

ORIGINAL TO GENERAL FILES

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

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

FILE P.I. #0007885 **OFFICE** Design Policy & Support
CSNHS-0007-00(885)
GDOT District 5 - Jesup
Chatham County **DATE** 11/29/2011
CS650 Grange Road from SR 21 to East of SR 25

FROM *for [Signature]* 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:

Genetha Rice-Singleton, Program Control Administrator
Bobby Hilliard, State Program Delivery Engineer
Cindy VanDyke, State Transportation Planning Administrator
Angela Robinson, Financial Management Administrator
Glenn Bowman, State Environmental Administrator
Andy Casey, State Roadway Design Engineer
Attn: Albert Welch, Design Group Manager
Kathy Zahul, State Traffic Engineer
Georgene Geary, State Materials & Research Engineer
Ron Wishon, State Project Review Engineer
Jeff Baker, State Utilities Engineer
Ken Thompson, Statewide Location Bureau Chief
Michael Henry, Systems & Classification Branch Chief
Karon Ivery, District Engineer
Bradford Saxon, District Preconstruction Engineer
Stephen Thomas, Asst. District Utilities Engineer
Robert Murphy, Project Manager
BOARD MEMBER - 12th Congressional District

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

Project Number: CSNHS-0007-00(885)
County: Chatham
P. I. Number: 0007885
Federal Route Number: N/A
State Route Number: N/A

CS650/GRANGE RD FROM SR21 TO EAST OF SR25

Submitted for approval:

DATE 10/2/11

C. Andy Cury
Design Phase Office Head

DATE 10/24/2011

Bobby Hilliard
Office Head (Project Manager's Office)

DATE 10/17/2011

R. P. Murphy
Project Manager

Recommendation for approval:

DATE _____

Program Control Administrator

DATE 11/7/2011

GLENN BOWMAN *TJ.
State Environmental Administrator

DATE 11/1/2011

KATHY ZAHUL *TJ.
State Traffic Engineer

DATE 11/2/2011

RON WISHON *TJ.
Project Review Engineer

DATE _____

State Utilities Engineer

DATE _____

District Engineer / District Utilities Engineer

DATE _____

State Transportation Financial Management Administrator

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).

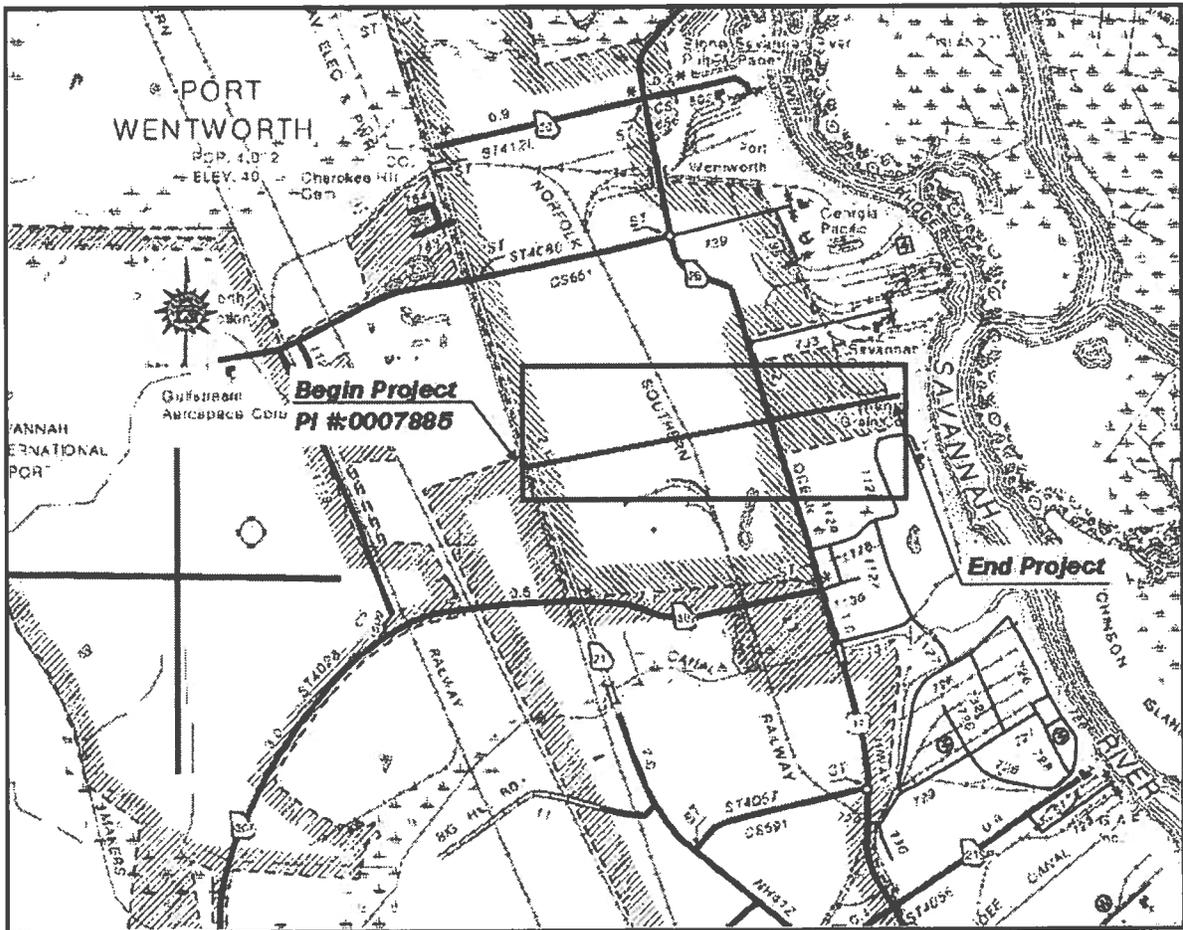
DATE 11-4-11

Cynthia L. Vaughe
State Transportation Planning Administrator

* RECOMMENDATION ON FILE

Project Concept Report Page 2
Project Number: CSNHS-0007-00(885)
P. I. Number: 0007885
County: Chatham

PROJECT LOCATION MAP CS650/Grange Road



Need and Purpose: (Planning Needs Statement) See Attachment No. 1

Description of the proposed project: CS650, Grange Road, is located in the city of Port Wentworth, Chatham County. The proposed project length along Grange Road is approximately 1.6 miles, from SR 21 to Georgia Port Authority (GPA) terminal facilities.

Grange Road was designated as an Intermodal Connector on the National Highway System (NHS) and is described as a port terminal, Facility ID No. GA33P, of the Port of Savannah from SR 21 to the terminal facilities. Intermodal Connectors on the NHS are designated to provide access between major interstate facilities and other routes on the NHS.

The western terminus is at SR 21 where Grange Road originates in a T-intersection configuration. The eastern terminus is where Grange Road ends at a gate and gravel road, which serves as an access point for the Georgia Ports Authority. These termini are logical as operational needs exist along the entire intermodal connector from SR 21 (western terminus) to GPA terminal facilities (eastern terminus).

The concept for this project satisfies the need and purpose by adding operational improvements throughout the corridor. These include:

- Widening the existing lanes from 9' to 12'
- Adding a 12' center turn lane from SR21 to SR25
- Adding right turn lanes
- Adding 14' shoulders (12' paved)
- Proposing the installation of traffic signals on Grange Road at SR21, and at SR25.
(TE Study Pending)

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

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

PDP Classification: Major Minor

Federal Oversight: Full Oversight Exempt State Funded Other

Functional Classification: Urban Collector Street (west of SR25) and Urban Local Road (east of SR25)

U. S. Route Number(s): N/A

State Route Number(s): N/A

Traffic (AADT):

Base Year: (2015) = 10,600

Design Year: (2035) = 13,050

Existing design features:

- Typical Section: Two 9' lanes, undivided rural roadway. There is currently no established shoulder on Grange Road, and there are ditches at random locations throughout the corridor. The fore slopes and back slopes of these ditches vary from 2:1 to 6:1 at various locations due to the lack of maintenance of the slopes.
- Posted speed mph: 30 MPH Minimum radius for curve: N/A
- Maximum super-elevation rate for curve: N/A
- Maximum grade: 2%
- Width of right-of-way: varies from 40' to 60'
- Major structures: N/A
- There are two non-signalized intersections on this project:
 - 1) CS650/Grange Road @ SR21/ Augusta Rd
 - 2) CS650/Grange Road @ SR25/ South Coastal Hwy
- Approximate length of roadway: 1.6 miles

Proposed Design Features:

- Typical Section: 12' flush median from SR21 to SR25, 2- 12' travel lanes and 14' rural shoulders (12' paved)
- Proposed Design Speed Mainline: 45 MPH
- Proposed Maximum grade Mainline: 2%
- Maximum grade allowable: 8%
- Proposed Maximum grade Side Street: 2%
- Maximum grade allowable: 7%
- Proposed Maximum grade driveway: 11%
- Proposed Minimum radius of curve: 1500'
- Minimum radius allowable: 643'
- Maximum allowable superelevation rate: 6%
- Proposed maximum superelevation rate: 6%
- Right-of-Way:
 - Width: varies from 80' to 120'
 - Easements: Temporary Permanent Utility Other
 - Type of access control: Full Partial By Permit Other
 - Number of parcels: 4 Number of displacements: 4
 - Businesses: 4
 - Residences: 0
 - Mobile homes: 0
 - Other: N/A
- Structures:
 - Bridges: N/A
 - Retaining Walls: May be required to mitigate impacts on two ponds.
 - 1) Pond 1: Located on parcel No. 18 owned by Duke Realty Limited (Approx. STA 130+00.00 – 135+00.00 LT)

2) Pond 2: Located on parcel No. 25 owned by Savannah Economic Development (Approx. STA 145+00.00 – 147+00.00 LT).

- Major intersections/ interchanges: Grange Rd @ SR21, Grange Rd @ SR25, and the proposed Jimmy DeLoach Parkway Extension Interchange.
- Transportation Management Plan Anticipated: Yes No
- Design Exceptions to controlling criteria anticipated:

	YES	NO	UNDETERMINED
HORIZONTAL ALIGNMENT:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
LANE WIDTH:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
SHOULDER WIDTH:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
VERTICAL GRADES:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
CROSS SLOPES:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
STOPPING SIGHT DISTANCE:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
SUPERELEVATION RATES:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
VERTICAL ALIGNMENT:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
SPEED DESIGN:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
VERTICAL CLEARANCE:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
BRIDGE WIDTH:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
BRIDGE STRUCTURAL CAPACITY:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
LATERAL OFFSET TO OBSTRUCTION:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

- Design Variance: This project proposes a 12' wide center turn lane as opposed to the GDOT standard 14' wide center turn lane (GDOT-DPM, chapter 6.12. Medians).
- Environmental concerns: 404 Permit Requirement - Impacts to wetlands and 2 detention ponds are anticipated. SR25 (Atlantic Coastal Highway) is considered historic. SHPO concluded that the implementation of the proposed design would not result in an adverse effect to Atlantic Coastal Highway.
- Anticipated Level of environmental analysis:
 - Are Time Savings Procedures appropriate? Yes No
 - Categorical exclusion anticipated
 - Environmental Assessment/Finding of No Significant Impact anticipated (FONSI)
 - Environmental Impact Statement (EIS)
- Utility involvements: Communications, Power, Gas, NS Railroad, and Water
- Public Interest Determination Policy and Procedure Required? Yes No
- VE Study Anticipated Yes No VE study held on July 11-14, 2011, VE Implementation approved on August 12, 2011.

