

ORIGINAL TO GENERAL FILES

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

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

FILE P.I. #162430-
STP00-2984-00(001)
GDOT District 1 - Gainesville
Hall County
SR 347/Friendship Road & Thompson Mill Road
from I-985 to SR 211

OFFICE Design Policy & Support

DATE April 18, 2012

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

TO SEE DISTRIBUTION

SUBJECT **APPROVED REVISED CONCEPT REPORT**

Attached is the approved Revised 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
Kathy Zahul, State Traffic Engineer
Georgene Geary, State Materials & Research Engineer
Lisa Myers, State Project Review Engineer
Jeff Baker, State Utilities Engineer
Ken Thompson, Statewide Location Bureau Chief
Michael Henry, Systems & Classification Branch Chief
Bayne Smith, District Engineer
Robert Mahoney, District Preconstruction Engineer
Allen Ferguson, District Utilities Engineer
Kimberly Nesbitt, Project Manager
BOARD MEMBER - 9th Congressional District

Revised Project Concept Report
DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA
REVISED PROJECT CONCEPT REPORT

Project Number: STP00-2984-00(001)
County: Hall
P. I. Number: 162430
Federal Route Number: N/A
State Route Number: 347

This project consists of the widening, reconstruction, and relocation of SR 347/Friendship Road and Thompson Mill Road from just east of I-985, mile post 4.1, and ending at SR 211, mile post 12.0. The existing two-lane roadway would be widened to six lanes from I-985 to Williams Road, tapering from six lanes to four lanes by Dunbar Road, and continuing as four lanes to Chateau Corners Drive where it again tapers to a six lanes section with lane assignments of four through lanes continuing to SR 211. The additional outside through lane will be striped as an auxiliary lane. A 20 foot raised median, 22 foot urban shoulders with 10 foot multi use paths, and turn lanes, as needed, would also be included throughout. Total project length is approximately 7.915 miles. The project termini would tie into the existing six lanes along SR 347 at the I-985 interchange and end at an important regional route, SR 211, to the east.

DATE: 6-16-11 ** Kisinger Campo & Associates, Corp /KLP
Design Consultant Name and Firm Name

DATE: 6-17-11 ** Bobby Hilliard /KLP
Office Head (Project Manager's Office)

DATE: 6-16-11 ** Kimberly Nesbit /KLP
Project Manager

** Submission on file.

Recommendation for approval:

DATE: 2-9-12 * Glenn Bowman /KLP
State Environmental Administrator

* Recommendation on file.

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: 2-1-12 Cynthia R. VandeK
State Transportation Planning Administrator

REVISED PROJECT CONCEPT REPORT

Description of the approved concept:

The date of location approval is May 31, 2007. This project as approved is the reconstruction, widening, and relocation of SR 347, Friendship Road, from I-985 to SR 211. It is located in southern Hall County and entirely within Land District No. 8, Land Lots 153 thru 157, Headrights 165, 166, 174 thru 181, 183 thru 187, and Georgia Military Districts 392 and 1419.

The proposed project would reconstruct, widen, and relocate the SR 347 existing two lane roadway into a six and four lane roadway. The project is approximately 7.9 miles in length, beginning at approximately mile log 4.1 and ending at approximately mile log 12.0.

The proposed typical section for the first 1.7 miles is an urban six lane roadway section divided by a 20-foot raised grass median with 12-foot lanes and 20-foot outside shoulders including 5-foot sidewalks. The remaining 6.2 miles is a rural four lane roadway section divided by a 20-foot raised grass median with 12-foot lanes and 10-foot outside shoulders of which 6.5-feet will be paved. Right turn lanes will be provided at all side roads.

Revised features to be approved:

The proposed revised concept section would extend the six-lanes from I-985 to east of Williams Road then transitioning to four lanes then back to six-lanes from Chateau Corners Drive to SR 211. The additional outside through lane will be striped as an auxiliary lane. The entire project section is proposed to be 22 foot urban shoulders with curb and gutter, including 10 foot multi use paths, and 20 foot raised median. The VE Study Implementation reduced lane widths to 11 feet, except 12 foot center lane in the six lane sections, and added 10-foot multi-use paths on both sides in lieu of bike lanes.

Need and Purpose:

Planning Basis for Action

The proposed widening, reconstruction, and relocation of State Route (SR) 347/Friendship Road and Thompson Mill Road from I-985 to SR 211 has been a longstanding priority of Hall County transportation officials. The proposed construction was first recommended under the 1987 Gainesville-Hall Transportation Study. As the project remained a Hall County priority, it was identified in the 1997 Gainesville- Hall Transportation Study update. Most recently, the section of Hall County in which the proposed project lies was identified by the 2000 Census as a portion of the Atlanta urbanized area. Consequently, this project was also submitted to the Atlanta Regional Commission to model for regional air quality nonattainment purposes. As a result, in part to these and other factors, this project was added to the Georgia Department of Transportation's Construction Work Program in the late 1990's. This project is in the approved 2006-2011 Transportation Improvement Program (TIP) and Mobility 2030 Regional

Transportation Plan. The reference number in the TIP is GH-007. The proposed project is presently in right-of-way acquisition and construction scheduled for December 2011.

The location of the proposed project is shown in Attachment 1. Existing State Route 347 currently provides two 12-foot lanes with variable width shoulders. The facility is functionally classified as an urban minor arterial. The posted speed limit is 45 miles per hour (mph). The section of roadway along the proposed improvement is a school bus route, but it is not along a state bike route. The Gainesville-Hall County Metropolitan Planning Organization (GHMPO) has identified the proposed project corridor as a future bike route.

Proposed Improvement

This project consists of the widening, reconstruction, and relocation of SR 347/Friendship Road and Thompson Mill Road from just east of I-985 and ending at SR 211. The existing two-lane roadway would be widened to six lanes from I-985 to Williams Road, tapering from six lanes to four lanes by Dunbar Road, and continuing as four lanes to Chateau Corners Drive where it again becomes six lanes continuing to SR 211. The additional outside through lane will be striped as an auxiliary lane. A median and turn lanes, as needed, would also be included. Total project length is approximately 7.915 miles. The proposed project is shown on Sketch & Project Maps Attachments 1. The project termini would tie into the existing six lanes along SR 347 at the I-985 interchange and end at an important regional route, SR 211, to the east.

Projects in the Area

The locations and additional information of other GDOT and Hall County roadway projects located within the area that are programmed in the GDOT Construction Work Program, the GDOT Long Range Program, and the Gainesville Hall County Long Range Transportation Plan are provided in Table 1.

**TABLE 1
OTHER ROADWAY PROJECTS IN THE AREA**

Project Number	Project Description	Project Schedule*
STP-2688(4) P.I. No. 170735	SR 347/Friendship Road from I-985 to CR 1293/McEver Road Phase I	RW – 2007 CST – 2008
CSNHS-0006-00(336) P.I. No. 0006336	I-985 from I-85 to Flowery Branch ATMS Communications/Surveillance	CST - 2009
CSSTP-0007-00(233) P.I. No. 0007233	SR 211/Old Winder Highway from SR 53 to SR 347	PE - 2007
STP-065-3(39) P.I. No. 122020	SR 53 from South of SR 211 to Cedar Ridge Drive	ROW – 2003 CST – LET
SF000-M002-00(991) P.I. No. M002991	SR 347/Friendship Road at Hog Mountain Road Right Turn Lane	CST – LET
Hall County Project GH-023	Spout Spring Road Widening from Hog Mountain Road to Gwinnett County Line	PE – 2011

Travel Demand and Operational Characteristics

Level of Service (LOS) is a qualitative measure of the effect of speed and travel time, traffic interruptions or restrictions, freedom to maneuver, safety, driving comfort, convenience, and economy. There are six levels of service that are defined for each type of facility in which analysis procedures are available; they are given letter designations from A to F, with LOS A representing the best operating conditions and LOS F representing the worst.

According to 2010 traffic counts, the Annual Daily Traffic (ADT) along SR 347 for the length of the project proposed for widening to six lanes and four lanes the LOS is summarized in the following Table 2.

**TABLE 2
DESIGN TRAFFIC & LEVEL OF SERVICE**

Segment/Proposed	ADT/LOS					
	2010 (2 lane Ex.)		2015		2035	
I-985 to Hog Mountain Rd. (6 lane)	17500	E	41650	B	89050	D
Hog Mountain Rd. to Williams Rd. (6 lane)	8800	E	31950	B	5900	D
Williams Rd to Representative Way (4 lane)	7150	E	30000	C	56100	E
Representative Way to Reunion Way (4 lane)	11000	E	29500	C	55600	E
Reunion Way to Chateau Corners Dr. (4 lane)	9100	E	26100	B	50150	D
Chateau Corners Dr. to Deaton Creek Pkwy (6 lane)	10300	E	26000	B	50300	C
Deaton Creek Pkwy to SR 211 (Limit of Access) (6 lane)	9500	E	18300	A	31650	B

TABLE 2A (Supplemental Information)
DESIGN HOUR VOLUMES & INTERSECTION LEVEL OF SERVICE

Intersection	Combined DHV(SR 347&side road) / LOS					
	2015		2025		2035	
	DHV	AM(PM)	DHV	AM(PM)	DHV	AM(PM)
SR 347@ Spout Springs Rd (4 lane)	3625	D(D)	5330	E(F)	7040	F(F)
SR 347@ Deaton Creek Pkwy (4 lane)	4890	E(F)	7155	F(F)	9420	F(F)
SR 347@ Deaton Creek Pkwy (6 lane)	4890	D(E)	7155	F(F)	9420	F(F)

Note: Predicted stacking for WB thru(as 2 lanes) at Deaton Creek Parkway is back to median opening for western most D/W into Hospital complex. Also, predicted stacking for WB thru(as 2 lanes) at western most D/W into Hospital Complex is almost back to median opening for Main Entrance into Hospital. Predicted stacking for WB thru(as 2 lanes) at Main Entrance into Hospital is predicted to be into median opening for Emergency Vehicles.

State Route 347 is an important regional route in south Hall County that provides east-west access between I-985 to the west and I-85, via SR 211, to the east. Attachment 1 also shows many of the major traffic generators in the region. The high traffic volumes along the proposed project length are attributed to the facility’s connection to the heavily traveled I-985 corridor and also its importance to the region as a cross-jurisdictional route. Traffic along this facility is also the result of the frequent travel to Lake Lanier, which serves as a popular tourist and recreation destination.

In addition to the high traffic volumes, the existing roadway also experiences a high level of heavy truck traffic associated with numerous residential and commercial construction sites along the project corridor. The Blue Circle Company mining operation located east of Hog Mountain Road also contributes to an increased volume of heavy truck traffic, particularly along the section of Friendship Road from the mine west to I-985.

Logical Termini

The western terminus of the proposed project is located at the existing I-985, which is a major north-south interstate highway providing four lanes of travel. The proposed project would widen SR 347 from two to six lanes at this location. Beyond the project limits, SR 347 continues further west through the I-985 interchange and provides access to the destinations of the Lake Lanier resort area and community. SR 347 currently widens to four thru lanes of travel at the I-

985 interchange. Project STP-0007-00(319), P.I. No. 0007319 and Project STP-2688(4), P.I. No. 170735 are long range projects in the construction work program to widen SR 347 west of I-985 to six lanes.

The eastern terminus of the proposed project is located at SR 211. The proposed SR 347 would terminate at SR 211 at a “T” intersection. Traffic data along SR 211 shows that traffic on SR 211 is substantially greater between I-85 and SR 347 than along SR 211 north of SR 347 to SR 53. The AADT on SR 211 between I-85 and SR 347 has increased rapidly over the last six years. Traffic on SR 211 between SR 347 and SR 53 has steadily increased over the last six years; but the increase is less than the SR 211 segment to the south of SR 347.

Several north-south roadways are planned for improvements, including: Hog Mountain Road, Spout Spring Road, SR 211, and SR 53. The proposed project is the only planned project that would add capacity along an east-west route to improve connectivity between I-985 and I-85 north of the Atlanta metropolitan area. The project termini are deemed logical as this project would tie into the existing four lanes along SR 347 and the I-985 northbound interchange ramps, and end at an important regional route, SR 211, to the east. SR 211 has been programmed long range to be upgraded to a multilane facility, Project CSSTP-0007-00(830), P. I. No. 0007830, from south of I-85 at the Winder Bypass to SR 347 and Project CSSTP-0007-00(233), P. I. No. 0007233, from SR 347 north to SR 53. Project STP-065-3(39), P. I. No. 122020, SR 53 is under construction from SR211 to I-985.

Safety

Accident rates along the segment of the proposed improvement dropped off between 2007 and 2009. In 2007 there were 57 accidents recorded with 22 injuries and one fatality. In 2008 there were 37 accidents recorded with 19 injuries and no fatalities. In 2009, 24 accidents were recorded with 19 injuries and no fatalities. Accident data and comparable statewide averages are shown in Table 3.

SR 347/Friendship Road has been reclassified as an Urban Minor Arterial. Accident rates in the project area are lower than statewide accident rates for similarly classified facilities, though the types of incidents recorded along the roadway seem to indicate sight distance concerns. Many of the accidents for the above referenced three-year period involve collisions with objects other than motor vehicles such as deer, embankments, utility poles and ditches. The increase in capacity from the reconstruction being proposed would improve driver visibility and clear zone distances; and thereby would improve operational efficiency and thus reduce the number of accidents.

**TABLE 3
ACCIDENT DATA**

	2007	2008	2009
Total Accidents	57	37	24
Accidents Per 100 MVMT	110	73	46
Statewide Accidents Per 100 MVMT for Non-NHS Urban Minor Arterials	513	469	463
Accident % Higher(+)/Lower(-) Than Statewide Average	- 21%	-16%	-10%

MVMT = Million Vehicle Miles Traveled

Regional Growth

This area of Hall County has experienced substantial population growth since 1980 when the population was approximately 76,000. According to the GHMPO, the current population of Hall County is 171,771 residents. Since 1980, the residential population of Hall County has grown by 125 percent. South Hall County will continue to experience growth as developable land in nearby north Gwinnett County becomes limited. South Hall County is a highly desirable suburban location considering its relatively close proximity to North Atlanta employment centers, such as Duluth, Norcross, and the Perimeter area of north Fulton County. Appendix 1 shows cross roads where major residential subdivisions and traffic generators exist along or in close proximity to SR 347/Friendship Road. Most of the subdivisions are currently built-out, but some of them are only partially completed. These residential subdivisions are moderately dense and generally include one acre lots without public sewer. Other major traffic generators in the vicinity include the Mulberry River Healthcare Facility, which is not yet completed but was begun in 2007.

According to the 2000 census, Hall County was identified as having a population of 139,277. According to the GHMPO, the current population in Hall County is 171,771. Like much of metropolitan Atlanta, this is a rapidly growing residential area. Hall County’s population has risen 46 percent since the 1990 census count of 95,428. Of the population sampled in 2000, 19.6 percent were Hispanic and 7.3 percent were Black. Approximately 12 percent of the population was recorded as living below the poverty level.

The area immediately surrounding SR 347/Friendship Road can be characterized as primarily residential with a few remaining tracts of agricultural land. In addition, several new single-family residential subdivisions are currently under construction. Several areas are experiencing increased commercial retail growth in response to current and proposed developments along

Friendship Road. These areas are centered about several intersections along the project corridor and include: I-985 at Friendship Road, Hog Mountain Road and SR 347/Friendship Road, Thompson Mill Road at Spout Spring Road, and Thompson Mill Road at SR 211.

The proposed widening and reconstruction of SR 347/Friendship Road would provide needed infrastructure improvements to the regional transportation network.

Conclusion

The need identified along this corridor includes lack of regional access in south Hall County which is a part of the greater metropolitan Atlanta area, existing poor operating conditions, and safety concerns. Regional benefits would result from motorists being better able to access the economically viable and attractive Lake Lanier area. Traffic would operate more efficiently by improving present levels of service. Safety would be enhanced by improving the roadway to accommodate the current and proposed traffic and by improving the safety-clear zone. All these benefits would be realized by implementing the proposal to widen, reconstruct, and relocate SR 347/Friendship Road/Thompson Mill Road from I-985 to SR 211.

