffic condition for both projects.

CSMLP-0008-00(8275) SR 21 @ Crossgate Road

The preferred alternative for the improvement of intersection of SR 21 @ Crossgate-Gulfstream Road recommends the addition of an exclusive left-turn lane to both eastbound and westbound approaches and extension of their existing right turn lanes. It also provides an additional left-turn lane for the northbound traffic and extension of right-turn lanes for both northbound and southbound traffic. In addition, the northbound and the southbound left-turn lanes will be separated by a Type-B Median. The existing traffic signal will be upgraded to incorporate the reconfigured lane configurations of the intersection. In addition to a No-Build alternative, the other alternatives considered included variations of 4-legged intersections and Jughandle intersections.

Comments and Responses – CSMLP-0008-00(0275)

- Brad Saxon, GDOT, pointed out that the concept report on Page 6 indicates that there is no curb and gutter on Crossgate Road; however, the concept layout showed curb and gutter on both the northeast and southeast quadrants. Parsons agreed to revise the concept report to eliminate this discrepancy.
- Cynthia Philips, GDOT, indicated that GDOT will likely request crosswalks at all approaches to the intersection. This will move the stop bars back, resulting in insufficient storage space for tractor trailers between the new stop bar and the CSX Railroad at grade crossing on Gulfstream Road. Parsons will look into this condition to study further and agreed to reflect this change in the final concept layout as well as preliminary design if needed.
- In response to a question regarding the impact on CSX Railroad by the alternative that provides three thru lanes for SR 21, Parsons explained that any widening on SR 21 would either require right-of-way from the CSX Railroad on the west or from the gas station and car dealership on the east.

CSMLP-0008-00(8276) Gulfstream Road @ Robert Miller Jr. Road

For CSMLP-0008-00(8276), the preferred alternative recommends the addition of an exclusive left-turn lane to westbound approach of Gulfstream Road, the extension of the existing exclusive right-turn lane on eastbound approach of Gulfstream Road, and provision of an exclusive left-turn lane and an exclusive right-turn lane for the northbound approach of Robert Miller Jr. Road. The existing traffic signal will be upgraded to accommodate the reconfigured intersection. Other alternatives considered included a No-Build Alternative and variation of alternatives based on the number of left-turn lanes on the Robert Miller Jr. Road approach.

Comments and Responses – CSMLP-0008-00(0276)

- In response to a question if the operation of the proposed intersection of Gulfstream Road @ Robert Miller Jr. Road will be impacted by the intersection of Robert Miller Jr. Road at Bourne Avenue, the roadway network has been evaluated. The intersection at Bourne Avenue is about 1.3 miles south of the subject intersection, and hence no impact is anticipated.

Since there were minimal comments, GDOT and Parsons agreed that this initial concept team meeting could serve as the final concept team meeting for both projects.

Site Visit

After the meeting, GDOT personnel and Parsons Team visited both projects to review the existing conditions and determine additional issues, if any, to be addressed. An unknown utility was observed near the intersection of Gulfstream Road and Robert Miller Jr. Road, and the Parsons team surveyor, who was in the field at the time, was asked to locate and identify it. No other issues were observed at either location.

Next Steps

- Parsons will update the preferred alternative layout to accommodate the changes to be made for the intersection of SR 21 @ Crossgate Road to avoid issues with the CSX Railroad at-grade crossing.
- Parsons will update the concept report to incorporate the comments made during the initial concept team meeting.
- A final concept report will be submitted to GDOT for approval.

Meeting Attendees:

Name	Organization	Phone	Email
Keith Stewart	GDOT	912-427-5864	KStewart@dot.ga.gov
Dennis Odom	GDOT	912-427-5716	DOdom@dot.ga.gov
Stephen Thomas	GDOT Utilities	912-427-5779	SThomas@dot.ga.gov
Brad Saxon	GDOT Preconstruction	912-427-5715	BSaxon@dot.ga.gov
Donnie Boyd	GDOT	912-370-2588	DBoyd@dot.ga.gov
Bryan Wingate	GDOT	912-427-1983	BWingate@dot.ga.gov
Cynthia Phillips	GDOT Traffic Operations	912-427-5767	CyPhillips@dot.ga.gov
Greg Wasdin	GDOT	912-427-5864	GWasdin@dot.ga.gov
James Sapp	GDOT	912-427-5771	JSapp@dot.ga.gov
Troy Pittman	GDOT	912-427-5864	TPittman@dot.ga.gov
Chris Needham	GDOT	912-427-1966	CNeedham@dot.ga.gov
Bobby Overstreet	Atlanta Gas Light	912-239-6510	BOverstr@aglresources.com
Greg Paradice	AT&T	912-682-4574	mp2115@att.com
Todd Cook	Hargray	843-815-1698	Todd.Cook@htc.hargray.com
Mike Weiner	City of Savannah	912-651-6603	MWeiner@savannahga.org
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Rajeev Shah	Parsons	678-969-2418	Rajeev.Shah@parsons.com

GEORGIA DEPARTMENT OF TRANSPORTATION

SR 21 @ Crossgate/Gulfstream Road – PI #0008275 Intersection Improvement Project and
 Gulfstream Road @ Robert Miller Road-PI #0008276 Intersection Improvement Project
 Chatham County

Sign-In Sheet Initial Concept Team Meeting

Location: GDOT Area 5 Office
 630 West Boundary Street
 Savannah, Georgia 31402

Date: May 13, 2009
 Time: 10:30 A.M.

SR No.	NAME	AFFILIATION	PHONE	EMAIL
1	KEITH STEWLET	GDOT	912-427-586A	kstewlet@dot.ga.gov
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13	CYNTHIA PHILLIPS	GDOT T.O.	912-427-5767	Cyphillips@dot.ga.gov
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