Project Cost Estimate and Funding Responsibilities:

	PE	ROW	UTILITY	CST	MITIGATION
By Whom	State/Federal	State/Federal	Local	State/Federal	-
\$ Amount	\$1,857,727.30	\$5,991, 000.00	\$1,361,000.00	\$6,845,714.64	-

**CST Cost includes: Construction, 5% Engineering and Inspection, Fuel Cost Adjustment, and Asphalt Cement Adjustment*

Project Activities Responsibilities:

- Design: GDOT
- Right-of-Way Acquisition: GDOT
- Right-of-Way funding (real property): GDOT
- Relocation of Utilities: Local government for local utilities, GDOT for all other reimbursable, as per 2006 Request to Relocate
- Letting to contract: GDOT
- Supervision of construction: GDOT
- Providing material pits: Contractor
- Providing detours: Contractor
- Environmental Studies/Documents/Permits: GDOT
- Environmental Mitigation: GDOT

Coordination

- Initial Concept Team Meeting; held on February 24, 2011, See Attachment No. 9
- Concept Team Meeting; held on May 24, 2011, See Attachment No. 10
- PAR meetings, N/A
- FEMA, USCG, and/or TVA. TBD
- Public Involvement; held on July 21, 2011, See Attachment No. 11
- Local government comments. None
- Other projects in the area.
 - PI 0008690 – JIMMY DELOACH PKWY EXT FM SR 21 TO SR 307
This project will connect to Grange Road by adding a diamond interchange west of the Norfolk Southern rail line on Grange Road. Jimmy DeLoach Pkwy will be a major freight movement route into and out of the Port of Savannah. The connection of Jimmy DeLoach Pkwy to Grange Road will create a substantial increase in the amount of truck traffic to the North entrance of the Port of Savannah.
 - PI 562165 – SR 307 DEAN FOREST RD FM RB MILLER TO SR 21
Project let on June 17, 2011
 - PI 0000345 - SR 307/BOURNE AVE AT GA PORT AUTHORITY RAIL LINE
Project let on June 18, 2010
- Railroads. Norfolk Southern owns the at-grade crossing between SR21 and SR25.
RR Crossing ID: RRG-734154N
- Requires coordination with FAA as project is within 2 miles of Savannah Intl. Airport

Scheduling – Responsible Parties' Estimate:

- Time to complete the environmental process: 12 months
- Time to complete preliminary construction plans: 6 months
- Time to complete right-of-way plans: 6 months
- Time to complete the Section 404 Permit: 6 months
- Time to complete final construction plans: 9 months
- Time to complete the purchase of right-of-way: 24 months

Other alternates considered:

Alternate 1: Will be accomplished by widening symmetrically about the existing centerline to the north and south of Grange Road. The proposed typical is two 12' lanes with a 14' two-way center turn lane and 10' shoulders. This alternative was eliminated due to the cost of relocating the utilities on the south side of the existing roadway.

Alternate 2: Will be accomplished by widening to the north of the existing centerline of Grange Road. The proposed typical is two 12' lanes with a 14' two-way center turn lane and 10' shoulders. This alternative satisfies the minimum requirements but due to the heavy truck volumes, it is more reasonable to use wider shoulders, therefore this alternate was eliminated.

Alternate 3: Will be accomplished by widening to the north of the existing centerline of Grange Road. The proposed typical is four 12' lanes with a 14' two-way center turn lane and 10' shoulders. This alternative was eliminated since the projected 2035 traffic volumes do not support the addition of a through lane in each direction.

Alternate 4: Will be accomplished by widening to the north of the existing centerline of Grange Road. The proposed typical is two 12' lanes with a 14' two-way center turn lane and 16' shoulders (14' paved). This alternate was the preferred, but after receiving VE Study recommendations Alternate 5 was developed.

Alternate 5: Will be accomplished by widening to the north of the existing centerline of Grange Road. The proposed typical from SR21 to SR25 is two 12' lanes with a 12' two-way center turn lane and 14' shoulders (12' paved) (see typical section #1 in Attachment 2) while the section east of SR25 is two 12' lanes with 6' shoulders (4' paved) (see typical section #2 in Attachment 2). Based on VE comments, the typical east of SR25 was reduced by removing the two-way center turn lane and decreasing the shoulder width due to the significant drop in the number of driveways in this section. This alternate is the preferred as it still achieves the desired operational improvements offered by Alternate 4 but at a better overall cost for the project.

Alternate 6: No build. This alternate doesn't satisfy the Need and Purpose of the project.

Comments: None.

Project Concept Report Page 8
Project Number: CSNHS-0007-00(885)
P. I. Number: 0007885
County: Chatham

Attachments:

1. Need and Purpose Statement from Planning
2. Typical Section
3. Accident Summaries
4. Traffic Diagrams
5. Preliminary Cost Estimate
6. Preliminary Right of Way Cost Estimate
7. Preliminary Utilities Cost Estimate
8. Preliminary Railroad Cost Estimate
9. Initial Concept Team Meeting Minutes
10. Concept Team Meeting Minutes
11. PIOH Synopsis
12. VE Implementation Alternatives
13. Highway Safety Manual Summary
14. Layout

Concur: Allen R. McManis
Director of Engineering

Approve: Deo M. [Signature] Date: 11/28/2011
Chief Engineer

NEED AND PURPOSE STATEMENT
Project ID No. 0007885
Project Accounting No. CSNHS-0007-00(885), Chatham County
Grange Road (City Streets 650 and 602)
Roadway Improvements

Background

Grange Road is located in the city limits of Port Wentworth in Chatham County, directly to the north of Garden City and both east and north of the City of Savannah. Grange Road connects SR 21 in a T-intersection configuration at its' westernmost limit, intersects SR 25 and continues east where it ends at the Savannah River and Georgia Port terminal facilities at its' easternmost limit.

In 2004, Grange Road was designated as an Intermodal Connector on the National Highway System (NHS) and is described as a port terminal (Facility ID No. GA33P) of the Port of Savannah from SR 21 to the terminal facilities. Intermodal Connectors on the NHS are designated to provide access between major interstate facilities and other routes on the NHS. See 'Appendix A: Land Use' for details on land use in the area.

Figure 1: Grange Road



Existing Conditions

Grange Road is two lane undivided roadway without shoulders. The posted speed limit is 30 mph. Grange Road (City Street 650) from SR 21 (the westernmost limit) to SR 25 is classified as an urban collector street. From SR 25 east to the port terminal facilities (easternmost limit), Grange Road (City Street 602) is classified as an urban local road. The intersections of Grange Road with SR 21 and with SR 25 are currently unsignalized. Grange Road is intersected by railroad tracks serviced by Norfolk Southern approximately 0.70 miles east of SR 21. The number of daily train trips is currently unknown. Current traffic (2010) along Grange Road is estimated to be between 750 and 6,000 vehicles per day (VPD). The truck percentage along this route is estimated to be 39%¹. SR 21 at its' intersection with Grange Road is four lane divided roadway classified as an urban principal arterial with a posted speed limit of 45 mph. SR 21 is classified as an evacuation route for the Atlantic Coast and is also on the National Highway System. Current traffic (2010) along SR 21 is estimated to be 32,800 VPD. The truck percentage along this route is estimated to be 21%². SR 25 at its' intersection with Grange Road is a two lane undivided roadway classified as an urban principal arterial with a posted speed limit of 45 mph south of Grange Road and 35 mph north of Grange Road. SR 25 is classified as an intermodal connector on the National Highway System south of Grange Road. Current traffic (2010) along SR 25 is estimated to be 7,050 vehicles per day (VPD). The Truck percentage along this route is estimated to be 23%³.

Existing and Projected Traffic Volumes

On Grange Road, west of SR 25, the existing (2010) Level of Service (LOS) is 'C' and the Future year (2035) LOS is projected to be deficient (LOS 'D'). On Grange Road, east of SR 25, the existing (2010) Level of Service (LOS) is 'B' and the Future year (2035) LOS is projected to be LOS 'C'. Near the SR 21/Grange road intersection, existing (2010) LOS is 'C' and future year (2035) LOS is projected to be 'C' for SR 21. Near the SR 25/Grange Road intersection, existing (2010) LOS is 'C' and future year (2035) LOS is projected to be deficient (LOS 'E') for SR 25. (See Table 1 for details of traffic volumes and corridor LOS).

Table 1: Corridor Traffic Volumes and LOS⁴

Corridor:	2010 AADT/LOS	2015 AADT/LOS	2035 AADT/LOS
Grange Road (SR 21 to SR 25)	6,000/C	10,600/D	13,500/D
Grange Road (SR 25 to Port Facilities)	750/B	5,600/C	7,400/C
SR 21	32,800/C	25,550/B	36,250/C
SR 25	7,050/C	11,900/D	15,600/E ⁵

1 Truck percentage based on collected traffic counts in 2010 along Grange Road.

2 Truck Percentage based on SR 21 Traffic Count Station data from 2010 in closest proximity to Grange Road.

3 Truck Percentage based on SR 25 Traffic Count Station data from 2010 in closest proximity to Grange Road.

4 Traffic volumes are based on traffic counts from 2010 and approved design traffic in February 2011.

5 Based on design traffic, there appears to be a need for improvements along SR 25 south of Grange Road.

Crash Data:

In comparison to the statewide average for similar facility types⁶, the crash, injury and fatality rates for Grange Road were lower than the statewide average in 2006, 2007 and 2008 (see Table 2 for more details) and have shown a decrease from 2006 to 2007 and 2008. Of the crashes along Grange Road, 32% took place at the intersection of Grange Road and SR 21 and 21% took place at the intersection of Grange Road and SR 25. Of the crash types, 32% were rear end collisions, 26% were collisions that were not with another vehicle⁷, 15% were angle collisions, 15% were sideswipes from the opposite direction and 12% were sideswipes from the same direction.

**Table 2: Crashes / Crash Rates for Grange Road (CS 650 and CS 602)
During the Years 2006, 2007 and 2008**

Year	2006		2007		2008	
	Grange Rd	Statewide	Grange Rd	Statewide	Grange Rd	Statewide
Crashes	15		9		10	
Crash Rate	459	510	280	475	317	443
Injuries	1		3		2	
Injury Rate	30	123	93	114	63	105
Fatalities	0		0		0	
Fatality Rate	0.00	1.60	0.00	1.25	0.00	1.08

Project Linkage:

Currently, there is one project programmed adjacent to Grange Road. Project ID No. 0008690 (Jimmy Deloach Pkwy Ext from S. of I-95 to S of SR 307 at SR 21) will provide a new roadway that is anticipated to traverse Grange Road east of SR 21 and west of the Norfolk Southern rail line. See 'Appendix B: Previous Planning Study Recommendations' for previous planning study recommendations in proximity to Grange Road.

Bicycle and Pedestrian Facilities:

Currently, Grange Road is not identified in any Statewide, regional or local bicycle plans (See 'Appendix B: Previous Planning Study Recommendations' for previous bicycle and pedestrian planning study recommendations in proximity to Grange Road).

Logical Termini:

The western terminus is at SR 21 where Grange Road originates in a T-intersection configuration. The eastern terminus is where Grange Road ends at a gate and gravel road, which serves as a driveway for one of the port terminal facilities. These termini are logical as operational needs exist along the entire intermodal connector from SR 21 (the western terminus) to the port terminal facilities (the eastern terminus).

⁶ Statewide rates were based on urban collector roadways to compare for the entire Grange Road corridor. While the two sections of Grange Road have different functional classifications, the crash data was analyzed as a single corridor based on both sections having similar traffic volumes, the eastern section only being 0.51 miles in length and both functioning as an intermodal connector with similar roadway characteristics.

⁷ Crashes that were not with another vehicle included vehicles colliding with ditches, the median along SR 21, deer, utility poles, trees and vehicles overturning.

Need and Purpose:

The need is to improve operations and to reduce the incidence of crashes along Grange Road (from SR 21 to where Grange Road ends at the port terminal facilities) and where traffic is projected to reach 13,500 AADT and level of service is anticipated to be (LOS 'D'). There is also a need to reduce the incidence of crashes at the intersections of Grange Road and SR 21 and at Grange Road and SR 25. The purpose of this project is to improve operational conditions along Grange Road from SR 21 to the port terminal facilities.

Appendix A: Land Use

Land use along Grange Road consists primarily of commercial, distribution and industrial type facilities that are served by truck and freight movements to and from regional port terminal facilities. There are no residential or direct consumer commercial land uses in the corridor.

Appendix B: Previous Planning Study Recommendations

Coastal Region MPO: SR 21 Corridor Study (currently underway; anticipated completion: December 2011)

The SR 21 Corridor Study being performed by the CORE MPO is anticipated to look at the SR 21 corridor in this area.

Chatham County Bikeway Plan (adopted September 2000)

SR 21 adjacent to Grange Road is identified as part of the SR 25 Corridor of the Chatham County Bikeway Plan.

Coastal Georgia Regional Bicycle and Pedestrian Plan (adopted May 11, 2005)

SR 21 adjacent to Grange Road is identified as a potential bike route

Coastal Region MPO: Core Connections 2035 Framework Mobility Plan (adopted September 17, 2009)

The Framework Mobility Plan identifies an improvement to Grange Road described as Grange Road reconstruction from SR 21 to SR 25.

Georgia Dept. of Transportation: Statewide Truck Lanes Needs Identification Study (April 2008)

Potential Improvement Projects in the Savannah Sub-Area included Project No. 4 (SR 21 at Grange Road) as an intersection signal project. The study recommendation was to perform a signal warrant study to determine if a new signal will be needed due to the potential additional traffic between SR 21 and a Port Access Facility Project.