Project location:

This project is the widening, reconstruction, and relocation of SR 347/Friendship/Thompson Mill Road. The project begins just east of I-985 at MP# 4.076 within the City Of Buford, then goes thru the City Of Flowery Branch and the City Of Braselton and ends on SR 211 at MP# 11.991 for a total 7.915 miles. The present roadway serves as an east-west connector between I-985 and I-85. This corridor has recently begun experiencing development typical of a suburban area. In addition to the residential development, this corridor has also experienced commercial, industrial, and manufacturing development. This corridor was identified for improvement in the 1987 Gainesville-Hall Transportation Study (GHTS). It was also included in the 1997 GHTS update as Stage I (1994-2000) transportation need. Currently, SR 347 is a two lane rural roadway with a posted speed limit of 45/50 MPH. The base year traffic (2015) is 41,650 VPD and the design year traffic (2035) is 89,050 VPD. The proposed design speed is 45 MPH.

The proposed construction will widen SR 347 to six lanes from I-985 to beyond Williams Road where it will transition to a four-lane roadway to Chateau Corners Drive where it again becomes six lanes continuing to SR 211. All sections will be separated by a raised median which varies from 20 to 44 feet, with 22 foot shoulders urban section including 10 foot multiuse paths. This is a change from the Concept Report which called for six lanes from I-985 to Friendship Circle. This change is due to the traffic capacity analysis of the updated traffic projections. The traffic diagrams are included in the Appendix. Access will be partial limited on new location and controlled by permit on existing location. Traffic will be maintained during construction.

Description of the proposed concept:

This project consists of the widening, reconstruction, and relocation of SR 347/Friendship Road and Thompson Mill Road from just east of I-985 and ending at SR 211. The existing two-lane roadway would be widened to six lanes from I-985 to Williams Road, tapering from six lanes to four lanes by Dunbar Road, and continuing as four lanes to Chateau Corners Drive where it again becomes six lanes continuing to SR 211. The additional outside through lane will be striped as an auxiliary lane. A median and turn lanes, as needed, would also be included. Total project length is approximately 7.915 miles. The proposed project is shown on Sketch & Project Maps Attachment 1. The project termini would tie into the existing six lanes along SR 347 at the I-985 interchange and end at an important regional route, SR 211, to the east.

PDP Classification: Major: X Minor: _____

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

Functional Classification: Urban Minor Arterial

U. S. Route Number(s): N/A **State Route Number(s):** 347

Traffic (AADT) as shown in the approved concept:

Base Year: (2003) 25,800 Design Year: (2023) 43,200

Updated traffic data (AADT):

Base Year: (2015) 41,650 Design Year: (2035) 89,050

Approved Programmed/Schedule:

P.E.: PFPR Held 2/16/07 R/W: 2007 Construction: 2011

VE Study Required Yes (X) No ()

Benefit/Cost Ratio: 1.41

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

Is the project in a PM2.5 Non-Attainment area? Yes (X) No ()

The proposed construction will widen existing SR 347 from two lanes to six lanes from I-985 to beyond Williams Road where it will transition to a four-lane roadway to Chateau Corners Drive where it again becomes six lanes continuing to SR 211. The project was evaluated for its consistency with state and federal air quality goals for carbon monoxide (CO), particulate matter (PM2.5), and Mobile Source Air Toxins (MSAT). Results indicate that the project is consistent with the State Implementation Plan for the attainment of clean air quality in Georgia and is in compliance with both state and federal air quality standards. The proposed project is in the

conforming 2006-2011 TIP and would not be expected to contribute to adverse impacts to air quality.

<p>Approved Features: The date of location approval is <u>May 31, 2007</u>. This project as approved is the reconstruction, widening, and relocation of SR 347, Friendship Road, from I-985 to SR 211. It is located in southern Hall County and entirely within Land District No. 8, Land Lots 153 thru 157, Headrights 165, 166, 174 thru 181, 183 thru 187, and Georgia Military Districts 392 and 1419.</p> <p>The proposed project would reconstruct, widen, and relocate the SR 347 existing two lane roadway into a six and four lane roadway. The project is approximately 7.9 miles in length, beginning at approximately mile log 4.1 and ending at approximately mile log 12.0.</p> <p>The proposed typical section for the first 1.7 miles is an urban six lane roadway section divided by a 20-foot raised grass median with 12-foot lanes and 20-foot outside shoulders including 5-foot sidewalks. The remaining 6.2 miles is a rural four lane roadway section divided by a 20-foot raised grass median with 12-foot lanes and 10-foot outside shoulders of which 6.5-feet will be paved. Right turn lanes will be provided at all side roads.</p>	<p>Proposed Features: The proposed revised concept section would extend the six-lanes from I-985 to Williams Road then transitioning to four lanes then back to six-lanes from Chateau Corners Drive to SR 211. The additional outside through lane will be striped as an auxiliary lane. The entire project section is proposed to be urban shoulders with curb and gutter and retain the raised median. The VE Study Team recommended 10-foot multi-use paths on both sides in lieu of bike lanes that were added in response to the PIOH. The environmental impacts for the revised concept remain essentially the same; however filter ponds are being added at streams to reduce the impact of roadway runoff.</p>
<p>Reason for Change: The corridor is rapidly changing from rural to urban residential and commercial including a new hospital and numerous subdivisions thus a six lane sections serves better for future capacity and also requires sidewalks while minimizing right of way impact.</p>	

Updated Cost Estimate	
Construction	\$34,799,016.65
Fuel Adjustment	\$4,387,736.21
Engineering and Inspection (5%)	\$1,739,950.83
Right-of-Way	\$66,920,000.00
Utilities (reimbursable)	\$1,738,550.00
Utility Contingencies	
Environmental Mitigation	\$1,240,000.00
Total Cost	\$110,825,253.70

Recommendation: Recommend that the proposed revision to the concept be approved for implementation.

Attachments:

1. Project Location Map
2. Typical Sections
3. Cost Estimate incl. Fuel & Asphalt Adjustment Form
4. Conforming plan's network schematics showing thru lanes
5. Cost-Benefit/Delay Benefit Analysis
6. Traffic Diagrams
7. VE Implementation Letter

Exempt projects

Concur: Bill R. McManis
Director of Engineering

Approve: D. Q. M. R.
Chief Engineer

Date: 4/17/2012

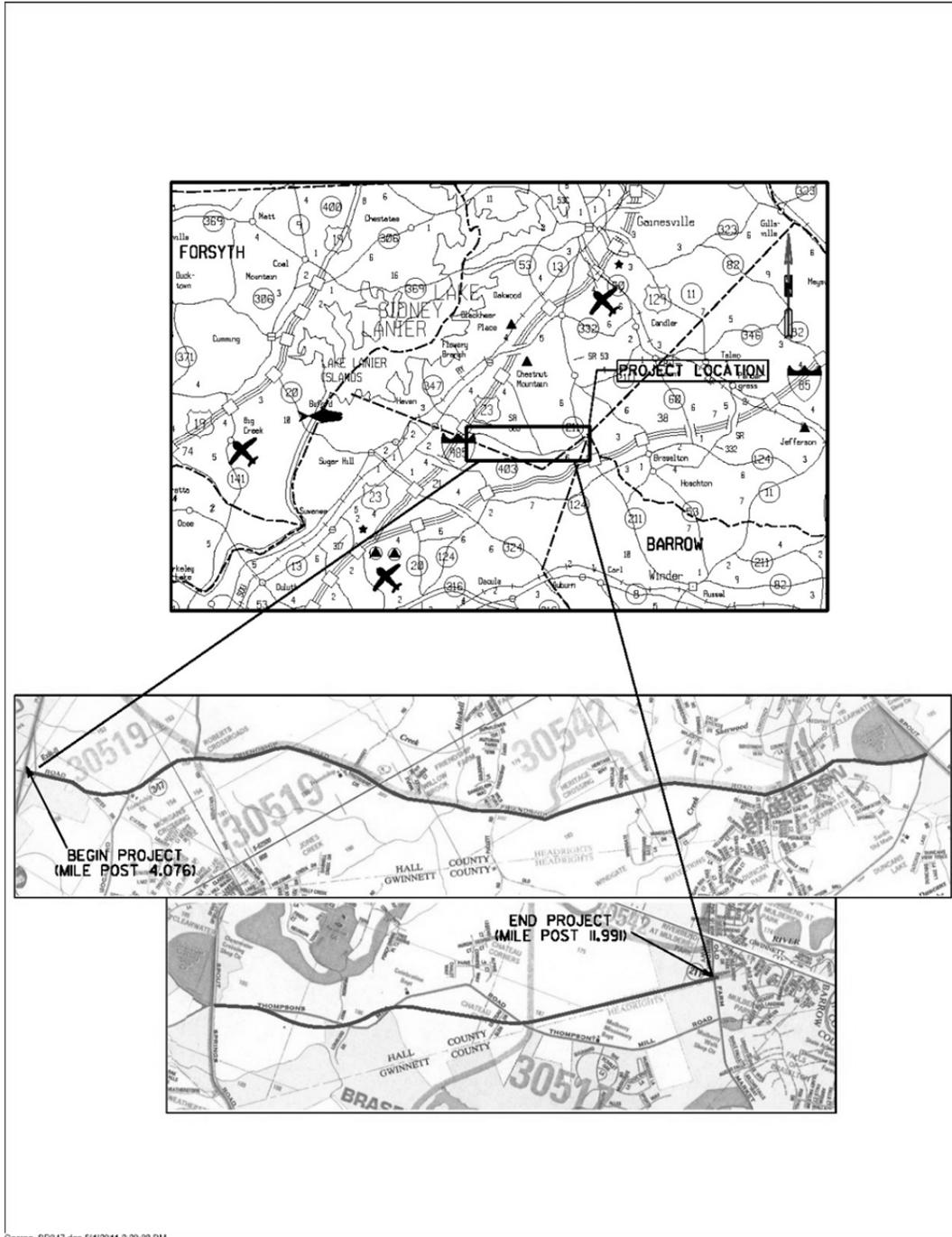
REVISED PROJECT CONCEPT REPORT

P. I. Number: 162430

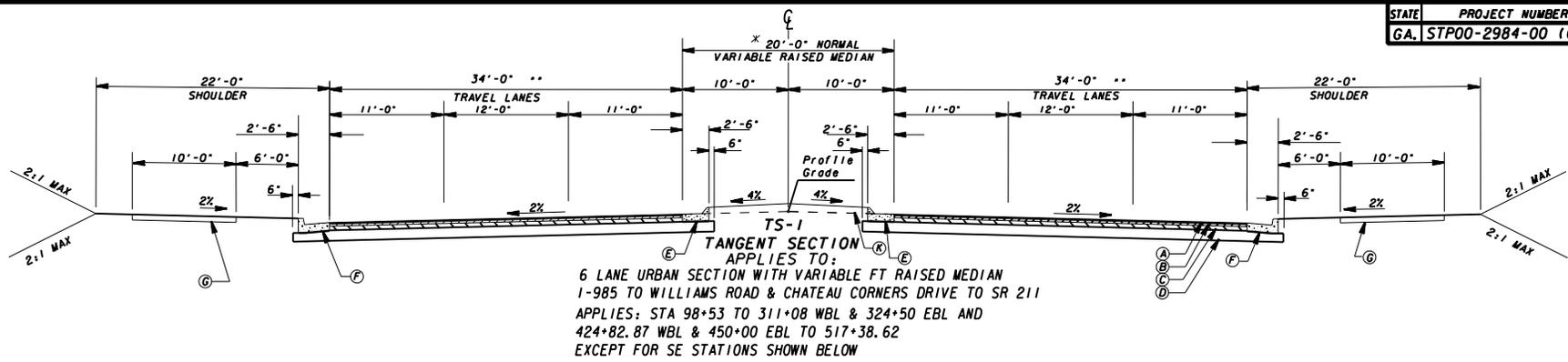
Project Number: STP00-2984-00(001)

County: Hall

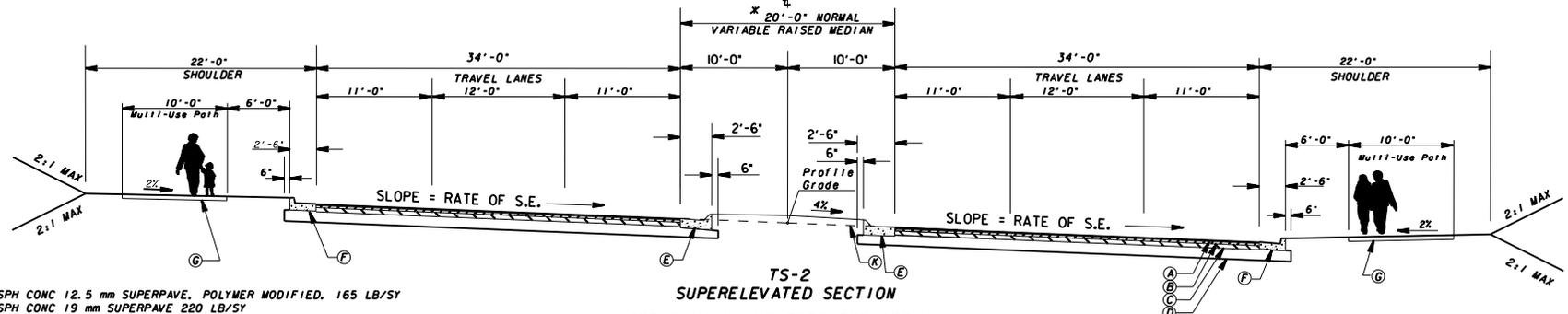
SITE LOCATION MAP



Widening, Reconstruction, & Relocation of SR 347/Friendship Road
Hall County



TS-1 TANGENT SECTION
 APPLIES TO:
 6 LANE URBAN SECTION WITH VARIABLE FT RAISED MEDIAN
 I-985 TO WILLIAMS ROAD & CHATEAU CORNERS DRIVE TO SR 211
 APPLIES: STA 98+53 TO 311+08 WBL & 324+50 EBL AND
 424+82.87 WBL & 450+00 EBL TO 517+38.62
 EXCEPT FOR SE STATIONS SHOWN BELOW



TS-2 SUPERELEVATED SECTION

ABOVE MAINLINE SECTIONS APPLY:
 6 LANE URBAN SECTION WITH VARIABLE FT RAISED MEDIAN
 I-985 TO WILLIAMS ROAD & CHATEAU CORNERS DRIVE TO SR 211

APPLIES TO STATIONS

- | | |
|-----------------------|--------------------------------------|
| STA. 109+36 TO 110+54 | STA. 211+37 TO 216+34 |
| STA. 117+93 TO 121+51 | STA. 224+37 TO 226+90 |
| STA. 122+87 TO 128+95 | STA. 233+31 TO 235+58 |
| STA. 136+82 TO 147+66 | STA. 251+26 TO 254+61 |
| STA. 155+25 TO 159+09 | STA. 259+12 TO 263+70 |
| STA. 173+39 TO 184+82 | STA. 290+35 TO 294+99 |
| STA. 186+51 TO 195+85 | STA. 454+82 TO 462+81 |
| | STA. 443+87 TO 446+92 (WB LANE ONLY) |

- ** ADDL. 12' AUXILLARY LANE FROM STA. 98+53 TO STA. 108+22
- * FROM THE FOLLOWING STATIONS, THE MEDIAN WIDTH VARIES FROM 20' TO 32' FOR MEDIAN OPENINGS.
 STA. 139+00 TO 158+50
 STA. 438+00 TO 464+30
- * FOR THE FOLLOWING STATIONS, THE MEDIAN WIDTH VARIES FROM 20' TO 44'
 STA. 464+30 TO 493+70 32' TO 44' MEDIAN
 STA. 493+70 TO 516+60 32' MEDIAN

- (A) ASPH CONC 12.5 mm SUPERPAVE, POLYMER MODIFIED, 165 LB/SY
- (B) ASPH CONC 19 mm SUPERPAVE 220 LB/SY
- (C) ASPH CONC 25 mm SUPERPAVE 660 LB/SY
- (D) GRADED AGGREGATE BASE, 12 IN
- (E) CONC CURB & GUTTER, 8 IN X 30 IN, TYPE 7
- (F) CONC CURB & GUTTER, 8 IN X 30 IN, TYPE 2
- (G) CONC SIDEWALK, 4 IN
- (H) MEDIAN PAVING, 4 IN

SLOPE CONTROLS		
SLOPE	CUT	FILL
4:1	0-6'	0-6'
3:1	--	--
2:1	OVER 6'	OVER 6'

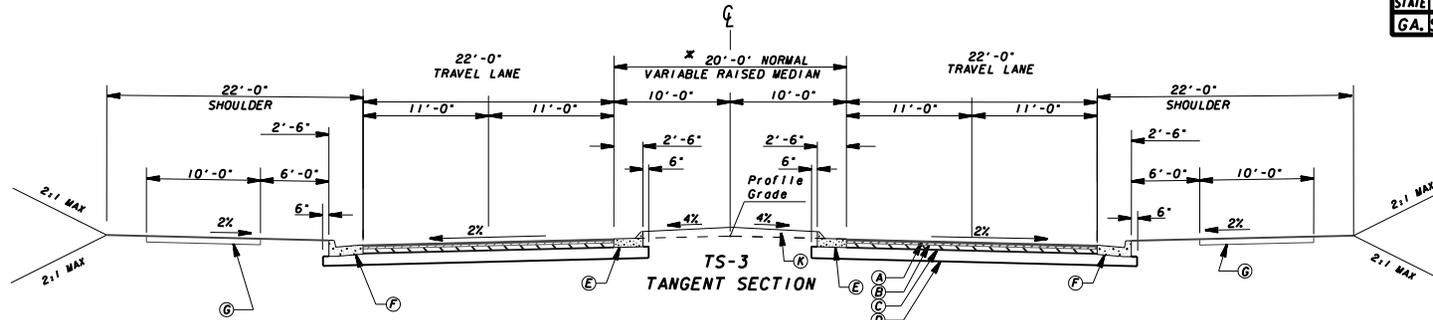
NOTE:
 FOR TYPICAL SE SECTIONS REFERENCE AASHTO'S "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS" CURRENT EDITION (THE GREEN BOOK) FOR SE TABLES AND MAX RATES.

N. T. S.

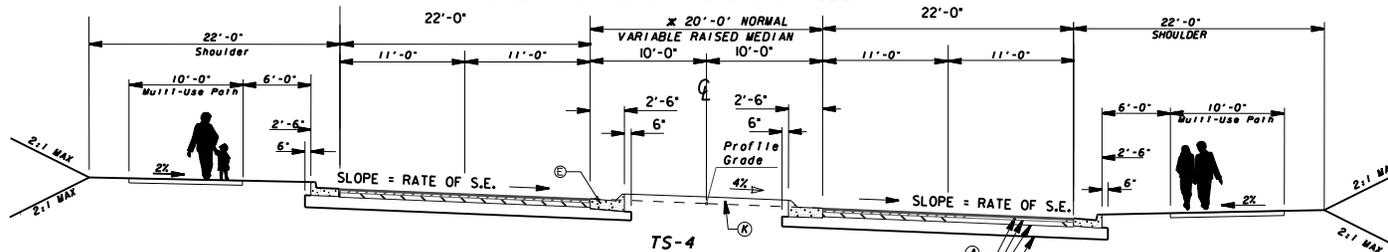
DATE	REVISIONS	DATE	REVISIONS



GEORGIA
 DEPARTMENT OF TRANSPORTATION
 TYPICAL SECTIONS
 FRIENDSHIP RD I-985 TO SR 211
 COUNTY: HALL
 DATE: 5-01



4 LANE URBAN SECTION WITH VARIABLE FT RAISED MEDIAN
 WILLIAMS ROAD TO CHATEAU CORNERS DRIVE
 APPLIES: STA 311+08 WBL TO STA. 417+34.55 WBL &
 STA. 324+50 EBL TO STA. 450+00 EBL
 EXCEPT FOR SE STATIONS SHOWN BELOW



TS-4 SUPERELEVATED SECTION
4 LANE URBAN SECTION WITH VARIABLE FT RAISED MEDIAN
 WILLIAMS ROAD TO CHATEAU CORNERS DRIVE
 APPLIES TO THE FOLLOWING STATIONS:

- STA. 305+34 TO 309+84
- STA. 317+78 TO 323+81
- STA. 330+67 TO 334+35
- STA. 345+37 TO 347+23
- STA. 378+24 TO 386+72
- STA. 391+89 TO 409+15
- STA. 419+45 TO 423+09
- STA. 443+87 TO 446+92 (3-LANE WB LANE)

• FROM THE FOLLOWING STATIONS, THE MEDIAN WIDTH VARIES FROM 20' TO 32' FOR MEDIAN OPENINGS.
 STA/ 335+00 TO STA. 338+50 28' MEDIAN
 STA. 438+00 TO STA. 464+30 20' TO 32' MEDIAN

• FROM THE FOLLOWING STATIONS, THE MEDIAN WIDTH VARIES FROM 20' TO 32' FOR MEDIAN OPENINGS
 STA. 400+75 TO STA. 408+71 32' MEDIAN
 STA. 438+00 TO STA. 464+30 20' TO 32' MEDIAN

SLOPE CONTROLS		
SLOPE	CUT	FILL
4:1	0'-6"	0'-6"
3:1	--	--
2:1	OVER 6'	OVER 6'

- A ASPH CONC 12.5 mm SUPERPAVE, POLYMER MODIFIED, 165 LB/SY
- B ASPH CONC 19 mm SUPERPAVE 220 LB/SY
- C ASPH CONC 25 mm SUPERPAVE 660 LB/SY
- D GRADED AGGREGATE BASE, 12 IN
- E CONC CURB & GUTTER, 8 IN X 30 IN, TYPE 7
- F CONC CURB & GUTTER, 8 IN X 30 IN, TYPE 2
- G CONC SIDEWALK, 4 IN
- K CONC MEDIAN, 4 IN

NOTE:
 FOR TYPICAL SE SECTIONS REFERENCE AASHTO'S "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS" CURRENT EDITION (THE GREEN BOOK) FOR SE TABLES AND MAX RATES.

N. T. S.

DATE	REVISIONS	DATE	REVISIONS



GEORGIA
 DEPARTMENT OF TRANSPORTATION
 TYPICAL SECTIONS
 FRIENDSHIP RD 1-985 TO SR 211
 COUNTY: HALL
 DATE: 5-02

DETAILED COST ESTIMATE



Job: STP00298400001

JOB NUMBER: STP00298400001_

FED/STATE PROJECT NUMBER

SPEC YEAR: 01

DESCRIPTION: (KCA)WIDENING, RECONSTRUCTION, AND RELOCATION OF
SR 347/FRIENDSHIP ROAD FROM I-985 TO SR 211

ITEMS FOR JOB STP00298400001

0010 - ASPHALT

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0025	310-1101	308336.000	TN	\$13.69	GR AGGR BASE CRS, INCL MATL	\$4,219,929.66
0595	318-3000	2000.000	TN	\$19.21	AGGR SURF CRS	\$38,410.44
0570	402-1812	1000.000	TN	\$69.81	RECYL AC LEVELING,INC BM&HL	\$69,812.18
0005	402-3121	127501.000	TN	\$53.33	RECYL AC 25MM SP,GP1/2,BM&HL	\$6,799,397.55
0035	402-3130	34001.000	TN	\$60.34	RECYL AC 12.5MM SP,GP2,BM&HL	\$2,051,749.20
0030	402-3190	45087.000	TN	\$50.98	RECYL AC 19 MM SP,GP 1 OR 2 ,INC BM&HL	\$2,298,494.23
0020	413-1000	529118.000	GL	\$1.59	BITUM TACK COAT	\$840,398.12
0945	432-5010	5000.000	SY	\$2.54	MILL ASPH CONC PVMT,VARB DEPTH	\$12,691.95
0580	441-0016	4763.000	SY	\$34.60	DRIVEWAY CONCRETE, 6 IN TK	\$164,816.66
0585	441-0018	182.000	SY	\$40.61	DRIVEWAY CONCRETE, 8 IN TK	\$7,391.55
0590	441-4030	3520.000	SY	\$42.69	CONC VALLEY GUTTER, 8 IN	\$150,268.03
0575	446-1100	2000.000	LF	\$4.54	PVMT REF FAB STRIPS, TP2,18 INCH WIDTH	\$9,081.76
SUBTOTAL FOR ASPHALT:						\$16,662,441.33

0020 - GENERAL ROADWAY

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0040	150-1000	1.000	LS	\$300,000.00	TRAFFIC CONTROL - STP00298400001	\$300,000.00
0250	153-1300	1.000	EA	\$76,032.91	FIELD ENGINEERS OFFICE TP 3	\$76,032.91
0050	201-1500	1.000	LS	\$680,000.00	CLEARING & GRUBBING - STP00298400001	\$680,000.00
0170	441-0104	92874.000	SY	\$13.05	CONC SIDEWALK, 4 IN	\$1,211,812.52
0625	441-0204	100.000	SY	\$40.45	PLAIN CONC DITCH PAVING, 4 IN	\$4,045.24
0175	441-0740	28636.000	SY	\$25.70	CONC MEDIAN, 4 IN	\$736,001.33
0710	441-3999	980.000	LF	\$18.30	CONCRETE V GUTTER	\$17,937.43
0180	441-6222	83778.000	LF	\$9.41	CONC CURB & GUTTER/ 8"X30"TP2	\$788,653.42
0185	441-6740	75003.000	LF	\$11.38	CONC CURB & GUTTER/ 8"X30" TP7	\$853,797.40
0670	500-3201	70.000	CY	\$385.05	CL B CONC, RET WALL	\$26,953.81
0004	515-2020	898.000	LF	\$20.74	GALV STEEL PIPE HDRAIL,2",ROUD	\$18,623.62
1025	610-1075	1.000	EA	\$183.47	REM GUARDRAIL ANCH, ALL TYPES	\$183.47
1030	611-5320	1.000	EA	\$871.93	RESET GDRAIL ANCHORAGE,ALL TPS	\$871.93
0675	621-4021	21.000	LF	\$370.49	CONCRETE SIDE BARRIER, TY 2A	\$7,780.29
0680	621-4022	250.000	LF	\$466.29	CONCRETE SIDE BARRIER, TY 2B	\$116,572.50
0685	621-4023	150.000	LF	\$522.54	CONCRETE SIDE BARRIER, TY 2C	\$78,381.00
0690	634-1200	546.000	EA	\$101.49	RIGHT OF WAY MARKERS	\$55,411.48
0600	641-1100	84.000	LF	\$51.46	GUARDRAIL, TP T	\$4,322.78
0605	641-1200	975.000	LF	\$16.57	GUARDRAIL, TP W	\$16,153.20
0610	641-5001	4.000	EA	\$621.63	GUARDRAIL ANCHORAGE, TP 1	\$2,486.51
0615	641-5012	6.000	EA	\$1,868.17	GUARDRAIL ANCHORAGE, TP 12	\$11,209.03
0730	643-4000	1264.000	LF	\$7.24	WOVEN WIRE FENCE	\$9,151.36
0735	643-8040	2.000	EA	\$583.50	GATE, WOVEN WIRE - PARCEL 17(2 GATES)	\$1,167.00
SUBTOTAL FOR GENERAL ROADWAY:						\$5,017,548.23

0030 - EARTHWORK

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0190	205-0001	945541.000	CY	\$2.22	UNCLASS EXCAV	\$2,095,536.33
0820	206-0002	461936.000	CY	\$4.00	BORROW EXCAV, INCL MATL	\$1,847,951.87
SUBTOTAL FOR EARTHWORK:						\$3,943,488.20

DETAILED COST ESTIMATE



Job: STP00298400001

0040 - BRIDGE CULVERTS

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0620	207-0203	1628.000	CY	\$36.90	FOUND BK FILL MATL, TP II	\$60,078.75
0970	207-0203	372.000	CY	\$39.37	FOUND BK FILL MATL, TP II	\$14,644.17
0955	500-3101	1521.000	CY	\$442.98	CLASS A CONCRETE	\$673,769.04
0960	511-1000	157749.000	LB	\$0.71	BAR REINF STEEL	\$111,684.71
0550	603-2048	800.000	SY	\$66.55	STN DUMPED RIP RAP, TP 1, 48"	\$53,240.00
0965	603-7000	800.000	SY	\$3.96	PLASTIC FILTER FABRIC	\$3,168.58
SUBTOTAL FOR BRIDGE CULVERTS:						\$916,585.25

DETAILED COST ESTIMATE



Job: STP00298400001

0050 - DRAINAGE

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0255	500-3101	3209.000	CY	\$442.98	CLASS A CONCRETE	\$1,421,515.34
1135	500-3800	30.000	CY	\$825.65	CL A CONC, INCL REINF STEEL	\$24,769.42
0260	511-1000	411588.000	LB	\$0.67	BAR REINF STEEL	\$275,599.32
0195	550-1180	23172.000	LF	\$32.33	STM DR PIPE 18",H 1-10	\$749,196.64
0825	550-1181	2436.000	LF	\$28.65	STM DR PIPE 18",H 10-15	\$69,784.07
0830	550-1182	1555.000	LF	\$35.36	STM DR PIPE 18",H 15-20	\$54,984.80
0835	550-1183	101.000	LF	\$101.00	STM DR PIPE 18",H 20-25	\$10,201.00
0840	550-1184	68.000	LF	\$40.00	STM DR PIPE 18",H 25-30	\$2,720.00
0845	550-1185	424.000	LF	\$40.00	STM DR PIPE 18",H 30-35	\$16,960.00
0200	550-1240	5909.000	LF	\$40.04	STM DR PIPE 24",H 1-10	\$236,599.43
0860	550-1241	2141.000	LF	\$47.67	STM DR PIPE 24",H 10-15	\$102,069.35
0865	550-1242	1576.000	LF	\$28.01	STM DR PIPE 24",H 15-20	\$44,143.76
1110	550-1244	399.000	LF	\$50.65	STM DR PIPE 24",H 25-30	\$20,209.35
0875	550-1247	490.000	LF	\$55.00	STM DR PIPE 24",H 40-50	\$26,950.00
0205	550-1300	3413.000	LF	\$45.85	STM DR PIPE 30",H 1-10	\$156,487.96
0880	550-1301	3175.000	LF	\$37.64	STM DR PIPE 30",H 10-15	\$119,507.00
1085	550-1302	1335.000	LF	\$73.56	STM DR PIPE 30",H 15-20	\$98,202.60
1090	550-1303	402.000	LF	\$80.00	STM DR PIPE 30",H 20-25	\$32,160.00
0890	550-1304	165.000	LF	\$85.00	STM DR PIPE 30",H 25-30	\$14,025.00
0210	550-1360	2416.000	LF	\$58.25	STM DR PIPE 36",H 1-10	\$140,735.45
0900	550-1361	2158.000	LF	\$59.32	STM DR PIPE 36",H 10-15	\$128,017.13
0905	550-1362	748.000	LF	\$62.31	STM DR PIPE 36",H 15-20	\$46,607.88
0910	550-1363	270.000	LF	\$68.43	STM DR PIPE 36",H 20-25	\$18,475.78
1095	550-1367	159.000	LF	\$100.00	STM DR PIPE 36",H 40-50	\$15,900.00
0215	550-1420	1659.000	LF	\$72.76	STM DR PIPE 42",H 1-10	\$120,701.84
1100	550-1421	138.000	LF	\$84.39	STM DR PIPE 42",H 10-15	\$11,645.82
0915	550-1422	273.000	LF	\$76.25	STM DR PIPE 42",H 15-20	\$20,816.25
0920	550-1423	199.000	LF	\$80.00	STM DR PIPE 42",H 20-25	\$15,920.00
0220	550-1480	458.000	LF	\$87.71	STM DR PIPE 48",H 1-10	\$40,172.84
0225	550-1540	507.000	LF	\$96.79	STM DR PIPE 54",H 1-10	\$49,072.53
1105	550-1541	382.000	LF	\$130.70	STM DR PIPE 54",H 10-15	\$49,927.40
0925	550-1601	32.000	LF	\$90.00	STM DR PIPE 60",H 10-15	\$2,880.00
1035	550-2180	2113.000	LF	\$24.30	SIDE DR PIPE 18",H 1-10	\$51,344.95
1040	550-2240	1501.000	LF	\$26.75	SIDE DR PIPE 24",H 1-10	\$40,148.04
1045	550-2420	145.000	LF	\$51.94	SIDE DR PIPE 42",H 1-10	\$7,531.30
1125	550-3318	20.000	EA	\$668.53	SAFETY END SECTION 18",STD,4:1	\$13,370.55
0650	550-4118	13.000	EA	\$333.56	FLARED END SECT 18 IN, SIDE DR	\$4,336.32
0655	550-4124	2.000	EA	\$604.03	FLARED END SECT 24 IN, SIDE DR	\$1,208.07
0660	550-4142	3.000	EA	\$750.00	FLARED END SECT 42 IN, SIDE DR	\$2,250.00
0110	550-4218	5.000	EA	\$463.97	FLARED END SECT 18 IN, ST DR	\$2,319.84
0115	550-4224	6.000	EA	\$584.19	FLARED END SECT 24 IN, ST DR	\$3,505.12
0120	550-4230	6.000	EA	\$658.25	FLARED END SECT 30 IN, ST DR	\$3,949.47
0125	550-4236	5.000	EA	\$950.05	FLARED END SECT 36 IN, ST DR	\$4,750.24
0130	550-4242	2.000	EA	\$1,378.08	FLARED END SECT 42 IN, ST DR	\$2,756.16
1140	550-4436	1.000	EA	\$1,000.00	FLARED END SECT 36 IN, SLP DR	\$1,000.00
0700	576-1018	55.000	LF	\$40.44	SLOPE DRAIN PIPE, 18 IN	\$2,224.44
1115	576-1024	100.000	LF	\$42.51	SLOPE DRAIN PIPE, 24 IN	\$4,251.00
1120	576-1036	87.000	LF	\$50.00	SLOPE DRAIN PIPE, 36 IN	\$4,350.00
0365	603-2024	1529.000	SY	\$44.57	STN DUMPED RIP RAP, TP 1, 24"	\$68,150.05
0555	603-2060	800.000	SY	\$83.00	STN DUMPED RIP RAP, TP 1, 60"	\$66,400.00
0370	603-7000	2329.000	SY	\$3.71	PLASTIC FILTER FABRIC	\$8,648.00
0165	611-8055	5.000	EA	\$660.26	ADJUST MINOR STRUCT TO GRADE	\$3,301.30
0135	668-1100	489.000	EA	\$2,215.85	CATCH BASIN, GP 1	\$1,083,549.08
0235	668-1110	2090.000	LF	\$102.38	CATCH BASIN, GP 1, ADDL DEPTH	\$213,977.42
0140	668-1200	19.000	EA	\$2,664.56	CATCH BASIN, GP 2	\$50,626.64
0240	668-1210	81.000	LF	\$206.62	CATCH BASIN, GP 2, ADDL DEPTH	\$16,736.22
0155	668-2100	59.000	EA	\$1,788.21	DROP INLET, GP 1	\$105,504.58
0245	668-2110	77.000	LF	\$163.32	DROP INLET, GP 1, ADDL DEPTH	\$12,575.54
0935	668-2200	11.000	EA	\$2,263.85	DROP INLET, GP 2	\$24,902.33
0940	668-2210	60.000	LF	\$234.62	DROP INLET, GP 2, ADDL DEPTH	\$14,077.38
0645	668-3400	2.000	EA	\$2,100.00	SAN SEW MANHOLE, TP 2	\$4,200.00
1130	668-4312	32.000	LF	\$215.08	ST SEW MANHOLE,TP 1,A DEP,CL 2	\$6,882.71
SUBTOTAL FOR DRAINAGE:						\$5,965,784.71