Georgia Dept. of Transportation: Study of Proposed Improvements to Grange Rd (September 2005)

This study recommended the following improvements along Grange Road:

A flush median of 14' along the length of the 1.5 mile segment into the GPA facility/property

Widening of through lanes to 12 feet

Widening and improvement of shoulders

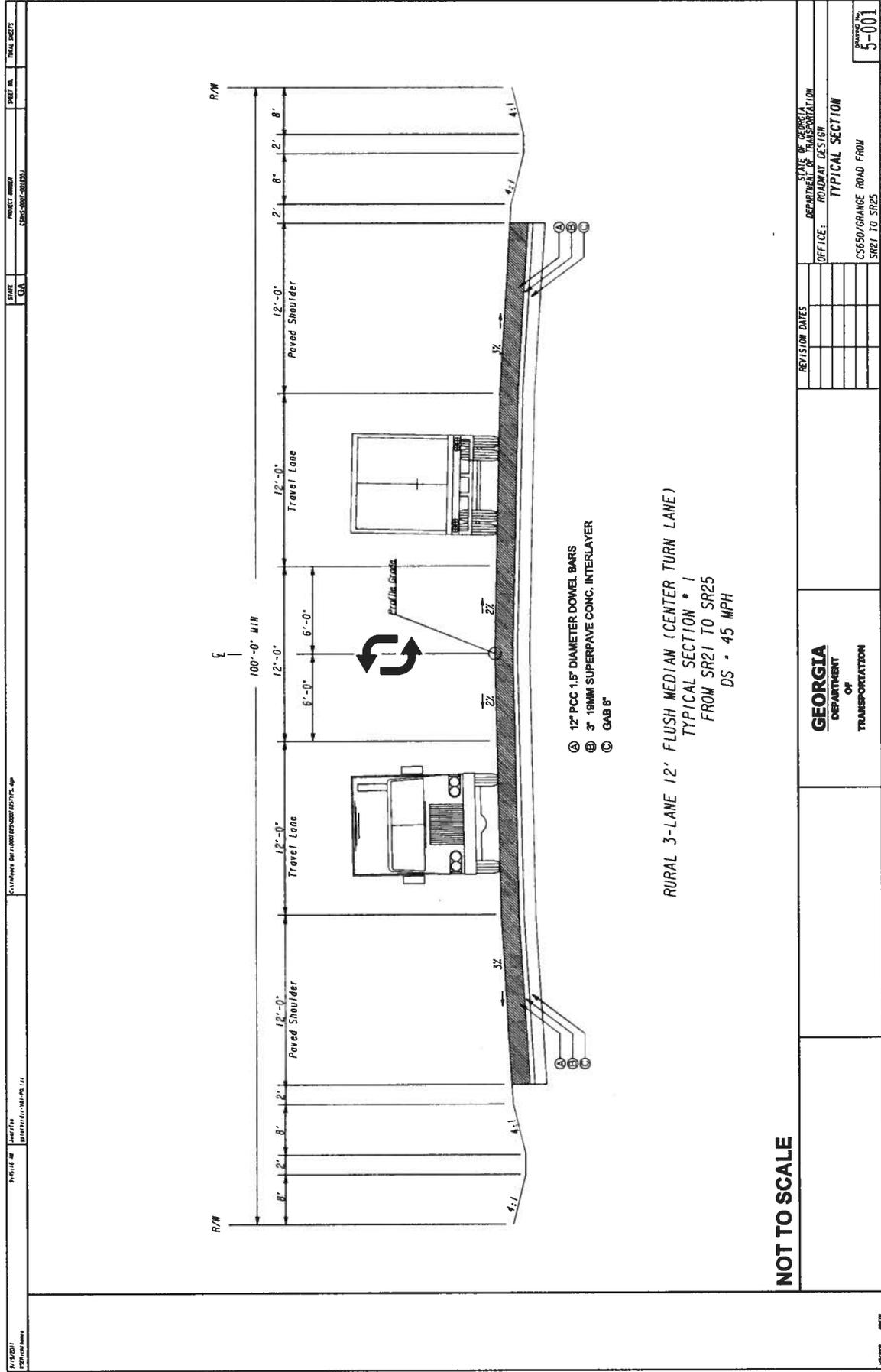
Intersection improvements at SR 21 and SR 25

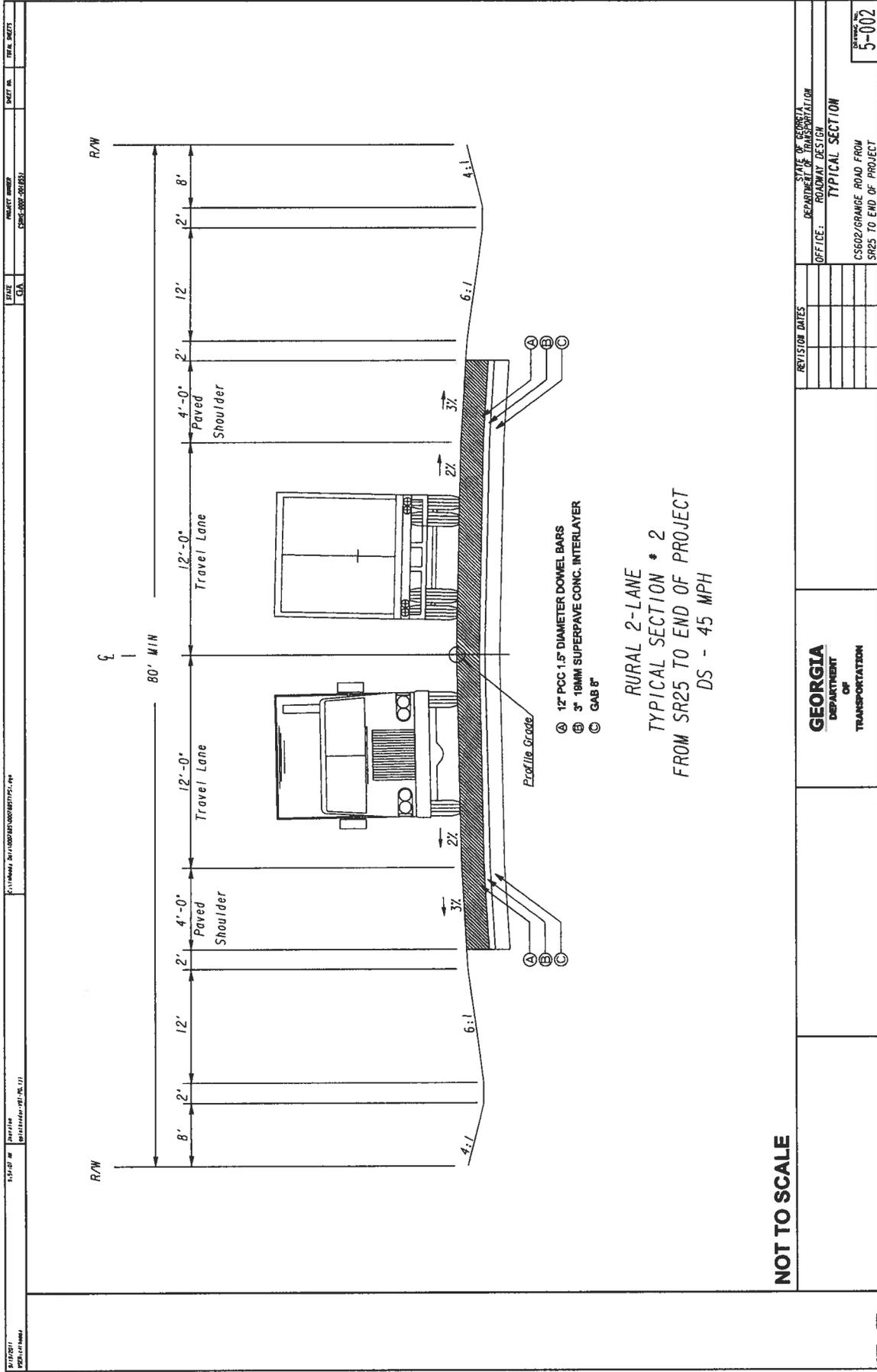
Utility relocation and drainage improvements

Resurfacing of the lanes

Re-striping of new lanes

ROW will need to be acquired.





RURAL 2-LANE
 TYPICAL SECTION * 2
 FROM SR25 TO END OF PROJECT
 DS - 45 MPH

NOT TO SCALE

PROJECT NUMBER CS6502-GRANGE ROAD FROM SR25 TO END OF PROJECT		SHEET NO. 5-002	
REVISION DATES		STATE OF GEORGIA DEPARTMENT OF TRANSPORTATION OFFICE: ROADWAY DESIGN TYPICAL SECTION CS6502-GRANGE ROAD FROM SR25 TO END OF PROJECT	
GEORGIA DEPARTMENT OF TRANSPORTATION			

ACCIDENT RATE CALCULATION 2006

Year	County	Rt Type	Route Num	Low Milelog	High Milelog	ADT	Distance	Vehicle Miles
2006	Chatham	3	65005	0	1.06	3,350	1.06	3,551
2006	Chatham	City Street	64605	0	0	0	0	0
2006	Chatham	City Street	60705	0	0	0	0	0
2006	Chatham	State Route	2100	0	0	0	0	0
Total Vehicle Miles: 3,551		Total Accidents: 10		Accident Rate: 772		Statewide Accident Rate: 510		
Average ADT: 3,350		Total Injuries: 0		Injury Rate: 0		Statewide Injury Rate: 184		
Length in Miles: 1.06		Total Fatalities: 0		Fatality Rate: 0.00		Statewide Fatality Rate: 1.70		

NOTE: Rates are per 100 Million Vehicle Miles

ACCIDENT RATE CALCULATION 2007

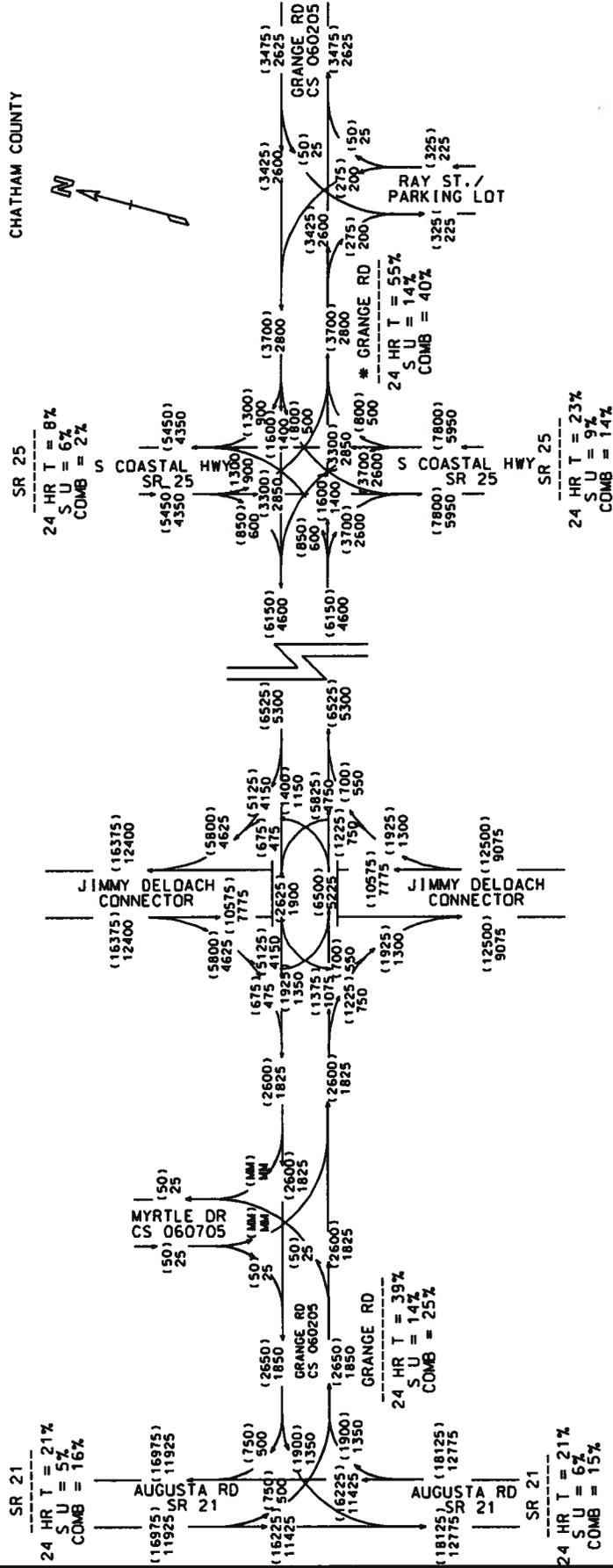
Year	County	Rt Type	Route Num	Low Milelog	High Milelog	ADT	Distance	Vehicle Miles
2007	Chatham	3	65005	0	1.06	5,660	1.06	6,000
2007	Chatham	City Street	64605	0	0	0	0	0
2007	Chatham	City Street	60705	0	0	0	0	0
2007	Chatham	State Route	2100	0	0	0	0	0
Total Vehicle Miles: 6,000		Total Accidents: 9		Accident Rate: 411		Statewide Accident Rate: 475		
Average ADT: 5,660		Total Injuries: 3		Injury Rate: 137		Statewide Injury Rate: 166		
Length in Miles: 1.06		Total Fatalities: 0		Fatality Rate: 0.00		Statewide Fatality Rate: 1.33		

NOTE: Rates are per 100 Million Vehicle Miles

ACCIDENT RATE CALCULATION 2008

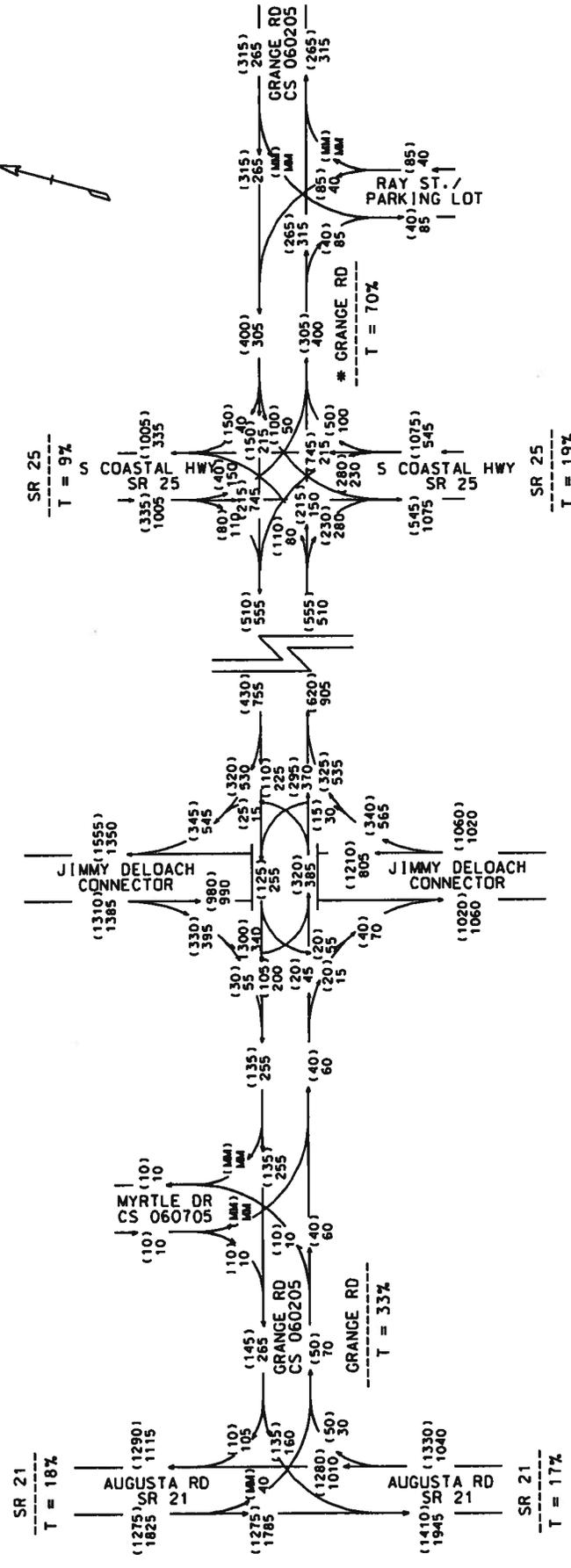
Year	County	Rt Type	Route Num	Low Milelog	High Milelog	ADT	Distance	Vehicle Miles
2008	Chatham	3	65005	0	1.06	5,660	1.06	6,000
2008	Chatham	City Street	64605	0	0	0	0	0
2008	Chatham	City Street	60705	0	0	0	0	0
2008	Chatham	State Route	2100	0	0	0	0	0
Total Vehicle Miles: 6,000		Total Accidents: 7		Accident Rate: 320		Statewide Accident Rate: 443		
Average ADT: 5,660		Total Injuries: 1		Injury Rate: 46		Statewide Injury Rate: 154		
Length in Miles: 1.06		Total Fatalities: 0		Fatality Rate: 0.00		Statewide Fatality Rate: 1.12		

NOTE: Rates are per 100 Million Vehicle Miles



CSNHS-0007-001885
P. I. # 0001885
CHATHAM COUNTY
CS 65D/GRANGE ROAD
FROM SR 21 TO SR 25
2035 BUILD ADT = 1000
2015 BUILD ADT = 000
RFN
02/11

CHATHAM COUNTY

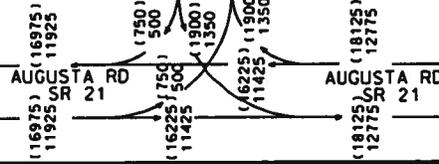


CSNHS-0007-007(885)
P. I. # 0007885
CHATHAM COUNTY
CS 650/GRANGE ROAD
FROM SR 21 TO SR 25
2035 BUILD PM DNV = (000)
2035 BUILD AM DNV = 000
RFN
09/21

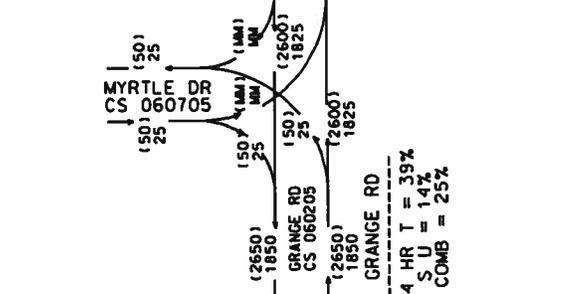
CHATHAM COUNTY



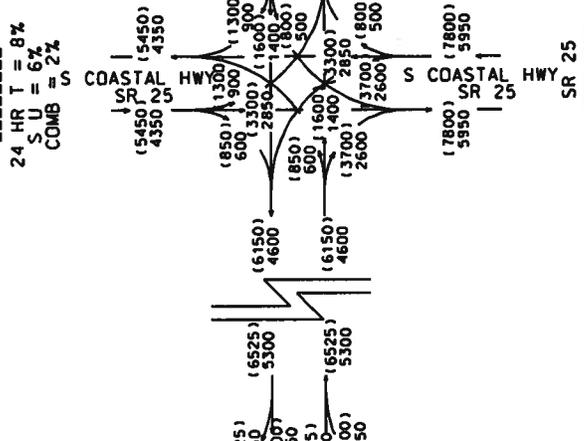
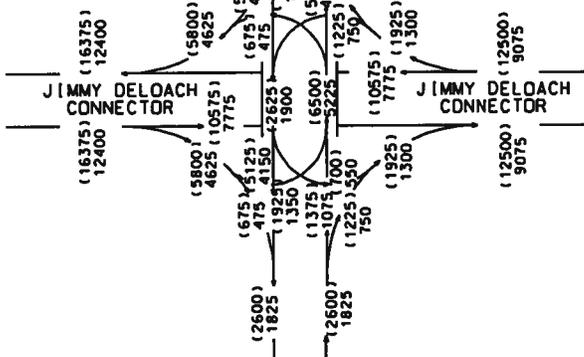
SR 21
24 HR T = 21%
S U = 5%
COMB = 16%



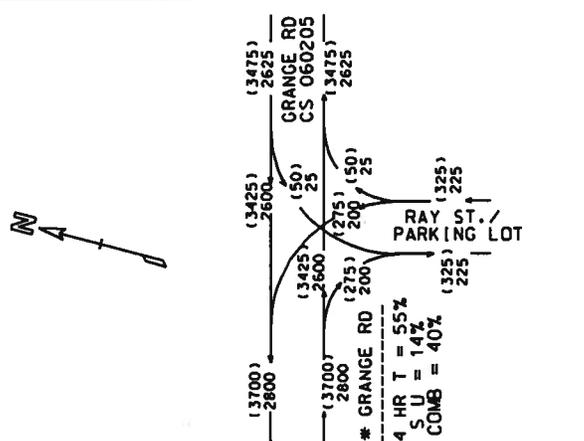
24 HR T = 21%
S U = 6%
COMB = 15%



24 HR T = 39%
S U = 14%
COMB = 25%



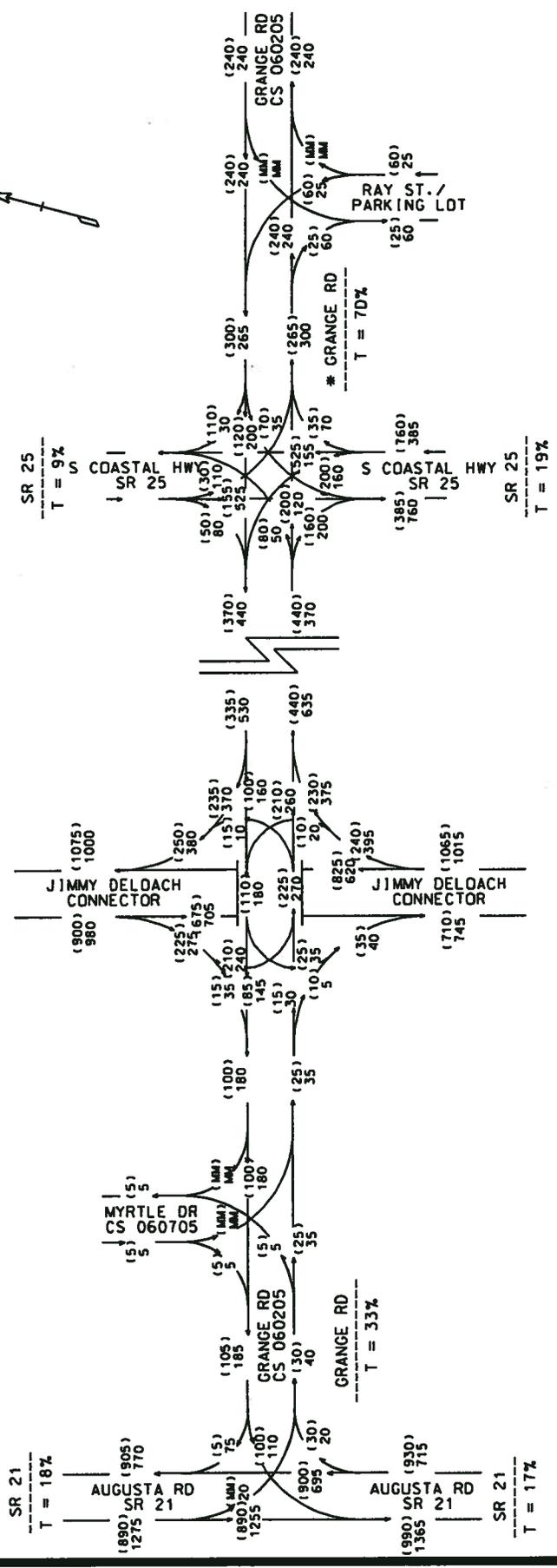
24 HR T = 23%
S U = 9%
COMB = 14%



24 HR T = 55%
S U = 14%
COMB = 40%

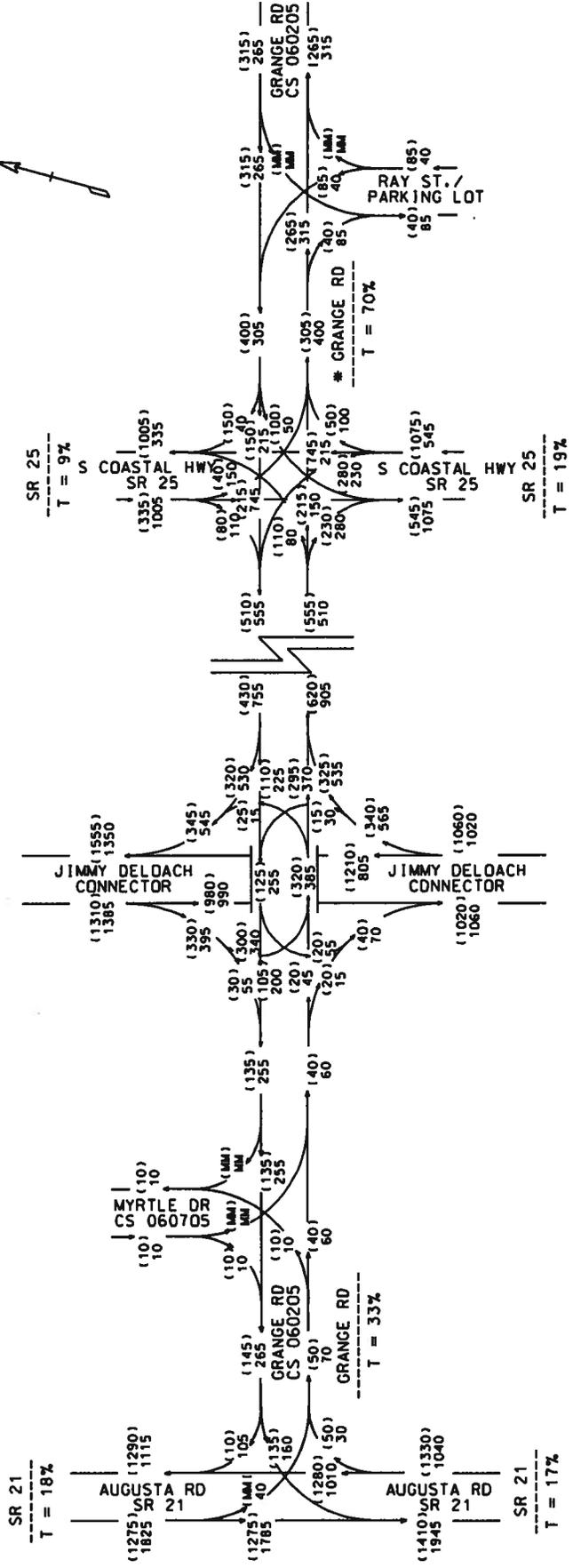
CSNHS-0007-001885)
P. I. # 0001885
CHATHAM COUNTY
CS 650/GRANGE ROAD
FROM SR 21 TO SR 25
2035 NO BUILD ADT = 1000
2015 NO BUILD ADT = 000
REV
02/11