DETAILED COST ESTIMATE



Job: STP00298400001

0070 - EROSION CONTROL

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0530	162-1300	565.000	EA	\$50.00	EROSION CONTROL CHECK DAM, TP - SPECIAL PROVISION 162	\$28,250.00
0265	163-0232	60.000	AC	\$13.76	TEMPORARY GRASSING	\$825.65
0720	163-0240	1230.000	TN	\$240.80	MULCH SPECIAL PROVISION 163	\$296,180.68
0275	163-0300	33.000	EA	\$1,201.39	CONSTRUCTION EXIT	\$39,645.73
0280	163-0501	14.000	EA	\$345.53	CONSTR AND REMOVE SILT CONTROL GATE, TP 1	\$4,837.40
0285	163-0503	6.000	EA	\$293.08	CONSTR AND REMOVE SILT CONTROL GATE, TP 3	\$1,758.46
0290	163-0520	1944.000	LF	\$12.52	CONSTR AND REMOVE TEMP PIPE SLOPE DRAIN	\$24,343.53
0535	163-0531	5.000	EA	\$8,759.09	CONSTR & REM SEDIMENT BASIN, TP 1, STA NO- SPECIAL PROVISION 162	\$43,795.45
0300	163-0550	548.000	EA	\$153.37	CONS & REM INLET SEDIMENT TRAP	\$84,048.18
0305	165-0010	133700.000	LF	\$0.13	MAINT OF TEMP SILT FENCE, TP A	\$16,759.30
0980	165-0020	10250.000	LF	\$0.94	MAINT OF TEMP SILT FENCE, TP B	\$9,635.00
0310	165-0030	22020.000	LF	\$0.70	MAINT OF TEMP SILT FENCE, TP C	\$15,440.64
0540	165-0041	565.000	LF	\$1.19	MAINT OF CHECK DAMS - ALL TYPES	\$669.75
0545	165-0060	5.000	EA	\$1,077.46	MAINT OF TEMP SEDIMENT BASIN, STA NO -	\$5,387.28
0320	165-0085	14.000	EA	\$72.30	MAINT OF SILT CONTROL GATE, TP 1	\$1,012.21
0325	165-0087	6.000	EA	\$94.67	MAINT OF SILT CONTROL GATE, TP 3	\$568.02
0330	165-0101	33.000	EA	\$452.94	MAINT OF CONST EXIT	\$14,947.00
0335	165-0105	548.000	EA	\$49.61	MAINT OF INLET SEDIMENT TRAP	\$27,185.84
0340	167-1000	2.000	EA	\$228.41	WATER QUALITY MONITORING AND SAMPLING	\$456.81
0345	167-1500	42.000	MO	\$628.39	WATER QUALITY INSPECTIONS	\$26,392.58
0350	171-0010	133700.000	LF	\$1.27	TEMPORARY SILT FENCE, TYPE A	\$169,733.49
0975	171-0020	10250.000	LF	\$1.21	TEMPORARY SILT FENCE, TYPE B	\$12,402.50
0355	171-0030	22020.000	LF	\$2.79	TEMPORARY SILT FENCE, TYPE C	\$61,439.54
0360	441-0204	100.000	SY	\$40.45	PLAIN CONC DITCH PAVING, 4 IN	\$4,045.24
0695	643-8200	4000.000	LF	\$1.62	BARRIER FENCE (ORANGE), 4 FT	\$6,463.36
0375	700-6910	120.000	AC	\$458.86	PERMANENT GRASSING	\$55,063.11
0380	700-7000	540.000	TN	\$19.27	AGRICULTURAL LIME	\$10,406.95
0390	700-8000	180.000	TN	\$436.98	FERTILIZER MIXED GRADE	\$78,657.26
0395	700-8100	9000.000	LB	\$1.80	FERTILIZER NITROGEN CONTENT	\$16,163.73
0400	710-9000	1331.000	SY	\$3.62	PERM SOIL REINFORCING MAT	\$4,818.02
0715	715-2200	1476.000	SY	\$1.94	BITUM TRTD ROVING, WATERWAYS	\$2,862.45
0405	716-2000	156145.000	SY	\$0.71	EROSION CONTROL MATS, SLOPES	\$111,250.19
SUBTOTAL FOR EROSION CONTROL:						\$1,175,445.35

0080 - SIGNING AND MARKING

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0790	636-1033	2291.000	SF	\$17.94	HWY SIGNS, TP1MAT,REFL SH TP 9	\$41,089.41
1065	636-1041	172.000	SF	\$28.38	HWY SIGNS, TP 2MAT,REFL SH TP 9	\$4,881.49
0430	636-2070	4488.000	LF	\$5.86	GALV STEEL POSTS, TP 7	\$26,312.96
0445	639-2002	450.000	LF	\$3.54	STEEL WIRE STRAND CABLE, 3/8"	\$1,593.00
0450	639-3003	2.000	EA	\$5,744.11	STEEL STRAIN POLE, TP III	\$11,488.22
1070	653-0110	15.000	EA	\$62.97	THERM PVMT MARK, ARROW, TP 1	\$944.56
0455	653-0120	366.000	EA	\$66.19	THERM PVMT MARK, ARROW, TP 2	\$24,223.85
0795	653-0130	6.000	EA	\$88.09	THERM PVMT MARK, ARROW, TP 3	\$528.56
1075	653-0140	14.000	EA	\$329.75	THERM PVMT MARK, ARROW, TP 4	\$4,616.54
0800	653-0160	19.000	EA	\$102.08	THERM PVMT MARK, ARROW, TP 6	\$1,939.54
0460	653-0170	90.000	EA	\$77.89	THERM PVMT MARK, ARROW, TP 7	\$7,010.49
0465	653-0210	12.000	EA	\$105.17	THERM PVMT MARK, WORD , TP 1	\$1,262.09
0470	653-1501	129283.000	LF	\$0.37	THERMO SOLID TRAF ST 5 IN, WHI	\$47,621.39
0475	653-1502	122583.000	LF	\$0.23	THERMO SOLID TRAF ST, 5 IN YEL	\$28,175.70
0480	653-1704	1945.000	LF	\$3.45	THERM SOLID TRAF STRIPE, 24",WH	\$6,710.64
0485	653-1804	16815.000	LF	\$1.88	THERM SOLID TRAF STRIPE, 8",WH	\$31,582.94
0805	653-1906	1752.000	LF	\$0.30	THERM SOLID TRAF STRIPE, 6",WH	\$525.60
0490	653-3501	150307.000	GLF	\$0.33	THERMO SKIP TRAF ST, 5 IN, WHI	\$48,887.35
1080	653-3502	520.000	GLF	\$0.29	THERMO SKIP TRAF ST, 5 IN, YEL	\$149.99
0810	653-6004	10722.000	SY	\$2.83	THERM TRAF STRIPING, WHITE	\$30,294.26
0815	653-6006	1839.000	SY	\$2.83	THERM TRAF STRIPING, YELLOW	\$5,202.33
0495	654-1001	176.000	EA	\$3.46	RAISED PVMT MARKERS TP 1	\$609.08
0500	654-1003	3015.000	EA	\$3.52	RAISED PVMT MARKERS TP 3	\$10,613.19
SUBTOTAL FOR SIGNING AND MARKING:						\$336,263.18

DETAILED COST ESTIMATE



Job: STP00298400001

0090 - TRAFFIC SIGNALS

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
1050	615-1100	171.000	LF	\$33.76	DIRECTIONAL BORE PIPE - STP00298400001	\$5,772.96
1055	615-1200	171.000	LF	\$12.40	DIRECTIONAL BORE - STP00298400001	\$2,120.82
0770	639-4004	8.000	EA	\$5,545.73	STRAIN POLE, TP IV	\$44,365.84
0525	647-1000	1.000	LS	\$69,400.00	TRAF SIGNAL INSTALLATION NO - TRAFFIC SIGNAL INSTALLATION NO.1	\$69,400.00
1145	647-1000	1.000	LS	\$105,000.00	TRAF SIGNAL INSTALLATION NO - TRAFFIC SIGNAL INSTALLATION NO.2	\$105,000.00
1150	647-1000	1.000	LS	\$102,600.00	TRAF SIGNAL INSTALLATION NO - TRAFFIC SIGNAL INSTALLATION NO.3	\$102,600.00
1155	647-1000	1.000	LS	\$104,900.00	TRAF SIGNAL INSTALLATION NO - TRAFFIC SIGNAL INSTALLATION NO.4	\$104,900.00
0740	647-2160	8.000	EA	\$1,448.28	PULL BOX, PB-6	\$11,586.24
0785	647-2170	4.000	EA	\$2,291.00	PULL BOX, PB-7	\$9,164.00
0745	682-6233	11000.000	LF	\$4.11	CONDUIT, NONMETL, TP 3, 2 IN	\$45,213.63
0750	935-1113	12000.000	LF	\$1.82	OUT PLNT FBR OPT CBL, LOOSE TB, SM, 24 FBR	\$21,858.12
0755	935-1511	800.000	LF	\$1.66	OUT PLNT FBR OPT CBL, DROP, SM, 6 FBR	\$1,324.26
0780	935-3103	4.000	EA	\$674.00	FIBER OPTIC CLOSURE, UNDRGRD, 24 FBR	\$2,696.00
0760	935-4010	8.000	EA	\$33.18	FIBER OPTIC SPLICE, FUSION	\$265.40
0775	939-1162	4.000	EA	\$1,616.00	FIBER OPTIC EXT TRNSCVR, DRP&RPT, 1310 SMD	\$6,464.00
SUBTOTAL FOR TRAFFIC SIGNALS:						\$532,731.27

0110 - FILTER PONDS

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0635	573-2006	2000.000	LF	\$14.75	UNDDR PIPE INCL DRAIN AGGR 6"	\$29,504.12
0725	999-3110	1.000	EA	\$16,000.00	DETENTION POND (SND FILT MED) MICRO POND SP 999	\$16,000.00
0985	999-3110	3.000	EA	\$21,200.00	DETENTION POND (SND FILT MED) DRY SWALE SP 999	\$63,600.00
SUBTOTAL FOR FILTER PONDS:						\$109,104.12

0120 - NATURAL STREAM CHANNELS

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0560	603-1024	413.000	SY	\$50.00	STN PLAIN RIP RAP, 24 IN SPECIAL PROVISION 805	\$20,650.00
0565	603-1050	80.000	TN	\$75.00	STN PLN RIP RAP STREAM DT, TP A SPECIAL PROVISION 805	\$6,000.00
0995	603-7000	718.000	SY	\$3.99	PLASTIC FILTER FABRIC	\$2,862.44
1005	700-9920	5.000	LB	\$84.19	GRASSING, RIPARIAN SEED MIX SPECIAL PROVISION 700	\$420.95
1010	702-0030	321.000	EA	\$112.61	ACER RUBRUM - SPECIAL PROVISION 702	\$36,147.81
1015	702-0785	321.000	EA	\$112.00	PINUS TAEDA - SPECIAL PROVISION 702	\$35,952.00
1020	702-0895	321.000	EA	\$112.00	QUERCUS NIGRA - SPECIAL PROVISION 702	\$35,952.00
1000	716-2000	1742.000	SY	\$0.94	EROSION CONTROL MATS, SLOPES	\$1,639.81
SUBTOTAL FOR NATURAL STREAM CHANNELS:						\$139,625.01

COST GROUP FOR JOB STP00298400001

LINE NUMBER	UNIT	CALCULATION RULE	QUANTITY	PRICE	COST GROUP ID	DESCRIPTION	AMOUNT
00000013	EA	NORM	300.000		SSGN	SMALL ROADSIDE SIGNS	
00000014	SY	NORM	2000.000		THSY	THERMO PLASTIC MARKING SQUARE YARDS	
SUBTOTAL:							

TOTALS FOR JOB STP00298400001

ITEMS COST:	\$34,799,016.65
COST GROUP COST:	\$0.00
ESTIMATED COST:	\$34,799,016.65
CONTINGENCY PERCENT:	0.00
ENGINEERING AND INSPECTION:	0.00
ESTIMATED COST WITH CONTINGENCY AND E&I:	\$34,799,016.65

PROJ. NO. STP00298400001

P.I. NO. 162430

DATE: 4/4/2012

Base Construction Cost	\$	34,799,016.65
E & I	5% \$	1,739,950.83
Construction Contingency	\$	-
Subtotal Construction Cost	\$	<u>36,538,967.48</u>
Liquid AC Adjustment (60 % cap)	\$	<u>4,387,736.21</u>
Total Construction Cost	\$	<u>40,926,703.70</u>

PROJ. NO.

STP00298400001

CALL NO.

P.I. NO.

162430

DATE

1/11/2012

INDEX (TYPE)

REG. UNLEADED

Jan-12

\$ 3.297

DIESEL

\$ 3.818

LIQUID AC

\$ 578.00

Link to Fuel and AC Index:

<http://www.dot.ga.gov/doingbusiness/Materials/Pages/asphaltcementindex.aspx>

LIQUID AC ADJUSTMENTS

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

Asphalt

Price Adjustment (PA)

3599593.26

\$ 3,599,593.26

Monthly Asphalt Cement Price month placed (APM)

Max. Cap

60%

\$ 924.80

Monthly Asphalt Cement Price month project let (APL)

\$ 578.00

Total Monthly Tonnage of asphalt cement (TMT)

10379.45

ASPHALT	Tons	%AC	AC ton
Leveling	1000	5.0%	50
12.5 OGFC		5.0%	0
12.5 mm	34001	5.0%	1700.05
9.5 mm SP		5.0%	0
25 mm SP	127501	5.0%	6375.05
19 mm SP	45087	5.0%	2254.35
	207589		10379.45

BITUMINOUS TACK COAT

Price Adjustment (PA)

\$ 788,142.95

\$ 788,142.95

Monthly Asphalt Cement Price month placed (APM)

Max. Cap

60%

\$ 924.80

Monthly Asphalt Cement Price month project let (APL)

\$ 578.00

Total Monthly Tonnage of asphalt cement (TMT)

2272.61521

Bitum Tack

Gals

gals/ton

tons

529118

232.8234

2272.61521

PROJ. NO.

STP00298400001

CALL NO.

P.I. NO.

162430

DATE

1/11/2012

BITUMINOUS TACK COAT (surface treatment)

Price Adjustment (PA)						0	\$	-
Monthly Asphalt Cement Price month placed (APM)		Max. Cap	60%	\$	924.80			
Monthly Asphalt Cement Price month project let (APL)				\$	578.00			
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
					0

TOTAL LIQUID AC ADJUSTMENT							\$	4,387,736.21
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GEORGIA DEPARTMENT OF TRANSPORTATION
 DETAILED ROW COST ESTIMATE SUMMARY

FILE COPY

Date (MM/YYYY): June-10 Project: STP-2984 (1)
 Revised: June-10 County: Hall
 PI: 162430-

Description: SR 347 widening and relocation
 Parcels: 236 R/W Plan Date: 5/31/2007

CONTRACT

Land and Improvements _____ \$60,832,857.60
 Valuation Services _____ \$631,250.00
 Legal Services _____ \$1,509,300.00
 Relocation _____ \$880,000.00
 Demolition _____ \$576,500.00
TOTAL CONTRACT _____ **\$64,429,907.60**

INHOUSE

TOTAL INHOUSE _____ **\$2,487,500.00**
TOTAL ESTIMATED COSTS _____ **\$66,917,407.60**

TOTAL ESTIMATED COSTS (ROUNDED) _____ **\$66,920,000.00**

Preparation Credits	Hours	Signature
	40	<i>Sueca Cooper</i>

Michelle W. Brock CG#: 6511 (DATE) 6/30/2010
 _____ CG#: _____ (DATE) _____

Attachment(s): Project Location Map; Subject/Comp Location Map; Comparable Sales Data

Georgia Department of Transportation Detailed ROW Cost Estimate Worksheet

Project/County/PI

STP-2984 (1)

Hall

162430-

		A	B	C	D
	Land and Improvements				
1	Fee Simple Estimate	\$26,410,482.90			
2	Perm Esmt Estimate	\$1,047,260.00			
3	Temp Esmt Estimate	\$8,640.00			
4	Potential Excess Estimate	\$2,072,735.00			
5	Damages	\$2,052,482.00			
6	Improvements	\$5,154,700.00			
7	Trade Fixtures	\$58,000.00			
8	Cost to Cures	\$245,500.00			
9	Minimum Award Adjustment	\$80.00			
10					
11					
12					
13					
14					
15					
16					
17					
18			SUB TOTAL PROPERTY TYPES		\$37,049,879.90
19			Counter Offers and Condemnation Increases (50%)		\$18,524,939.95
			Let Date (MM/YYYY)		November-11
20			Projected Market Appreciation (10%)		\$5,258,037.75
21			GRAND TOTAL LANDS AND IMPROVEMENTS		\$60,832,857.60

Georgia Department of Transportation Detailed ROW Cost Estimate Worksheet

Project/County/PI

STP-2984 (1)

Hall

162430-

	A	B	C	D
Valuation Services	Agriculture	Residential	Commercial	Industrial
1 Appraisals (# of Parcels)	0	0	236	0
2 Estimated Fees (per Parcel)	\$0.00	\$0.00	\$2,000.00	\$0.00
3 TOTAL APPRAISALS	\$0.00	\$0.00	\$472,000.00	\$0.00
4 Sign Estimates	0	0	12	0
5 Estimated Fees	\$0.00	\$0.00	\$750.00	\$0.00
6 TOTAL SIGN ESTIMATES	\$0.00	\$0.00	\$9,000.00	\$0.00
7 Specialty Reports	0	0	6	0
8 Estimated Fees	\$0.00	\$0.00	\$1,500.00	\$0.00
9 TOTAL SPECIALTY REPORTS	\$0.00	\$0.00	\$9,000.00	\$0.00
10 Septic/Well Reports	0	15		0
11 Estimated Fees	\$0.00	\$1,000.00		\$0.00
12 TOTAL SEPTIC/WELL REPORTS	\$0.00	\$15,000.00	\$0.00	\$0.00
13				
14				
15				
16 TOTAL VALUATION FEES	\$0.00	\$15,000.00	\$490,000.00	\$0.00
17	SUB TOTAL VALUATION SERVICES			\$505,000.00
18	Updates and Incidentals (Min \$2,500 or 25%)			\$126,250.00
19	GRAND TOTAL VALUATION SERVICES			\$631,250.00

Georgia Department of Transportation Detailed ROW Cost Estimate Worksheet

Project/County/PI

STP-2984 (1)

Hall

162430-

		A	B	C	D
	Legal Services	Parcels	Estimated Fees		TOTALS
1	Meeting with Attorney	236	\$125.00		\$29,500.00
2	Preliminary Titles	236	\$200.00		\$47,200.00
3	Closing and Final Title	236	\$300.00		\$70,800.00
4	Recording Fees	236	\$50.00		\$11,800.00
5	Condemnation Filing	36	\$5,000.00		\$180,000.00
6	Litigation Costs	36	\$25,000.00		\$900,000.00
7	Updates and Incidentals	36	\$7,500.00		\$270,000.00
8					
9					
10					
11					
12					
13					
14					
15					
16					
17			GRAND TOTAL LEGAL SERVICES		\$1,509,300.00

Georgia Department of Transportation Detailed ROW Cost Estimate Worksheet

Project/County/PI

STP-2984 (1)

Hall

162430-

		A	B	C	D
	Relocation	Displacements	Estimated Costs		TOTALS
1	Business Displacement	1	\$25,000.00		\$25,000.00
2	Residential Tenant	0	\$25,000.00		\$0.00
3	Residential Owner	19	\$45,000.00		\$855,000.00
4	Pro-Rata Taxes	0	\$1,000.00		\$0.00
5	Property Pin Replacement	0	\$1,250.00		\$0.00
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17			GRAND TOTAL RELOCATION		\$880,000.00

Georgia Department of Transportation Detailed ROW Cost Estimate Worksheet

Project/County/PI

STP-2984 (1)

Hall

162430-

		A	B	C	D
	Demolition	Items/Improvements	Estimated Costs		TOTALS
1	Residential Structures	23	\$17,500.00		\$402,500.00
2	Detached Garages/Outbuildings	13	\$8,000.00		\$104,000.00
3	Commercial Structures	1	\$25,000.00		\$25,000.00
4	Hotels/Apartments	0	\$65,000.00		\$0.00
5	UST's - Dispensers	0	\$50,000.00		\$0.00
6	Billboards	0	\$8,000.00		\$0.00
7	Signs - Light Standards	12	\$2,500.00		\$30,000.00
8	Water Vaults	1	\$15,000.00		\$15,000.00
9	Gas/Water Service Separation	0	\$2,500.00		\$0.00
10					
11					
12					
13					
14					
15					
16					
17			GRAND TOTAL DEMOLITION		\$576,500.00

Georgia Department of Transportation Detailed ROW Cost Estimate Worksheet

Project/County/PI

STP-2984 (1)

Hall

162430-

		A	B	C	D
	Inhouse	Parcels	Man hours per Parcel		TOTALS
1	Pre-Acquisition	236	50		\$590,000.00
2	Acquisition	236	125		\$1,475,000.00
3	Relocation	20	50		\$50,000.00
4	Administrative Appeals	59	50		\$147,500.00
5	Post-Acquisition	36	125		\$225,000.00
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17			GRAND TOTAL INHOUSE		\$2,487,500.00

Jayaram Kottapally

From: Westberry, Lisa <lwestberry@dot.ga.gov>
Sent: Friday, January 27, 2012 1:12 PM
To: Nesbitt, Kimberly; Rogers, Robert; Hill, Stanley
Subject: RE: PI 162430, Hall County - Funding for Mitigation Credits

Kim/Stanley,

We had to do a small adjustment on the number of credits that were needed for the project so I took the liberty to go back and re-calculate the estimated costs for the credits. In doing so, I found that we will need approximately \$1,240,000 to purchase the necessary wetland and stream credits instead of the \$1,566,000 that I originally requested.

I hope this hasn't caused too much of a problem for you.

If there are any questions, please let me know.

Thank you, Lisa

From: Nesbitt, Kimberly
Sent: Monday, January 23, 2012 12:05 PM
To: Rogers, Robert; Hill, Stanley
Cc: Westberry, Lisa
Subject: Re: PI 162430, Hall County - Funding for Mitigation Credits

Mr. Hill I am taking the baby to another appointment but the total balance in contract belongs to Lisa Westberry for mitigation credits. She is trying to purchase them now but can not until the negative balance is cleared up. The additional is need to cover the design changes that Gerald agreed to.. Mr. Hill I will call as soon as I get back in.

From: Rogers, Robert
Sent: Monday, January 23, 2012 08:27 AM
To: Hill, Stanley
Cc: Nesbitt, Kimberly
Subject: RE: PI 162430, Hall County - Funding for Mitigation Credits

Stanley

I tried to contact Kimberly and see that she is still out on leave. After reviewing PFR there is enough funding on the PE contract side to take the \$50K and move it to the in-house. A 1625 can be submitted to handle this.

Thanks

Bob Rogers
Office of Financial Management
404-631-1293

From: Nesbitt, Kimberly
Sent: Friday, January 20, 2012 5:05 PM
To: Westberry, Lisa; Hill, Stanley
Cc: Rogers, Robert
Subject: RE: PI 162430, Hall County - Funding for Mitigation Credits
Importance: High



**Benefit Cost Analysis Work Sheet
CONGESTION Projects**

STP00-2984-00(001)

162430

Hall County

SR 347/Friendship Rd. From I-985 To SR 211

Congestion Benefit = Tb + CMb + Fb

Person Time Savings Benefit (Tb)

*Db (hrs)	0.088
ADT	31,000.00
Tb (\$s)	\$93,775,000.00

Commercial or Truck Time Savings Benefit (CMb)

Db (hrs)	0.088
% Truck Traffic	0.06
ADT	31,000.00
CMb	\$29,728,380.00

Fuel Savings Benefit (Fb)

ADT	31,000.00
Fb (\$s)	\$32,679,166.67

Total Congestion Benefit	\$156,182,546.67
Total Project Cost	\$110,552,308.00
B/C Ratio	1.41

*Reduction in delay or **Delay Benefit (D_b)** can be defined as the difference between the peak hour travel time through the corridor without the proposed improvement and the peak hour travel time through the corridor with the proposed improvement.

DELAY BENEFIT (D_b) ANALYSIS

Delay Benefit (D_b)

Is the difference in the Peak Hour travel time through the corridor using 20 year traffic with and without the proposed improvements?

Delay is best determined from base year traffic counts and projected traffic volumes based on an accepted growth rate along the corridor. This information is currently provided to the preconstruction project manager during the concept development phase of a project and is used to determine the lane configuration and the anticipated LOS in the corridor. Therefore, this is a tool that is available and could readily be used to calculate the reduction of delay in the corridor.

Methodology

Take your highest one-way DHV and run it with the number of lanes thru HCS for both the existing condition and the proposed condition to get the calculated speed for the required segment.

Calculate the time to travel thru the project for each scenario:

Example:

You have a 2 lane road that will be widened to 4 lanes

Existing Condition (2 Lane Roadway)

$$1 \text{ Lane} - \frac{1 \text{ Hour}}{30 \text{ MPH}} \times 7.915 \text{ Miles} \times \frac{60 \text{ minutes}}{1 \text{ Hour}} = 15.83 \text{ minutes}$$

Proposed Condition (6/4 Lane Roadway)

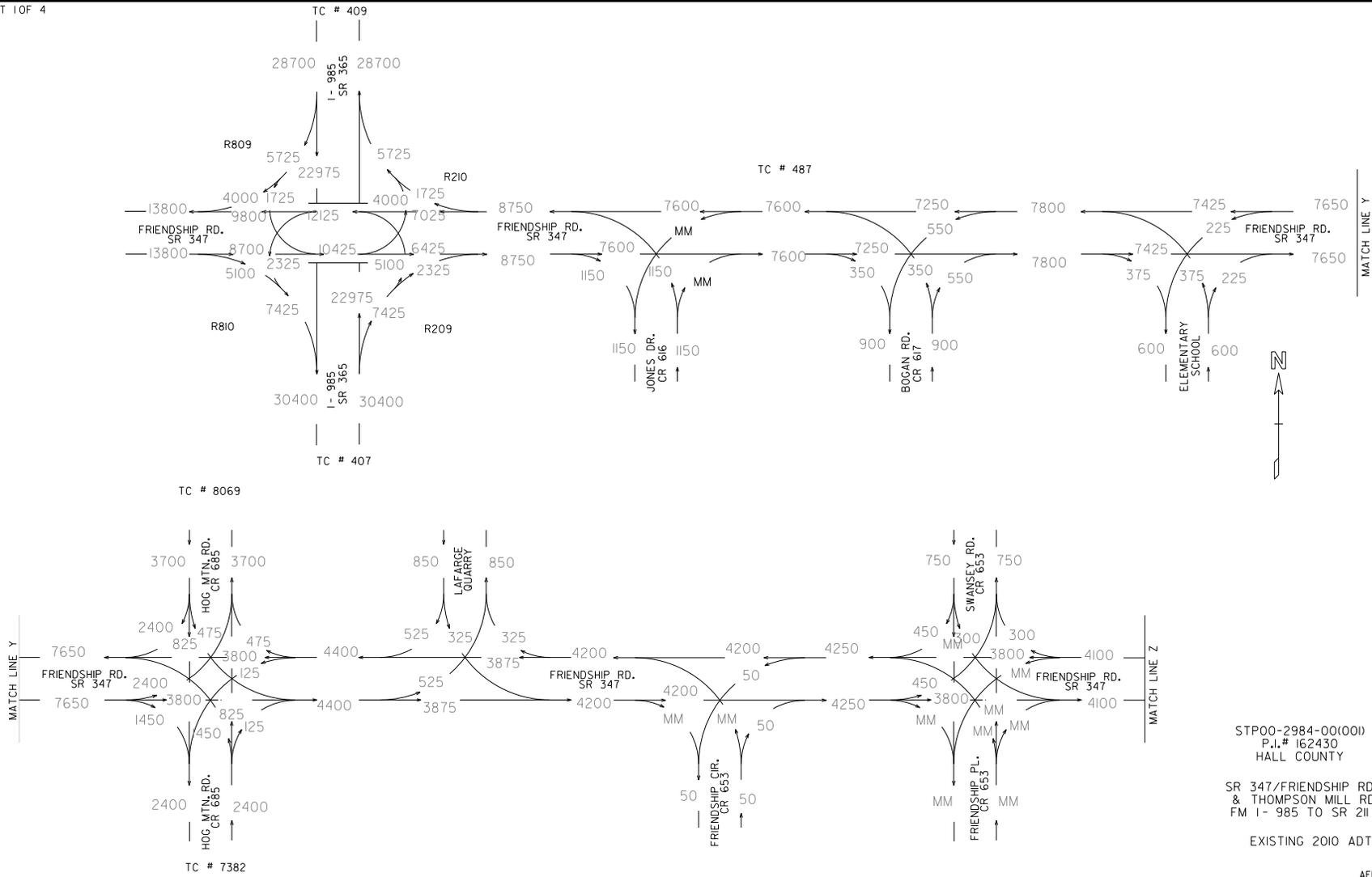
$$3/2 \text{ Lanes} - \frac{1 \text{ Hour}}{45 \text{ MPH}} \times 7.915 \text{ Miles} \times \frac{60 \text{ minutes}}{1 \text{ Hour}} = 10.55 \text{ minutes}$$

$$\text{Time Savings } (D_b) = \frac{(15.83 - 10.55)}{60} = 0.088 \text{ Hours}$$