CHATHAM COUNTY



CSNHS-0007-00(885)
P. I. # D007885
CHATHAM COUNTY
CS 650/GRANGE ROAD
FROM SR 21 TO SR 25
2015 MO BUILD PM DWG - 1000
2015 MO BUILD AM DWG - 000
SR 21
02/11

CHATHAM COUNTY



SHEET 6 OF 6

CSNHS-0007-00(885)
P. I. # 0007885
CHATHAM COUNTY
CS 650/GRANGE ROAD
FROM SR 21 TO SR 25
POSS MD BUILD PM DRY = 1000
2035 MD BUILD AM DRY = 000
BPN
02/21

DETAILED COST ESTIMATE



Attachment #5
Page 1/3

Job: 0007885

JOB NUMBER: 0007885

FED/STATE PROJECT NUMBER CSNHS-0007-00(885)

SPEC YEAR: 01

DESCRIPTION: CS 650/GRANGE ROAD FROM SR 21 TO SR 25

ITEMS FOR JOB 0007885

0010 - ROADWAY

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0030	150-1000	1.000	LS	\$100,000.00	TRAFFIC CONTROL - CSNHS-0007-00(885)	\$100,000.00
0035	153-1300	1.000	EA	\$65,334.81	FIELD ENGINEERS OFFICE TP 3	\$65,334.81
0005	310-5080	57373.330	SY	\$11.95	GR AGGR BS CRS 8IN INCL MATL	\$685,854.56
0010	402-3180	8466.600	TN	\$69.91	RECYL AC 19 MM SP,GP 1 OR 2 ,INC BM&HL	\$661,844.65
0015	439-0026	57373.330	SY	\$64.91	PLN PC CONC PVMT CL3 12" THK	\$3,723,958.27
SUBTOTAL FOR ROADWAY:						\$5,236,992.29

0030 - SIGNALS

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0020	647-1000	1.000	LS	\$100,000.00	TRAF SIGNAL INSTALLATION NO - 1	\$100,000.00
0025	647-1000	1.000	LS	\$100,000.00	TRAF SIGNAL INSTALLATION NO - 2	\$100,000.00
SUBTOTAL FOR SIGNALS:						\$200,000.00

COST GROUP FOR JOB 0007885

LINE NUMBER	UNIT	CALCULATION RULE	QUANTITY	PRICE	COST GROUP ID	DESCRIPTION	AMOUNT
00000001	CY	NORM	57373.330	\$11.49	ERTHCY	EARTHWORK (CY)	\$659,505.85
00000002	SY	NORM	47811.110	\$2.18	EROC	EROSION CONTROL (SY)	\$104,211.01
00000004	LM	PCTO	9285.656	\$1.00	PVMKPCTO	PAVEMENT MARKING (PERCENT OF JOB)	\$9,285.66
00000005	SF	NORM	2700.000	\$52.46	WALL	WALLS (SF)	\$141,834.60
00000006	LF	PCTO	9285.656	\$1.50	DRNGPCTO	DRAINAGE (PERCENT OF JOB)	\$13,928.48
SUBTOTAL:							\$928,565.60

TOTALS FOR JOB 0007885

ITEMS COST:	\$5,436,992.29
COST GROUP COST:	\$928,565.60
ESTIMATED COST:	\$6,365,557.89
CONTINGENCY PERCENT:	0.00
ENGINEERING AND INSPECTION:	0.05
ESTIMATED COST WITH CONTINGENCY AND E&I:	\$6,663,836.78

CS650 Grange Road from SR21 to SR25	
0007885	
9/7/2011	

CALL NO.

PROJ. NO.

P.I. NO.

DATE

BITUMINOUS TACK COAT (surface treatment)

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

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

TOTAL LIQUID AC ADJUSTMENT \$ 161,878.86

DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE NHS-0007-00(885), Chatham County
P.I. # 0007685 (Grange Road)

OFFICE Jesup

DATE 3/24/2011

FROM Karon L. Ivery, District Utilities Engineer

TO Robert Murphy, Senior Project Manager - GDOT

SUBJECT 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 project limits.

Facility Owner	Non-Reimbursable	Reimbursable	Comments
Comcast	\$ 28,000.00	\$ 0.00	
ATT/Bellsouth	\$ 268,000.00	\$ 0.00	
City of Port WentWorth	\$ 367,000.00	\$ 0.00	
Georgia Power Distribution	\$ 369,000.00	\$ 0.00	
Georgia Power Transmission	\$ 0.00	\$ 110,000.00	* See note below
Atlanta Gas Light	\$ 28,000.00	\$ 0.00	
City Of Savannah	\$ 0.00	\$1,000,000.00	** See note below
Southern Natural Gas		\$ 40,000.00	
Totals	\$1,060,000.00	\$ 1,150,000.00	
Total Reimbursement		\$ 1,150,000.00	

This estimate is based on cost for adequate clear zone and no impact to the existing 10- 115 KV concrete structures on the south-side of the project roadway which includes only cost of relocation of the guy wires for each structure. *Please note if structures are impacted, additional cost will need to be added. **On the east side of SR-25 the City of Savannah has 48" ID line on private easement

CC: Angle Robinson, Office of Financial Management;
Terry Brigman, Assistant State Utilities Engineer
District Office File
Utilities Office File

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

INTERDEPARTMENT CORRESPONDENCE

FILE: CSNHS-0007-00(885), Chatham County
P.I. No. 0007885

OFFICE: State Utilities Office

FROM: *JBF FOR*
Jeff Baker, State Utilities Engineer

DATE: June 13, 2011

TO: Bobby Hilliard, State Program Delivery Engineer
ATTN: Robert Murphy

SUBJECT: PRELIMINARY RAILROAD COST FOR SURFACE WORK (CONCEPT ESTIMATE)

A review of railroads located within the project limits on the above referenced project has been conducted based on the proposed concept report provided. Listed below is a breakdown of the estimated railroad costs:

<u>FACILITY OWNER</u>	<u>NON-REIMBURSABLE</u>	<u>REIMBURSABLE</u>
Norfolk Southern	\$0.00	\$211,000.00
Total Reimbursement Cost:	\$0.00	\$211,000.00

Total railroad surface work reimbursable cost for the above project is estimated to be:
\$211,000.00.

Please note that this amount does not include other reimbursable utility and railroad warning device costs that may be associated with this project. Please keep the railroad costs separate from other utilities in your designer's cost estimate.

If you have any questions, please contact Richard Crowley, (404)631-1372, rcrowley@dot.ga.gov or Jill Franks, (404) 631-1370, jfranks@dot.ga.gov.

JB:RLC:jlf

cc: Sal Pirzad, State Utilities Preconstruction Engineer
Angela Robinson, State Financial Management Administrator
Karon Ivery, District 5 Utilities Engineer
Key Phillips, Railroad Crossing Program Manager

Meeting Minutes

PESTP-0007-00(885)

PI No. 0007885

CS 650/Grange Road From SR21 to SR25

February 24, 2011

Discussion: Initial Concept Team Meeting

Location: GPA Conference Room, Garden City, GA

-PM gave introduction of the project

-Darrell gave description of proposed design:

14' lanes, 14'twtl, 16' shoulders (14'paved), will not retain any of the existing pavement

-Have to coordinate a meeting to discuss the tie in points for Jimmy DeLoach Conn. and Grange.

-PM: Concerned of narrow radii on SR25, Darrell: we are using a WB50 or combination truck as the design vehicle and the intersections will be designed accordingly.

-Grange Road is a city street but it is designated as an intermodal corridor therefore GDOT oversees it.

-Raised concerns of warning devices for the rail road, with the extra wide foot print. Darrell recommended incorporating a raised median at the approaches to the crossing to ensure the lengths of the mast arms are reached. (38' = MAX Gate Length)

-Darrell requested train traffic counts.

-Darrell mentioned the different alternatives considered for the project, and made the point that it isn't necessary to keep the 72' section until West of the RR, since there is nothing established, however it is good to have a wide shoulder for trucks that need to pull over or are broke down.

-Bobby Dollar: No environmental determination has been made, since there is no need and purpose yet, but the historical investigation has been started. Anticipating a C.E.

-IPD: There are concerns on how to go about ROW acquisition since both of these projects have shared ROW interests. (Who buys first?)

-Utilities: Talked about SUE analysis, a SUE Qual level "B" was requested for 0007885. There is currently SUE Qual level "B" for Jimmy DeLoach.

-Stephen Thomas: There is a 42" water main that is not currently shown on the plans that runs parallel to SR25.

-Locals (Port Wentworth) funding \$175,000 if they stay away from south side utilities (reimbursable).

-1 million dollars in non-reimbursable utilities

-September let for Jimmy DeLoach pending funding, anticipating ROW June 2012. Critical on who will reach ROW funding acquisition first. 8 ROW impacts and 7 relocations anticipated.

-Initial ROW estimate of \$400,000 seemed low and would probably have to be increased. Concerns of meeting ROW schedule, O'Quinn mentioned that it would probably take 2 years to acquire ROW.

-GEPA document for Jimmy DeLoach accounts for symmetrical widening. May cause problems with widening to the north or south on Grange.

-ROW acquisition for DeLoach by design build team- property will be purchased by GDOT.

-Utilities brought up that the utilities to the west of the RR are distribution and not transmission, and may or may not affect symmetrical widening.

-Need to know how far from the interchange at Jimmy DeLoach and Grange, limited access is being established.

-Ensure to include a clause for existing utilities to remain in the permanent easements.

Attendees:

Darrell Richardson, P.E., Asst. State Roadway Design Engineer, Roadway Design

Robert Murphy, Senior Project Manager, Office of Program Delivery

Ryan Mickens, Roadway Design

Chester Thomas, Roadway Design

Brad Saxon, District 5 Preconstruction Engineer

Stephen Thomas, Asst. District 5 Utilities Engineer

Mark Wilkes, MPO

Teresa Scott, District 5 Planning and Program Engineer

Robert McCall, District 5 Traffic Engineer

Lonnie A. O'Quinn, District 5 R/W Acquisition Manager

Slade Cole, Asst. Area Engineer

Bobby Dollar, Environmental Planner Assoc.

Randy Weitman, GPA

Innovative Program Delivery, on phone conference

Office of Utilities (SUE), on phone conference

~~SIGN IN SHEET~~

RYAN MICKENS GDOT

BRAD SAXON GDOT

STEPHEN THOMAS GDOT

ROBERT MURPHY GDOT

Mark Wilkes MPO

Teresa Scott GDOT

Robert McCell GDOT

LONNIE A. O'QUINN GDOT

Slade Cole GDOT

Bobby Dollar GDOT

Darrell Richards GDOT

CHESTER THOMAS GDOT

Meeting Minutes

PESTP-0007-00(885)

PI No. 0007885

CS 650/Grange Road from SR21 to SR25

May 24, 2011

Discussion: Concept Team Meeting
Location: GPA Conference Room, Garden City, GA

Project Manager

- PM Robert Murphy started the meeting by reading the project background, planning study for the corridor, and need and purpose statement.
- PIOH to describe project is scheduled for July 2011– Required by FHWA
- A CE is expected for environmental document
- No landscaping plans will be required for this project
- Norfolk Southern Crossing will remain at grade and the rail lines to the east of SR 25 near the port entrance will be eliminated
- Need to ensure that coordination with Jimmy DeLoach Pkwy Ext. (PI# 0008690) is achieved
- Only one displacement will be required and property seems to be abandoned, on corner of Grange Rd and SR21
- PFPR set for November 2011
- Environmental approval is set for Sept. – Oct. 2011
- Signal Warrant: SR21 meets warrant 1B approval, District does not want signal on SR21 because of intersection proximity with Jimmy DeLoach. SR25 meets warrant 1B, and District will recommend installing a signal at this location.