For projects with signals -

1. Run each segment individually
2. Run Signal Analysis to determine Intersection delay in the direction analyzed
3. Total segments and intersection delays for the corridor

SHEET 1 OF 4



STP00-2984-00(001)
 P.L.# 162430
 HALL COUNTY
 SR 347/FRIENDSHIP RD
 & THOMPSON MILL RD
 FM 1- 985 TO SR 211
 EXISTING 2010 ADT

AFE
 06/2011



NOT TO SCALE

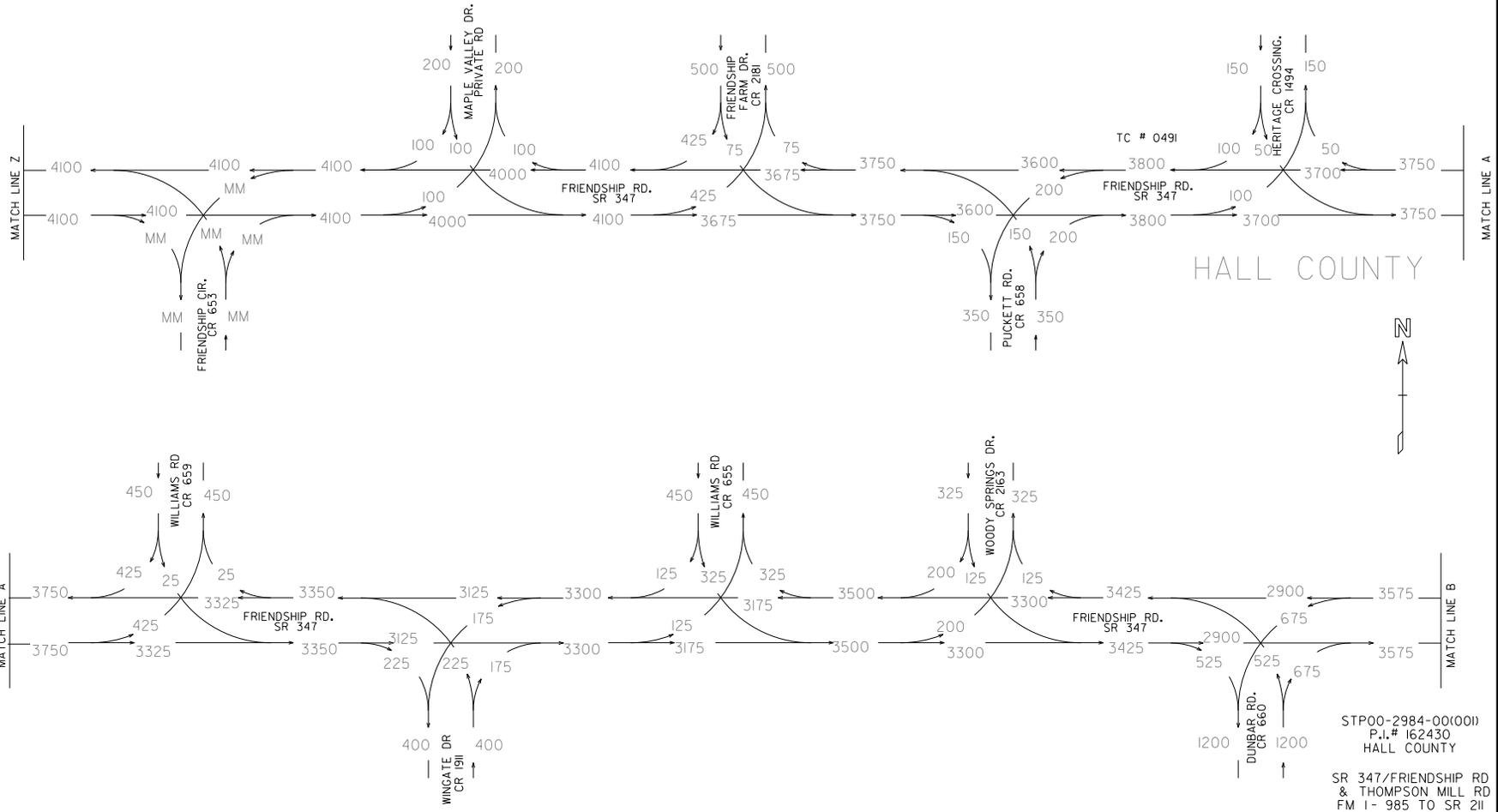
REVISION DATES

NO.	DATE	DESCRIPTION

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PLANNING
TRAFFIC DIAGRAM
 FRIENDSHIP RD 1-985 TO SR 211
 COUNTY: HALL

DRAWING NO.
10-01

SHEET 2 OF 4



STP00-2984-00(001)
 P.L.# 162430
 HALL COUNTY
 SR 347/FRIENDSHIP RD
 & THOMPSON MILL RD
 FM 1- 985 TO SR 211
 EXISTING 2010 ADT

AFE
 06/2011



NOT TO SCALE

REVISION DATES	

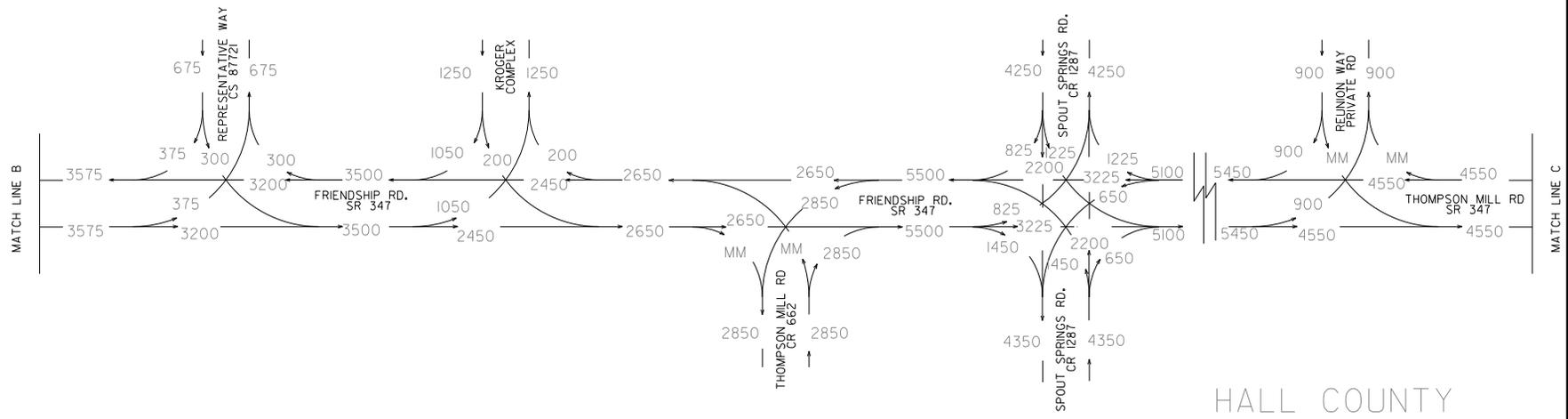
STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PLANNING
TRAFFIC DIAGRAM

FRIENDSHIP RD 1-985 TO SR 211
 COUNTY: HALL

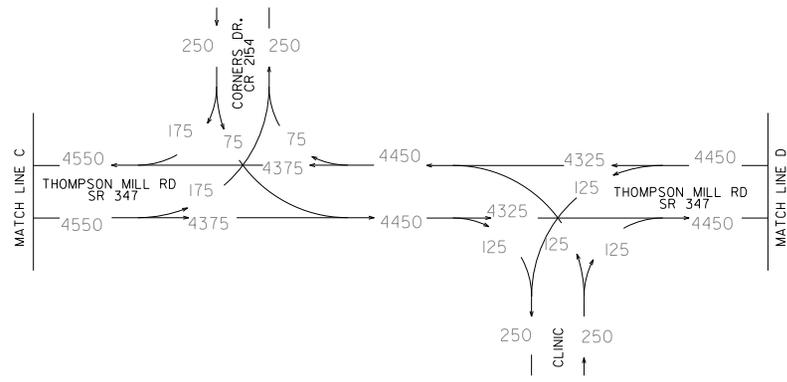
DRAWING No.
10-02

SHEET 3 OF 4

TC # 0437



HALL COUNTY



STP00-2984-00(001)
 P.I.# 162430
 HALL COUNTY
 SR 347/FRIENDSHIP RD
 & THOMPSON MILL RD
 FM 1- 985 TO SR 211
 EXISTING 2010 ADT

AFE 06/2011



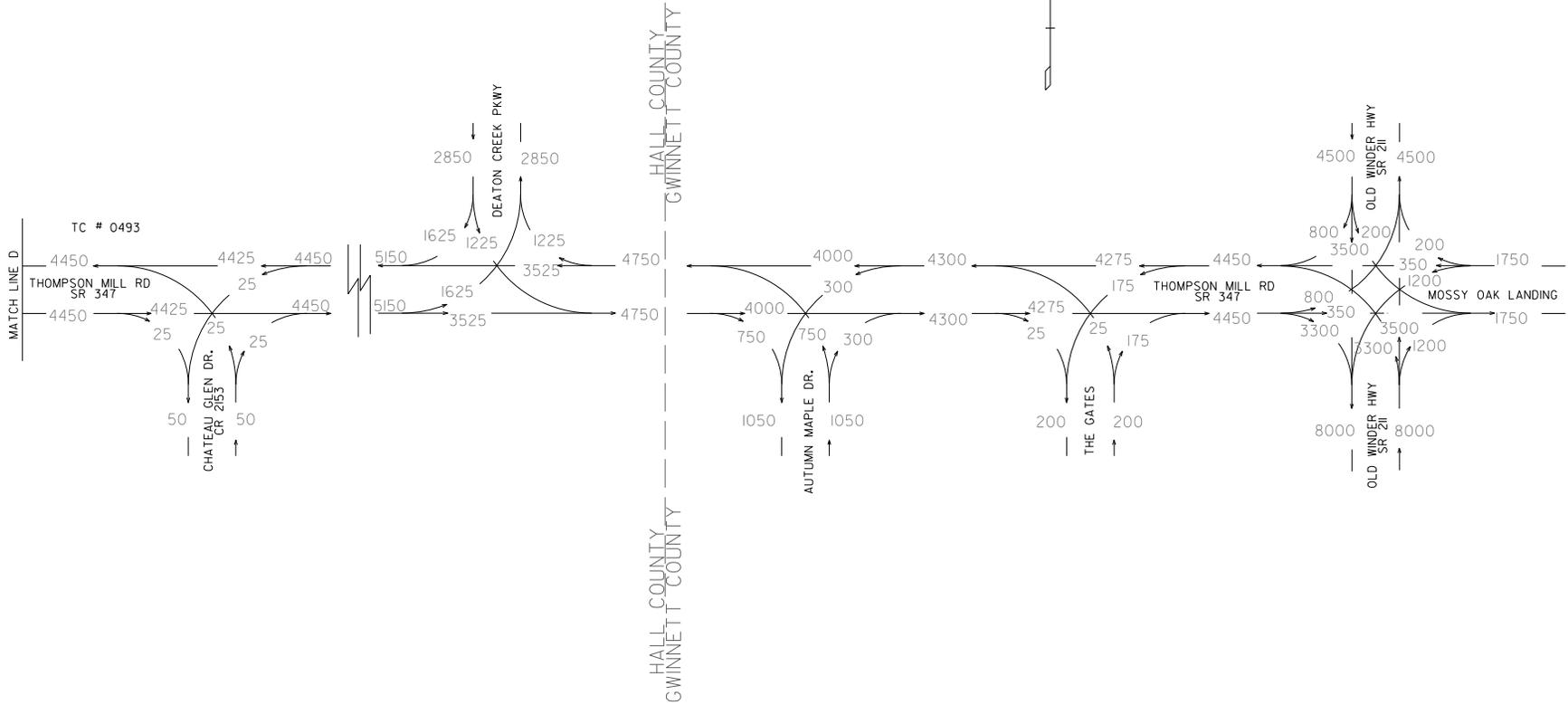
NOT TO SCALE

REVISION DATES

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PLANNING
TRAFFIC DIAGRAM
 FRIENDSHIP RD 1-985 TO SR 211
 COUNTY: HALL

DRAWING No. 10-03

SHEET 4 OF 4



STP00-2984-00(001)
 P.I.# 162430
 HALL COUNTY
 SR 347/FRIENDSHIP RD
 & THOMPSON MILL RD
 FM I- 985 TO SR 211
 EXISTING 2010 ADT

AFE
 06/2011

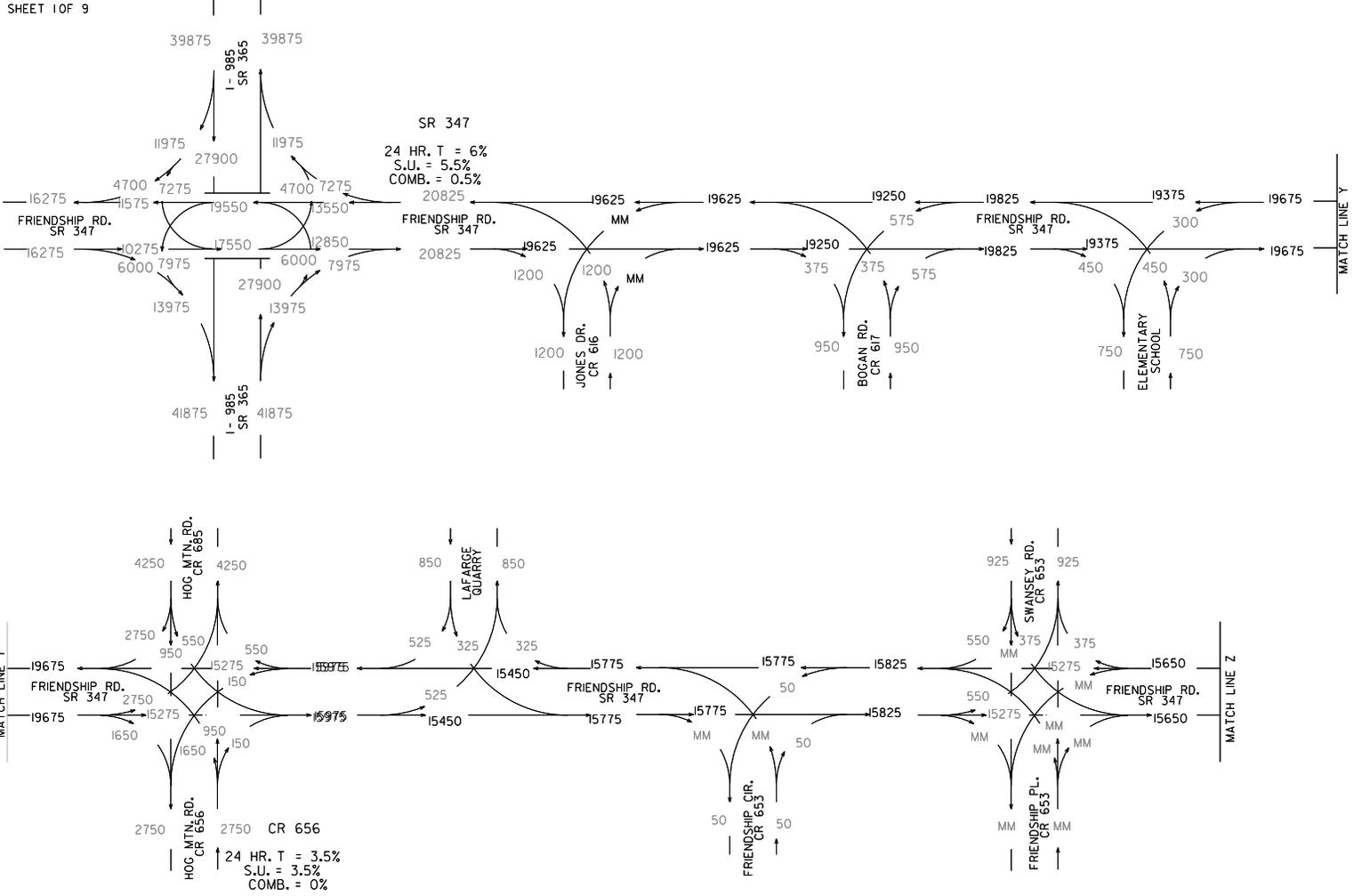
REVISION DATES

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PLANNING
TRAFFIC DIAGRAM
 FRIENDSHIP RD I-985 TO SR 211
 COUNTY: HALL