Design

- Discussed proposed roadway design
 - 2 – 12' lanes, 1 – 14' TWTL, 16' Shoulders(14' Paved)
- Proposed Design Data – See Concept Report
- Need survey from SR25 to proposed Port Gate entrance to begin InRoads/Microstation V8i Design

Environmental

- Shell Gas Station is considered historic (close proximity to project)
- Survey for UST's, ecology survey is still underway
- Has pedestrian traffic been considered since there are no sidewalks or paths? Grange Road is not part of CUTS and pedestrian traffic does not warrant sidewalks.

Rail Road (Crowley, Phillips)

- Having a problem with concrete panels in Savannah. Staging: Will need minimum 3 days of total closure to place new rail ties and panels.
- STD. 9025A in order for gate device there will have to be a raised median at the railroad crossing
- Force account agreement with the railroad

Utilities (Jun Birnkammer)

- SUE will be done in house, there is no consultant. Previous consultant was 76% complete.
- Have to coordinate with Jimmy DeLoach Ext.
- GA Power Transmission and Distribution
 - Overhead 46KV line near ditch on southwest side of project
 - Ensure that driveways are located in the SUE and new survey, to ensure that we provide adequate access to the power companies assets.
 - Service taps to business owners will be impacted.

MPO

- Need a copy of the signal warrant to finish their b/c ratio

D5 Traffic

- ITS not anticipated
- Will recommend signal at SR25 and Grange Rd., not at SR21 and Grange

D5 ROW (O'Quinn)

- 1 relocation – abandoned
- If Jimmy DeLoach buys before Grange Rd., then only 24 parcels will need to be bought. ROW acquisition can be completed in 24 Months.

IPD (Jimmy DeLoach Pkwy Ext PI #:0008690)

- JD Pkwy Ext. proposes to tie into Grange Rd with a diamond interchange
- ROW, Const, and Utilities costs are funded
- RFQ is out
- 5 Design Build Teams
- NTP = January 1st
- Fall 2012 ROW acquisition (design build team in charge of ROW acquisition)
- They have a FTP site to where we can share data.
- Rob Lewis: Contractor can be at PFPR

Attendees

Robert Murphy	GDOT
Stephen Thomas	GDOT
Brad Saxon	GDOT
Troy Pittman	GDOT
Randy Weitman	GPA
Tom McQueen	GDOT
Teresa Scott	GDOT
Kaycee Mertz	GDOT
Lonnie O'Quinn	GDOT
Michael Adams	MPO
Chester Thomas	GDOT
Rick Long	GA POWER
Marcela Coll	GDOT
Dan Everitt	GA POWER

Paul Teague	AGL
Cynthia Phillips	GDOT
Phone Conference Attendees	
Mike Dover	GDOT
Mike Murdoch	GDOT
Jill Franks	GDOT
Key Phillips	GDOT
Richard Crowley	GDOT
HNTB Representatives	
Raymond Chandler	GDOT
Jun Birnkammer	GDOT

CONCEPT TEAM MEETING FOR P.I # 0001885

MAY 24TH 2011

ROBERT MURPHY	GDOT	RMURPHY@DOT.GA.GOV
Stephen Thomas	GDOT	SThomas@dot.ga.gov. (904) 27-5779
BRAD SAXON	GDOT	bsaxon@dot.ga.gov 912-427-5715
TROY FITTMAN	GDOT	trfitman@dot.ga.gov
RANDY WEITMAN	GPA	rweitman@gaports.com
TOM McQUEEN	GDOT	tmcqueen@dot.ga.gov
Teresia Scott	GDOT	tscott@dot.ga.gov
Koeyce Mertz	GDOT	kmertz2@dot.ga.gov
LONNIE A. O'QUINN	GDOT	loquinn@dot.ga.gov
Michael Adams	MPO	adams@the mpc.org
CHESTER THOMAS	GDOT	chthomas@dot.ga.gov
Rick Long	Ga. P.W.	rdlong@southernco.com
MARCELA COLL	GDOT	mcoll@dot.ga.gov
Dan Everitt	Gr. Power	DEEVERIT@SOUTHERNCO.COM
Paul Teague	AGL	pteague@agresources.com
Cynthia Phillips	GDOT	cphilips@dot.ga.gov

Phone

Mike Dower, IPD

Mike Murdoch, Environmental

Jill Franks, Utilities

Key Phillips, Utilities

Richard Crowley, Utilities

HNTB Representatives

Raymond ~~Frank~~ Chandler, Utilities

Jim, Utilities

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

INTERDEPARTMENT CORRESPONDENCE

FILE: P. I. No. 0007885 OFFICE: Environmental Services
DATE: July 22, 2011

FROM: ^{G.B./Jc} Glenn Bowman, P.E., State Environmental Administrator
TO: Distribution Below
SUBJECT: PUBLIC INFORMATION OPEN HOUSE SYNOPSIS

PROJECT No. & COUNTY: CSSTP-0007-00(885), Chatham

PROJECT DESCRIPTION: The project proposes to widen Grange Road from SR 21 to SR 25 from two 9-ft travel lanes to two 12-ft travel lanes with a 14-ft center turn lane and 16-ft shoulders (14-ft paved). The section of Grange Road from SR 25 to the proposed access gate to the Port of Savannah proposes to widen the existing roadway from two 9-ft travel lanes to two 12-ft travel lanes with 16-ft shoulders (14-ft paved). In addition, a traffic signal is proposed at the intersection of Grange Road and SR 25 along with adding turn lanes along SR 25.

DATE: July 21, 2011

NUMBER IN ATTENDANCE: 21

FOR: 0

CONDITIONAL: 0

UNCOMMITTED: 1

AGAINST: 0

OFFICIALS IN ATTENDANCE: None

ADDITIONAL COMMENTS: None

PREPARED BY: Bobby Dollar

TELEPHONE No.: (404) 631-1920

cc: Gerald M. Ross, P.E.
Russell McMurry, P.E.
Tony Collins
Robert Murphy
Bobby Hilliard, P.E.
Dennis Odom

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

INTERDEPARTMENT CORRESPONDENCE

FILE: CSNHS-0007-00(885) Chatham **OFFICE:** Engineering Services
P.I. No.: 0007885
CS 650/Grange Road **DATE:** September 12, 2011

FROM: Ronald E. Wishon, State Project Review Engineer *REW*

TO: Bobby K. Hilliard, PE, State Program Delivery Engineer
Attn.: Robert Murphy

SUBJECT: IMPLEMENTATION OF VALUE ENGINEERING STUDY ALTERNATIVES

The VE Study for the above project was held July 11-14, 2011. Responses were received on September 9, 2011. Recommendations for implementation of Value Engineering Study Alternatives are indicated in the table below. The Project Manager shall incorporate the VE alternatives recommended for implementation to the extent reasonable in the design of the project.

ALT #	Description	Potential Savings/LCC	Implement	Comments
2	Eliminate 14-foot two-way center turn lane	\$1,243,000	No	Even with the reduction of the number of driveways along Grange Road from 45 to 32, eliminating the 14 ft two way left turn lane will cause additional delay to the through movement along Grange Road by not providing refuge for trucks waiting to turn left into the container yards. These yards generate at least 100 trips per day.
3	Reduce shoulder width to 12 feet with 10 feet paved	Proposed = \$940,000 Actual = \$531,000	Yes, partially	A reduced shoulder width will be implemented from SR 21 to the Georgia Ports Authority's proposed Gate 8 with another reduction in shoulder width occurring from the Gate to the end of the project. The shoulder from SR 21 to Gate 8 will be reduced from 16 ft to 14 ft (12 paved) due to the number of driveways along Grange Road. The 14 ft shoulder will act as a right-turn auxiliary lane to allow trucks refuge during the turning movement, thus mitigating congestion through the corridor. The cost saving of this reduction is \$311,000. The shoulder from Gate 8 to the end of the project will be reduced from 16 ft to 6 ft (4 ft paved). Since there is only one driveway past this point, there is no need for wide shoulders. The cost savings of this reduction is \$220,000.

5	Remove unsuitable material to support the new pavement	(\$1,195,000) Cost Increase	Yes	This will be done as required pending soil survey report from OMR. Cost will vary depending upon depth of undercut.
7	Reduce typical section to a three-lane section with reduced shoulder width west of the Jimmy DeLoach Connector	\$527,000	No	The suggested reduced shoulder width of 10 ft (6 ft paved) will not be implemented because it conflicts with Alt. 3 which will be partially implemented. The assumption that truck traffic decreases by 60% west of the Jimmy DeLoach Connector is not valid since all of the 16 driveways between SR 21 and Jimmy DeLoach Connector serve container yards.
8	Allow a free right turn lane from WB Grange Road to NB SR 21	(\$381,000) Cost Increase	No	The suggested free right turn lane from WB Grange Road to NB SR 21 will not be implemented as it conflicts with the implementation of Alt. 9/11. Allowing a free flow right turn lane onto NB SR 21 from WB Grange Road will increase the scope of the project by requiring the addition of a lane along SR 21 to allow trucks to increase their speed to merge at speed with the mainline traffic stream. The length of the acceleration lane on SR 21 is 1160 ft and will cause additional impacts to a residential driveway and a city street (Fries Road), both located 390 ft and 650 ft north of Grange Road respectively.
9/11	Allow WB Grange Road to SB SR 21 movement and signalize the intersection	(\$14,000) Cost Increase	Yes	This will be done.
12	Do not signalize the Grange Road/SR 25 intersection	\$107,000	No	The District 5 Traffic Operations Engineer recommends placing a signal at the Grange Road and SR 25 intersection as it meets Warrant 1, Condition B - Interruption of Continuous Traffic, due to the anticipated truck volumes crossing through the intersection.
18	Eliminate right turn lanes at the SR 25/Grange Road intersection	\$182,000	No	Based on the traffic counts and high truck percentage, removing the right turn lanes from the SR 25/Grange Road intersection will significantly increase the delay of the through movement by 83 to 107 seconds.

21	End the project at SR 25 instead of Port Access Gate No. 8	\$1,645,000	No	Grange Road is part of the National Highway System and is designated an internodal connector. Grange Road extends from SR 21 to a point where it dead ends east of SR 25. Grange Road currently serves the Dixie Crystal Sugar plant and will serve the future Gate 8, both of which have access points to Grange Road east of SR 25. Not improving Grange Road east of SR 25 under this project will require an additional project to be programmed along with adding additional construction impacts to a very congested area.
26	Reduce center turn lane width from 14 feet to 12 feet	\$196,000	Yes	This will be done.
30	Only provide center turn lane from RR crossing to SR 21	\$412,000	No	The recommendation to provide the center turn lane only from the RR crossing to SR 21 will not be implemented as it conflicts with the implementation of Alts. 3 and 6. The center turn lane will remain from SR 21 to SR 25 as each of the two existing driveways between Norfolk Southern RR and SR 25 serves two major distribution centers which produce at least 100 trips per day. The distance from the RR to SR 25 is 1940 ft. Driveway #1 is 600 ft east of the RR while driveway #2 is 550 east of the first. Eliminating the center turn lane will cause additional delay to the through movement along Grange Road by not allowing refuge for the trucks during left turn movement into these facilities. The length of the left turn queue from WB Grange Road to NB SR 25 is 700 ft. The distance from driveway #2 to SR 25 is 800 ft. Eliminating the center turn lane for this short of a distance negates any benefit gained from this recommendation.

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

Approved: G. M. Ross Date: 9/12/11
 Gerald M. Ross, PE, Chief Engineer

REW/LLM

Attachments

**c: Russell McMurry
Bobby Hilliard/Stanley Hill/Robert Murphy
Andy Casey/Darrell Richardson/Albert Welch/Marcela Coll/Chester Thomas
Brad Saxon/Will Murphy/Slade Cole/Teresa Scott
Andrew Hoenig
Ken Werho
Bobby Dollar
Lisa Myers
Matt Sanders**

From: Welch, Albert (Butch)
Sent: Thursday, October 06, 2011 11:36 AM
To: Myers, Lisa
Cc: Richardson, Darrell; Casey, Andy; Sanders, Matt
Subject: PI# 0007885 VE Responses - Revised

Lisa,

This e-mail is to follow up on our discussion yesterday concerning the revision to VE Recommendation 3. As you stated there is no formal revision required only a note to file for future reference. I have inserted the original statement below and highlighted the changes made to this recommendation.