NOT TO SCALE

DRAWING No.
10-04



STPOO-2894-00(001)
 P.L.# 162430
 HALL COUNTY
 SR 347/FRIENDSHIP RD
 & THOMPSON MILL RD
 FM I- 985 TO SR 211
 2015 ADT
 24 HR, T = 6%
 S.U. = 5.5%
 COMB. = 0.5%

AFE
 02/2012

REVISION DATES

NO.	DATE	DESCRIPTION

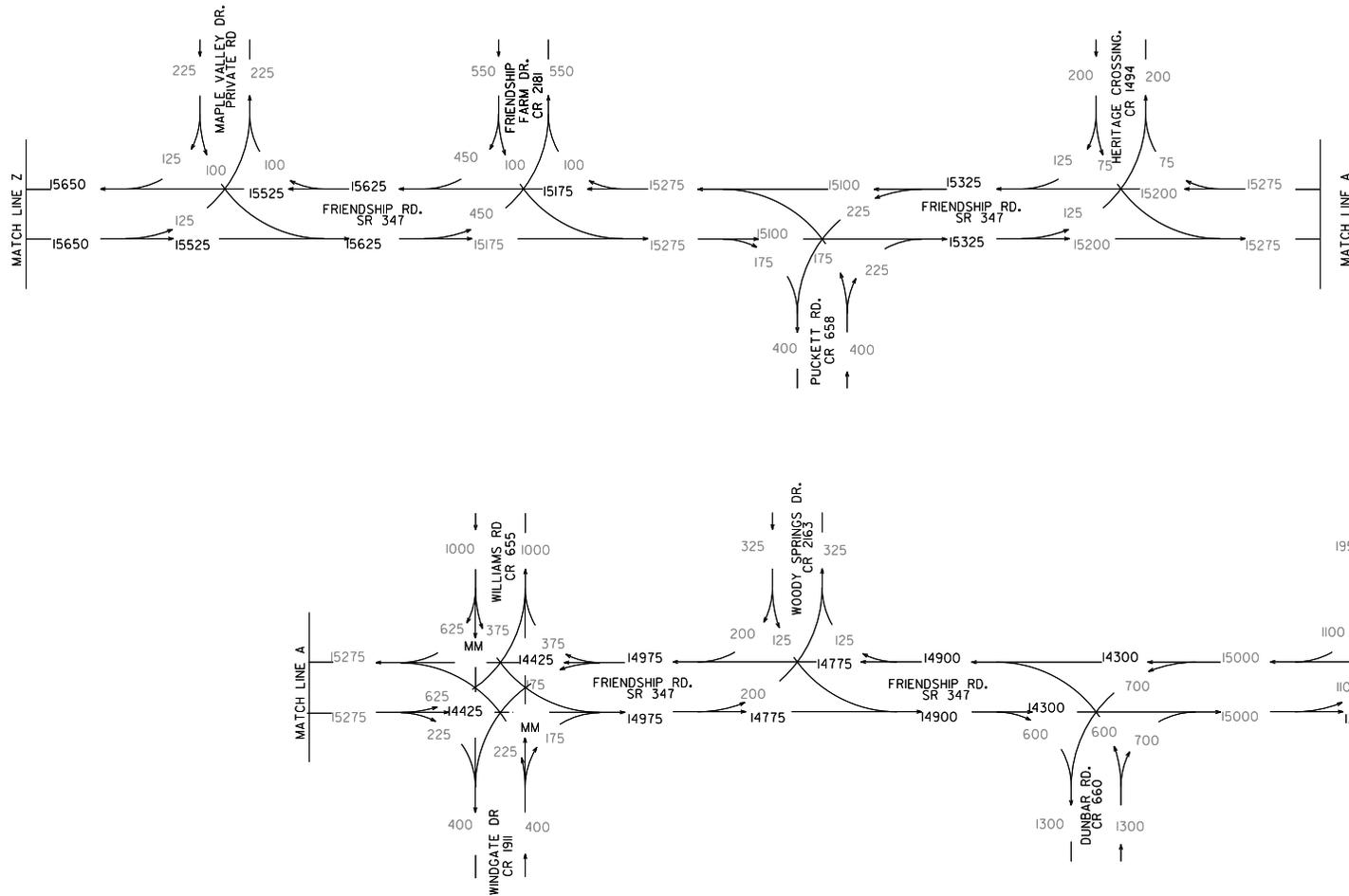
STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PLANNING
TRAFFIC DIAGRAM
 FRIENDSHIP RD I-985 TO SR 211
 COUNTY: HALL



NOT TO SCALE

DRAWING NO.
10-05

SHEET 2 OF 9



HALL COUNTY
 N
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STP00-2984-00(100)
 P.I.# 162430
 HALL COUNTY
 SR 347/FRIENDSHIP RD
 & THOMPSON MILL RD
 FM I- 985 TO SR 211
 2015 ADT
 24 HR. T = 6%
 S.U. = 5.5%
 COMB. = 0.5%

AFE
 02/2012



NOT TO SCALE

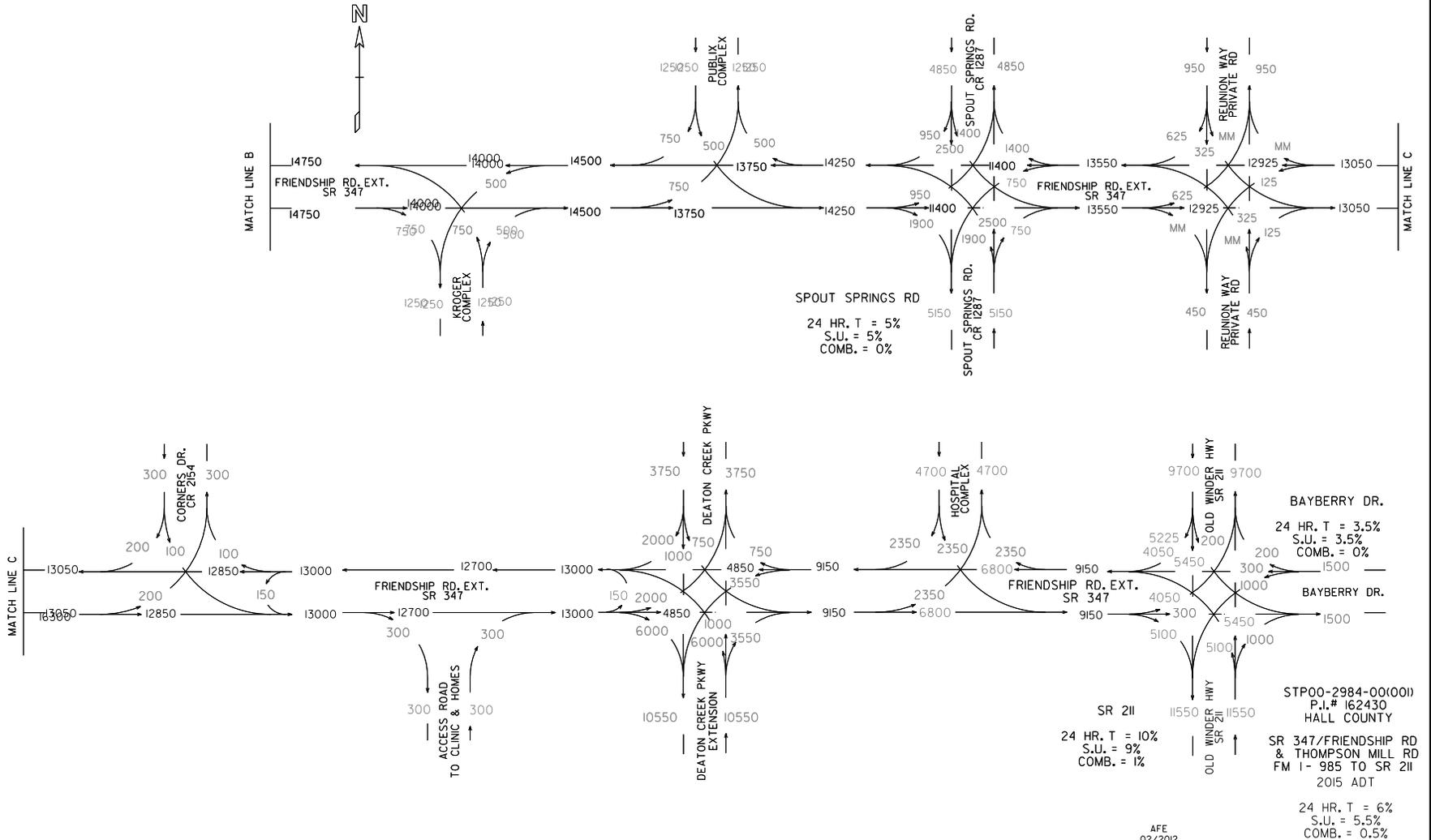
REVISION DATES

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PLANNING
TRAFFIC DIAGRAM
 FRIENDSHIP RD I-985 TO SR 211
 COUNTY: HALL

DRAWING No.
10-06

SHEET 3 OF 9

HALL COUNTY



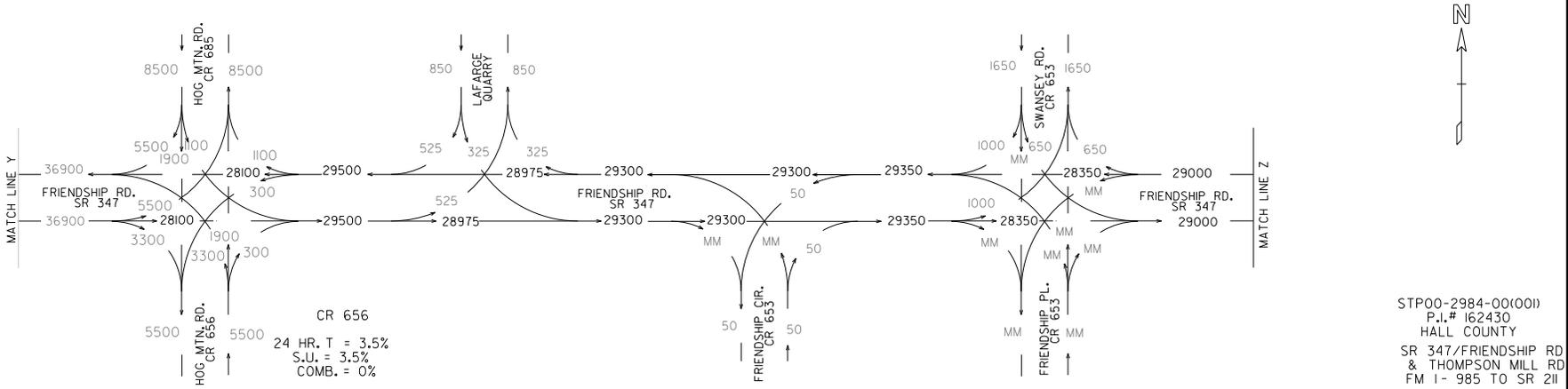
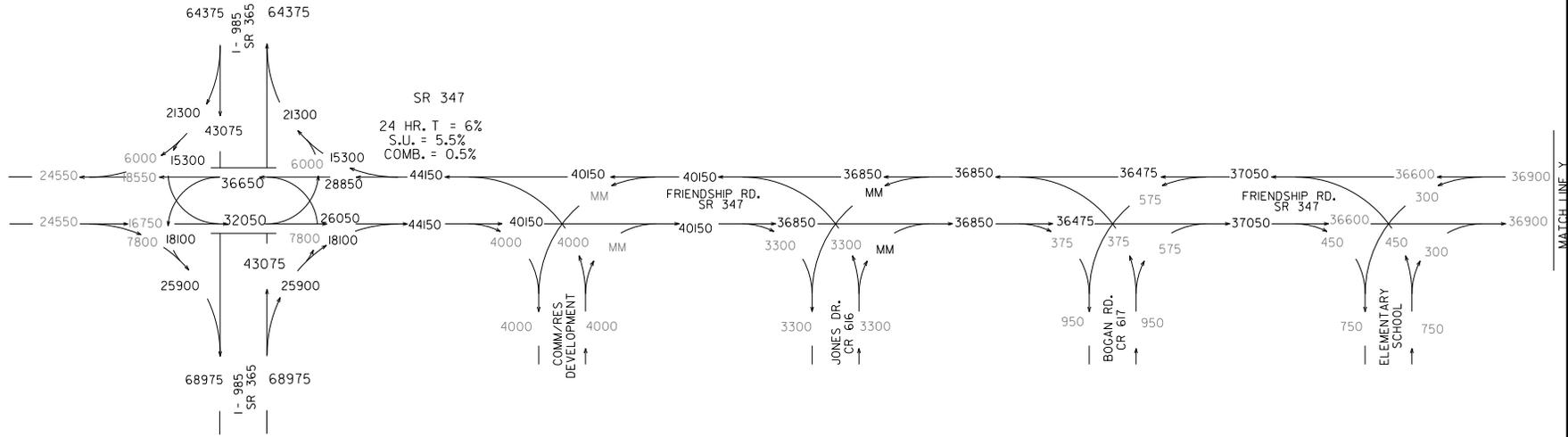
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REVISION DATES

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PLANNING
TRAFFIC DIAGRAM
 FRIENDSHIP RD I-985 TO SR 211
 COUNTY: HALL

DRAWING NO.
10-07

SHEET 4 OF 9



STP00-2984-00(001)
 P.I.# 162430
 HALL COUNTY
 SR 347/FRIENDSHIP RD
 & THOMPSON MILL RD
 FM I-985 TO SR 211
 2035 ADT = 000
 24 HR. T = 6%
 S.U. = 5.5%
 COMB. = 0.5%