Recommendation 3: Reduce shoulder width to 12-ft with 10-ft paved.
VE Team Savings: \$ 940,000

Yes, will partially implement

- A reduced shoulder width will be implemented from SR-21 to the Georgia Ports Authority's (GPA) new proposed Gate 8 (SR-25) with another reduction in shoulder width taking place from Gate 8 (SR-25) to the end of the project.
- The shoulder from SR-21 to GPA's Gate 8 (SR-25) will be reduced from 16-ft (14-ft paved) to 14-ft (12-ft paved) due to the number of driveways along Grange Road. The 14-ft (12-ft paved) shoulder will act as a right-turn auxiliary lane to allow trucks refuge during the turning movement thus mitigating congestion through the corridor. The cost savings of this reduction is ~~\$ 311,000~~ (\$ 230,000).
- The shoulder from GPA's Gate 8 (SR-25) to the end of the project will be reduced from 16-ft (14-ft paved) to 6-ft (4-ft paved). Since there is only one driveway past this point, the need for wide shoulders is not required. The cost savings of this reduction is approximately ~~\$ 220,000~~ (\$ 402,000).
- The revised total savings is ~~\$ 531,000~~ (\$ 632,000).

Let me know if you have any questions.

Thanks,

Butch

Albert S. Welch, Jr. (Butch)
Design Group Manager
Roadway Design
One Georgia Center
600 W. Peachtree Street, NW, 27th Floor
Atlanta, Georgia 30308

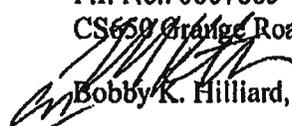
E-mail awelch@dot.ga.gov
ph. 404-631-1690
fax 404-631-1947

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

INTERDEPARTMENTAL CORRESPONDENCE



FILE: CSNHS-0007-00(885) Chatham County **OFFICE:** Program Delivery
P.I. No.: 0007885
CS650 Orange Road FM SR21 to GPA #8 **DATE:** September 9, 2011

FROM:  Bobby K. Hilliard, PE, State Program Delivery Engineer

TO: Ronald E. Wishon, State Project Review Engineer
Attn.: Lisa Myers

SUBJECT: RESPONSE TO VALUE ENGINEERING STUDY ALTERNATIVES

Attached are the responses for the Value Engineering Study. This office concurs with the responses.

If you have any questions, please contact Robert Murphy Project Manager at (404-631-1586).

Sincerely

Bobby Hilliard P.E.

Recommendation 2: Eliminate 14-ft two-way center turn lane.
VE Team Savings: \$ 1,243,000

No, will not implement

- Even with the reduction of the number of driveways along Grange Road from 45 to 32, eliminating the 14-ft two-way center left turn lane will cause additional delay to the through movement along Grange Road by not allowing refuge for trucks during the left-turn movement into local container yards which generate at least 100 trips per day.

Recommendation 3: Reduce shoulder width to 12-ft with 10-ft paved.
VE Team Savings: \$ 940,000

Yes, will partially implement

- A reduced shoulder width will be implemented from SR-21 to the Georgia Ports Authority's (GPA) new proposed Gate 8 with another reduction in shoulder width taking place from Gate 8 to the end of the project.

- The shoulder from SR-21 to GPA's Gate 8 will be reduced from 16-ft (14-ft paved) to 14-ft (12-ft paved) due to the number of driveways along Grange Road. The 14-ft (12-ft paved) shoulder will act as a right-turn auxiliary lane to allow trucks refuge during the turning movement thus mitigating congestion through the corridor. The cost savings of this reduction is \$ 311,000.

- The shoulder from GPA's Gate 8 to the end of the project will be reduced from 16-ft (14-ft paved) to 6-ft (4-ft paved). Since there is only one driveway past this point, the need for wide shoulders is not required. The cost savings of this reduction is approximately \$ 220,000.

- The revised total savings is \$ 531,000.

Recommendation 5: Remove unsuitable material to support the new pavement.
VE Team Savings: (\$ 1,195,000)

Yes, will implement (as required pending soil survey report from OMR, cost to vary on depth of undercut)

Recommendation 7: Reduce typical section to a three-lane section with reduced shoulder width west of Jimmy DeLoach Connector.
VE Team Savings: \$ 527,000

No, will not implement (see Recommendation 3)

- The suggested reduced shoulder width of 10-ft (6-ft paved) will not be implemented as it conflicts with the implementation of Recommendation 3.

- The assumption that truck traffic drops 60% west of the Jimmy DeLoach Connector is not valid since all of the 16 driveways between SR-21 and Jimmy DeLoach Connector serve container yards.

Recommendation 8: Allow a free right turn lane from westbound Grange Road to northbound SR-21
VE Team Savings: (\$ 381,000)

No, will not implement

- The suggested free right turn lane from westbound Grange Road to northbound SR-21 will not be implemented as it conflicts with the implementation of Recommendation 9/11.
- Allowing a free flow right turn lane onto northbound SR-21 from westbound Grange Road will increase the scope of the project to include adding an additional lane along SR-21 to allow trucks to merge at speed with the mainline traffic stream.
- The length of the acceleration lane on SR-21 is 1160-ft and will cause additional impacts to a residential driveway and a city street (Fries Road), both located 390-ft and 650-ft north of Grange Road respectively.

Recommendation 9/11: Allow westbound Grange Road to southbound SR-21 movement and signalize the intersection
VE Team Savings: (\$ 14,000)

Yes, will implement

Recommendation 12: Do not signalize the Grange Road/ SR-25 intersection
VE Team Savings: \$ 107,000

No, will not implement

- District 5 Traffic Operations Engineer recommends placing a signal at this location as it meets Warrant 1, Condition B – Interruption of Continuous Traffic, due to the anticipated truck volumes crossing through the intersection of SR-25/ Grange Road.

Recommendation 18: Eliminate right turn lanes at the SR-25/ Grange Road intersection
VE Team Savings: \$ 182,000

No, will not implement

- Based on the traffic counts and high truck percentage, removing the right turn lanes from the SR-25/ Grange Road intersection will significantly increase the delay of the through movement by 83 to 107 seconds.
- Each quadrant has right turn volumes (AM or PM) of at least 100 turning vehicles, mainly which are trucks. Based on vehicle length and lost time at the intersection, the queued through vehicles will block the right turning vehicles.
- The intersection completely fails (LOS F) when the right turn lanes are removed from the south to west movement and the west to north movement.

Recommendation 21: Limit project between SR-21 and SR-25
VE Team Savings: \$ 1,645,000

No, will not implement

- Grange Road is part of the National Highway System (NHS) and is designated an intermodal connector. Grange Road extends from SR-21 to a point where it dead ends east of SR-25.
- Grange Road currently serves the Dixie Crystal Sugar plant and will serve in the very near future the GPA's new Gate 8, both of which have access points to Grange Road east of SR-25.
- Not improving Grange Road east of SR-25 under this project will require an additional project to be programmed along with adding additional construction impacts to a very congested area.

Recommendation 26: Reduce center turn lane from 14-ft to 12-ft
VE Team Savings: \$ 196,000

Yes, will implement

Recommendation 30: Only provide center turn lane from railroad crossing to SR-21
VE Team Savings: \$ 412,000

No, will not implement

- The suggestion of providing the center turn lane only from the railroad crossing to SR-21 will not be implemented as it conflicts with the implementation of Recommendation 3 and 26.
- The center turn lane will remain from SR-21 to SR-25 as each of the two existing driveways between Norfolk Southern Railroad (NS RR) and SR-25 serves two major distribution centers which produce at least 100 trips per day.
- The distance from NS RR to SR-25 is 1940-ft. Driveway #1 is 600-ft east of NS RR while driveway #2 is 550-ft east of the first. Eliminating the center turn lane will cause additional delay to the through movement along Grange Road by not allowing refuge for trucks during the left-turn movement into these facilities.
- The length of the left turn queue from westbound Grange Road to northbound SR-25 is 700-ft. The distance from driveway #2 to SR-25 is 800-ft. Eliminating the center turn lane for this short of a distance negates any benefit gained from this recommendation.

CAC:DMR:asw 

PRECONSTRUCTION STATUS REPORT FOR PI:0003626_0007885

PROJ ID: 0007885
COUNTY: Chatham
LENGTH (MI): 1.50
PROJ NO.: CSNHS-0007-00(885)
PROJ MGR: Murphy, Robert P.
AOHD Initials: MAH
OFFICE: Program Delivery
CONSULTANT: No Consultant, GDOT In-House Design
SPONSOR: Port Wentworth
DESIGN FIRM: GDOT Roadway Design A Welch
MPD: Savannah TMA
TPR R: 2006-H-1
MODEL YR: 2005
TYPE WORK: Widening
CONCEPT: WIDEN & RECONST
PROG TYPE: Reconstruction/Rehabilitation
Prov. for ITS: N
BOND PROJ:
PRIORITY CODE:
DOT DIST: 5
COMG. DIST: 12
BIKE: N
MEASURE: E
NEEDS SCORE: 3
BRIDGE SUFF:
MGMT LET DATE: 08/15/2013
BASELINE LET DATE: 08/06/2013
SCHED LET DATE: 1/16/2014
WHO LETS?: GDOT Let
LET WITH:

TASKS	ACTUAL START	ACTUAL FINISH	%	PROGRAMMED FUNDS				Date Auth
				Activity	Approved	Proposed	Cost	
Concept Development	9/14/2007	5/5/2011	75	PE	2006	2006	1,857,727.30	6/19/2006
Concept Meeting	5/5/2011	5/5/2011	100	ROW	2011	2013	459,474.26	AUTHORIZED
PM Submitt Concept Report	5/5/2011	5/5/2011	0	UTL	LOCL	LOCL	211,000.00	PRECST
Concept Report Review and Comments	4/29/2011	4/29/2011	0	CST	2016	2016	6,877,400.49	PRECST
Management Concept Approval Complete	10/19/2010	10/19/2010	0					
Value Engineering Study	12/28/2007	12/28/2007	0					
Public Information Open House Held	12/21/2007	12/21/2007	0					
Environmental Approval	12/21/2007	12/21/2007	100					
Mapping			0					
Field Surveys/SDE			0					
Preliminary Plans	3/29/2012	3/29/2012	25					
Underground Storage Tanks	12/15/2011	12/15/2011	0					
404 Permit Obtainment	8/27/2012	8/27/2012	0					
FPFR Inspection	7/20/2012	7/20/2012	0					
R/W Plans Preparation	9/20/2012	9/20/2012	0					
R/W Plans Final Approval	6/7/2012	6/7/2012	0					
L & D Approval	11/15/2012	11/15/2012	0					
Soil Survey	2/7/2013	2/7/2013	0					
Stake R/W	3/20/2012	3/20/2012	0					
R/W Authorization	2/7/2013	2/7/2013	0					
Final Design	3/28/2013	3/28/2013	0					
FPFR Inspection	4/19/2013	4/19/2013	0					
Submit FPFR Responses (GIS)			0					

ACTIVITY	AMOUNT	DATE	ACTIVITY	COST	FUND	STIP AMOUNTS	
						Cost	Fund
PE	\$400,000.00	10/1/2005	ROW	545,281.14	L050		
ROW	\$211,000.00	6/15/2011	UTL	0.00	L240		
UTL	\$1,987,191.00	3/2/2009	CST	0.00	L240L		

Director Comments:
 ADOB-25-09/C consultant working on concept for 3-lane design; BWS-09-09/C consultant to submit revised schedule for review PM Stopped the work on this project to decide on a SA/ Strut new contract? Delton Hampton contract terminated by Department, project will be brought in-house. Developing new schedule. Project requires new traffic study. Revised N&S increased project limits a Port new Gate 3 lane with finished median.

PROJ. PARCEL CT:	43	Total Parcel In ROW Systems	Cond. Files	Acquired by:	DOT	NEEDS CT:
Under Review:		Options - Pending:	Relocations:	Acquisition MGR:		
Released:		Condemnations - Paid:	Acquired:	R/W Cert Date:		

HIGHWAY SAFETY MANUAL (HSM) ANALYSIS for CONCEPT REPORTS/REVISED CONCEPT REPORTS

This Concept Report/Revised Concept includes an HSM predicted average crash frequency analysis for the design year ADT using the Manual’s Predictive Method. The Predictive Method analysis is based on Safety Performance Functions (SPF) for individual roadway segments and intersections that provide the crash frequency. The HSM often provides information on crash frequency distribution by collision type and severity. Some SPFs include HSM Crash Modification Factors (CMF) that adjust the SPF crash frequency to account for difference between HSM base conditions and project specific conditions such as geometric design features. The HSM includes local calibration factors to further refine predictive average crash frequency. These local factors have not yet been developed by GDOT.

Project Segment and Intersection Types analyzed

Segment				Intersection	
ID #	Type	Sta. Begin	Sta. End	ID #	Type
	Choose an item.	99+00.00	101+00.00	1	Choose an item.
1	2-Lane Undivided Rural	104+50.00	105+00.00	2	3 Leg Minor Rd Stop Control-Rural
2	2-Lane Undivided Rural	121+50.00	122+50.00	3	Choose an item.
3	2-Lane Undivided Rural	126+50.00	127+50.00	4	Choose an item.
4	2-Lane Undivided Rural	154+50.00	155+00.00	5	4 Leg Signalized-Rural
5	2-Lane Undivided Rural	173+00.00	174+20.00	6	3 Leg Minor Rd Stop Control-Rural
6	2-Lane Undivided Rural	191+10.00			Choose an item.

There are no Safety Performance Functions or Crash Modification Factors to address a proposed rural signalized three-leg intersection; therefore, no Highway Safety Manual analysis was performed for the SR21 / Grange Road intersection (Intersection ID #1) and there are no SPF’s or CMF’s to address adding a proposed rural diamond interchange at a new location of an existing roadway; therefore, no Highway Safety Manual analysis was performed for the Jimmy Deloach Connector / Grange Road Interchange (Intersection ID #3 and ID #4).

SUMMARY of RESULTS

The 1.74 mile project was divided into 6 segments which includes 6 intersections. The Highway Safety Manual proposed condition analysis predicts for the design year ADT of 2035 a total of 6.9 accidents of which 4.0 are predicted for the roadway segments and 2.9 are predicted for the roadway intersections. The Augusta Road (SR 21) / Grange Road intersection was not analyzed since there are no Safety Performance Functions (SPF's) or Crash Modification Factors (CMF's) for a proposed rural three-leg signalized intersection. Also, the proposed Interchange of Jimmy Deloach Parkway at Grange Road was not analyzed since there are no SPF's or CMF's for a proposed rural diamond interchange added to an existing roadway at a new location.

The Highway Safety Manual base condition analysis predicts for the design year ADT of 2035 a total of 10.9 accidents of which 3.8 are predicted for the roadway segments and 7.1 are predicted for the roadway intersections. Please note; this analysis does not include the intersection of Augusta Road (SR 21) and Grange Road since no SPF's or CMF's exist for a proposed rural three-leg signalized intersection and this analysis does not include the proposed rural diamond interchange of Jimmy Deloach Parkway at Grange Road since no SPF's or CMF's exist for a proposed Interchange added to an existing roadway at a new location.

The slightly higher predicted crash frequency in the proposed roadway segments versus the base roadway segments is due to the high number of commercial, distribution and industrial type facility driveways along the majority of this roadway. The addition of the proposed 12 foot paved shoulder and the addition of a two-way-left-turn-lane (TWLTL) for the majority of the length of this project contributes to the segment crashes not being much higher. The lower predicted crash frequency in the proposed roadway intersections versus the base roadway intersections is due to the addition of the TWLTL throughout the majority of the length of this project and the proposed signal at the South Coastal Highway (SR 25) / Grange Road intersection. The addition of left and right turn lanes at the South Coastal Highway (SR 25) / Grange Road intersection also helps lower the predicted crash frequency in the proposed roadway intersections.

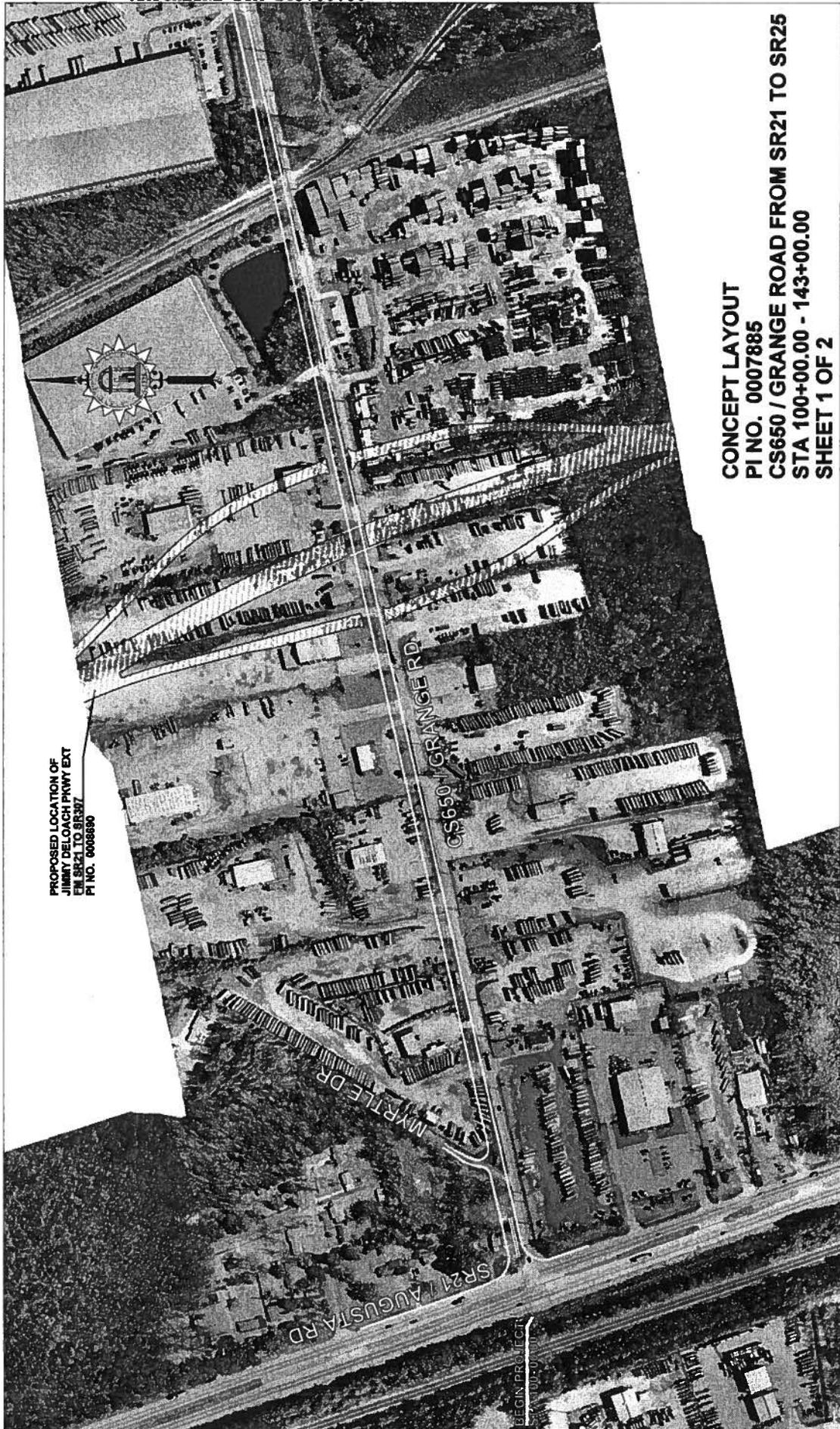
HSM Predictive Method for Rural Two-Lane Two-Way Roadway Segments

ID #	Segment		Roadway Segment Base Crash Frequency – Excluding Vehicle and Pedestrian/Bicycle (crashes/year)	Lane Width (base cond. = 12-ft)	Shoulder Width and Type (width base cond. = 6-ft) (type base cond. = paved)	Horizontal Curves – Length, Radius & Spirals (base cond. = tangent)	Horizontal Curves - Superelevation (base cond. = Green Book)	Grades (base cond. = <= 3.0%)	Driveway Density (base cond. = 5 per mile)	Centerline Rumble Strips (base cond. = none)	Passing Lanes (base cond. = none)	Two-Way Left Turn Lanes (base cond. = none)	Roadside Design (base cond. = RHR = 3)	Lighting (base cond. = none)	CMF _{12r}	Automated Speed Enforcement (base cond. = none)	Total Predicted Average Crash Frequency for Roadway Segment (crashes/year)
	Length (miles)	Analysis Condition															
1	0.07	Base Proposed	0.099 0.099	1.0 1.0	1.0 0.93	1.0 1.0	1.0 1.0	1.0 1.19	1.0 1.0	1.0 1.0	1.0 1.0	1.0 0.89	1.0 1.0	1.0 1.0	1.0 1.0	1.0 1.0	0.099 0.097
2	0.31	Base Proposed	0.431 0.431	1.0 1.0	1.0 0.93	1.0 1.0	1.0 1.0	1.0 1.94	1.0 1.0	1.0 1.0	1.0 1.0	1.0 0.70	1.0 1.0	1.0 1.0	1.0 1.0	1.0 1.0	0.431 0.544
3	0.08	Base Proposed	0.195 0.195	1.0 1.0	1.0 0.93	1.0 1.0	1.0 1.0	1.0 1.90	1.0 1.0	1.0 1.0	1.0 1.0	1.0 0.68	1.0 1.0	1.0 1.0	1.0 1.0	1.0 1.0	0.195 0.232
4	0.51	Base Proposed	1.778 1.778	1.0 1.0	1.0 0.93	1.0 1.0	1.0 1.0	1.0 1.08	1.0 1.0	1.0 1.0	1.0 1.0	1.0 0.88	1.0 1.0	1.0 1.0	1.0 1.0	1.0 1.0	1.778 1.560
5	0.34	Base Proposed	0.672 0.672	1.0 1.0	1.0 1.09	1.0 1.0	1.0 1.0	1.0 1.01	1.0 1.0	1.0 1.0	1.0 1.0	1.0 1.0	1.0 1.0	1.0 1.0	1.0 1.0	1.0 1.0	0.672 0.740
6	0.32	Base Proposed	0.594 0.594	1.0 1.0	1.0 1.09	1.0 1.0	1.0 1.0	1.0 1.33	1.0 1.0	1.0 1.0	1.0 1.0	1.0 1.0	1.0 1.0	1.0 1.0	1.0 1.0	1.0 1.0	0.594 0.858
		Base Proposed		1.0 1.0	1.0 1.0	1.0 1.0	1.0 1.0	1.0 1.0	1.0 1.0	1.0 1.0	1.0 1.0	1.0 1.0	1.0 1.0	1.0 1.0	1.0 1.0	1.0 1.0	
Total			3.769 3.769														3.769 4.031

HSM Predictive Method for Rural Intersections

Intersection ID #	Analysis Condition	Intersection Base Crash Frequency – Excluding Vehicle and Pedestrian/Bicycle (crashes/year)	Intersection Skew Angle (base cond. = 0 degrees)	Signalized - CMF = 1.0 Unsignalized - Left Turn Lanes on Major Road Approaches (base cond. = none)	Signalized - Right Turn Lanes on all Approaches (base cond. = none) Unsignalized – Right Turn Lanes on Major Approaches	Lighting (base cond. = none)	Total Predicted Average Crash Frequency for Roadway Segment (crashes/year)
		N_{spf}^{int}	CMF_{θ}	CMF_{2l}	CMF_{3l}	CMF_{4l}	$N_{predicted}^{int}$
1	Base	0.306	1.0	1.0	1.0	1.0	0.306
	Proposed	0.306	1.0	0.56	1.0	1.0	0.171
2	Base	5.819	1.0	1.0	1.0	1.0	5.819
	Proposed	5.819	1.0	0.45	0.85	1.0	2.226
3	Base	0.953	1.0	1.0	1.0	1.0	0.953
	Proposed	0.953	1.0	0.56	1.0	1.0	0.533
	Base		1.0	1.0	1.0	1.0	
	Proposed						
	Base		1.0	1.0	1.0	1.0	
	Proposed						
	Base		1.0	1.0	1.0	1.0	
	Proposed						
	Base		1.0	1.0	1.0	1.0	
	Proposed						
Total	Base	7.078					7.078
	Proposed	7.078					2.93

MATCHLINE STA 143+00.00



PROPOSED LOCATION OF
JIMMY DELOACH PKWY EXT
CN SR 21 TO SR 217
PI NO. 0008890

CONCEPT LAYOUT
PI NO. 0007885
CS650 / GRANGE ROAD FROM SR21 TO SR25
STA 100+00.00 - 143+00.00
SHEET 1 OF 2

ATTACHMENT #14



MATCHLINE STA 143+00.00

CONCEPT LAYOUT
PI NO. 0007885
CS650 / GRANGE ROAD FROM SR21 TO SR25
STA 143+00.00 - 187+00.00
SHEET 2 OF 2