AFE
 02/2012

REVISION DATES

NO.	DATE	DESCRIPTION

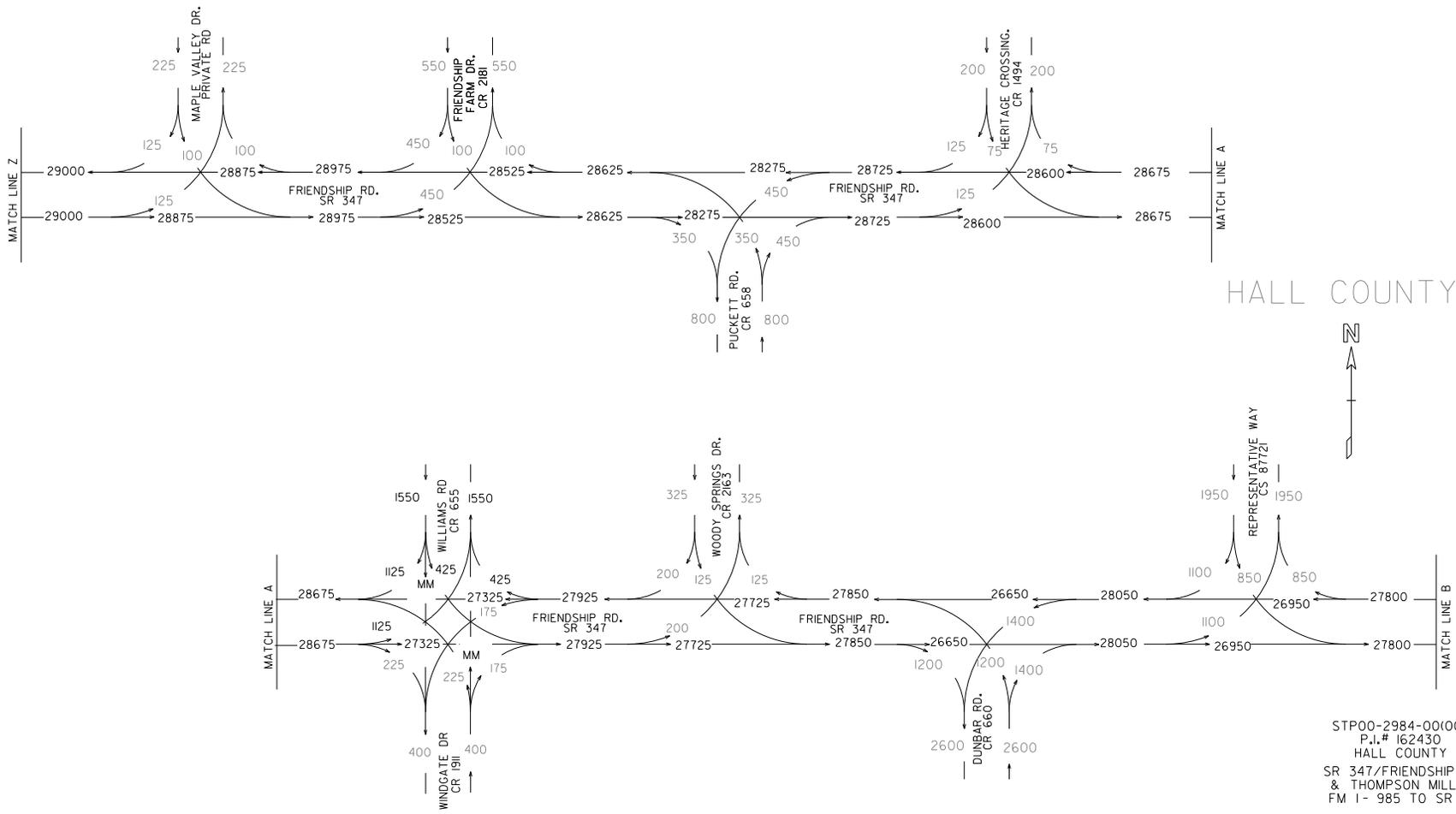
STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PLANNING
TRAFFIC DIAGRAM
 FRIENDSHIP RD I-985 TO SR 211
 COUNTY: HALL



NOT TO SCALE

DRAWING No.
10-08

SHEET 5 OF 9



HALL COUNTY



STP00-2984-00(001)
 P.I.# 162430
 HALL COUNTY
 SR 347/FRIENDSHIP RD
 & THOMPSON MILL RD
 FM 1- 985 TO SR 211

2035 ADT = 000
 24 HR. T = 6%
 S.U. = 5.5%
 COMB. = 0.5%

AFE
 02/2012



NOT TO SCALE

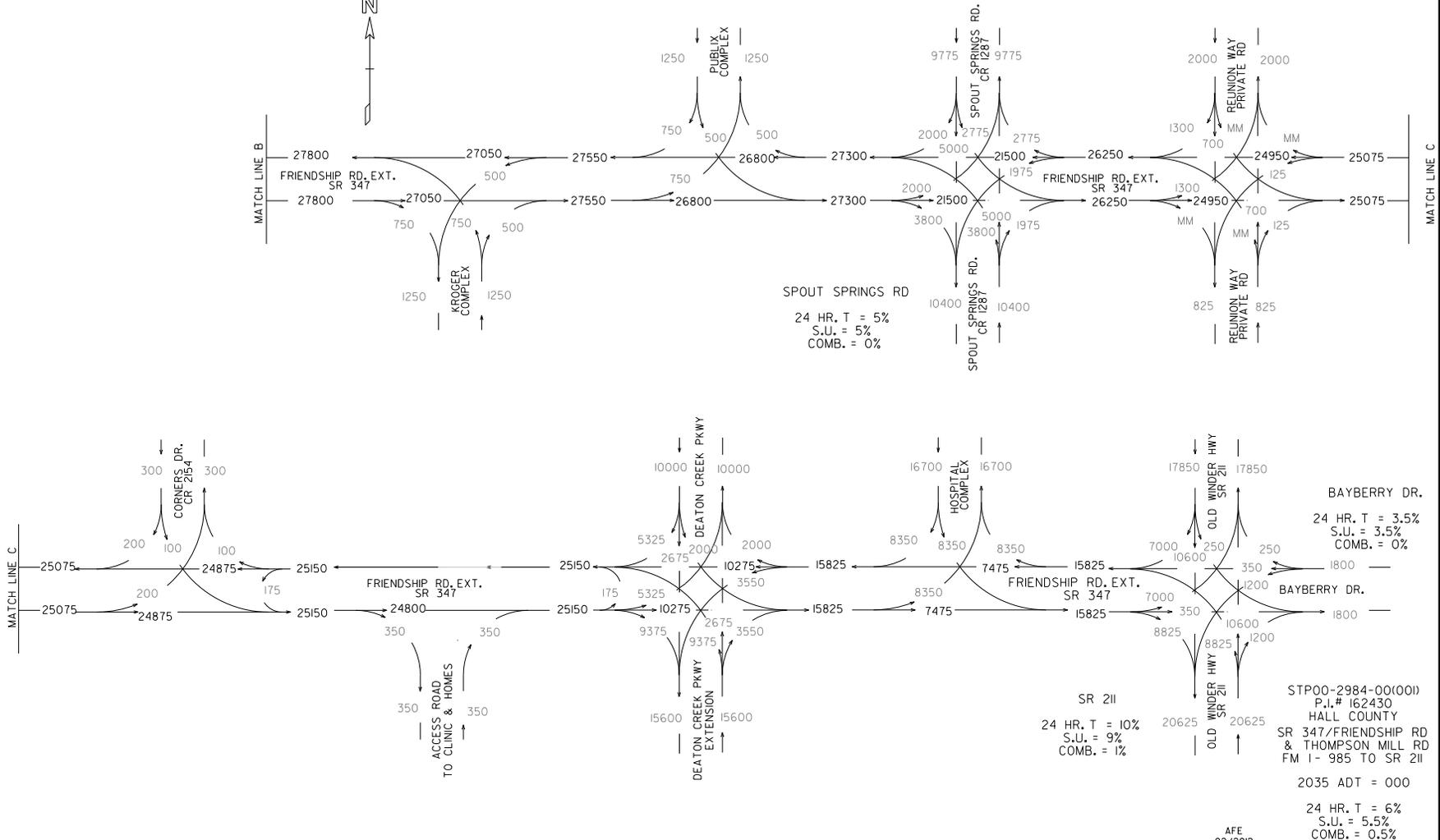
REVISION DATES

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PLANNING
TRAFFIC DIAGRAM
 FRIENDSHIP RD 1-985 TO SR 211
 COUNTY: HALL

DRAWING No.
10-09

SHEET 6 OF 9

HALL COUNTY



AFE
02/2012

REVISION DATES

NO.	DATE	DESCRIPTION

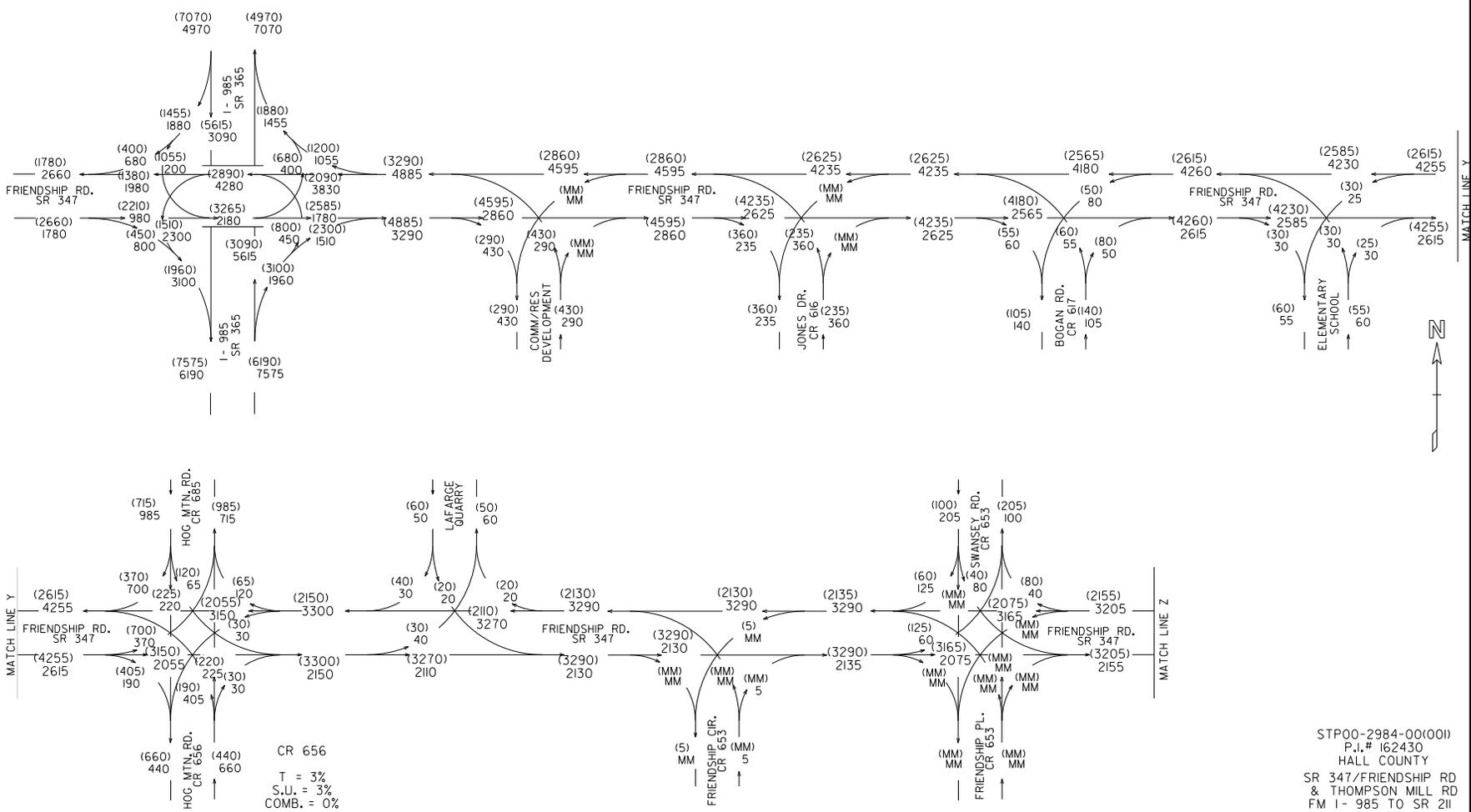
STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PLANNING
TRAFFIC DIAGRAM
 FRIENDSHIP RD I-985 TO SR 211
 COUNTY: HALL



NOT TO SCALE

DRAWING No. 10-10

SHEET 7 OF 9



CR 656
 T = 3%
 S.U. = 3%
 COMB. = 0%

STP00-2984-00(001)
 P.L.# 162430
 HALL COUNTY
 SR 347/FRIENDSHIP RD
 & THOMPSON MILL RD
 FM I- 985 TO SR 211

2035 PM DHV = (000)
 2035 AM DHV = 000
 T = 5.5%
 S.U. = 5%
 COMB. = 0.5%

AFE
 02/2012



NOT TO SCALE

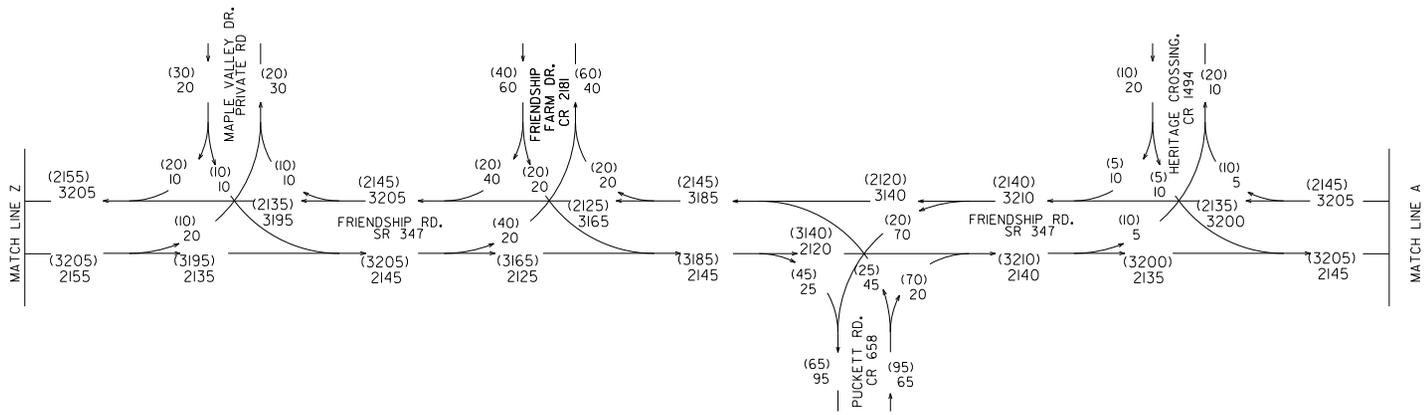
REVISION DATES

NO.	DATE	DESCRIPTION

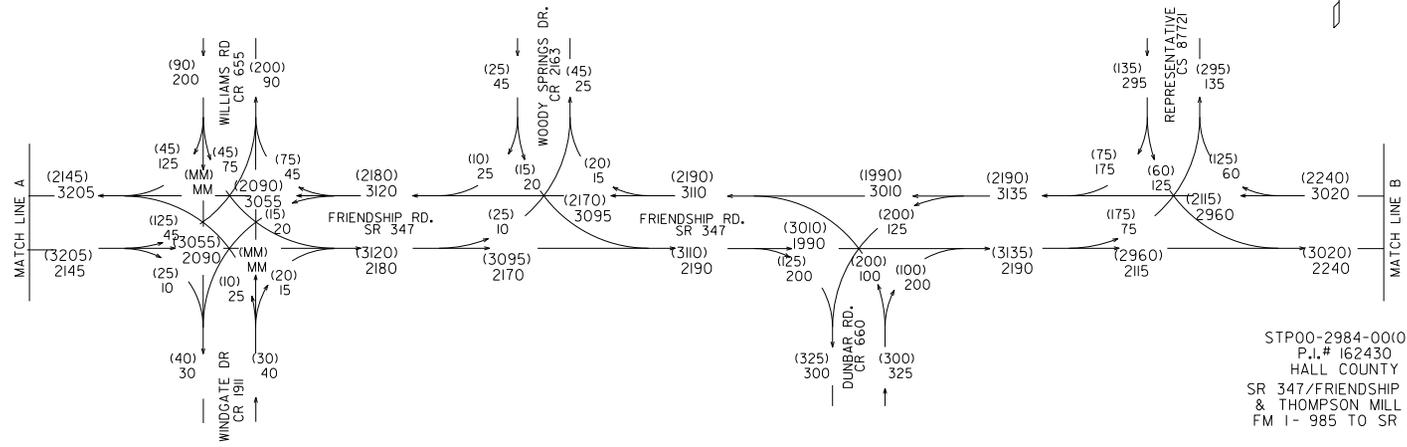
STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PLANNING
TRAFFIC DIAGRAM
 FRIENDSHIP RD I-985 TO SR 211
 COUNTY: HALL

DRAWING NO.
10-11

SHEET 8 OF 9



HALL COUNTY
 N



STP00-2984-00(001)
 P.I.# 162430
 HALL COUNTY
 SR 347/FRIENDSHIP RD
 & THOMPSON MILL RD
 FM 1- 985 TO SR 211

2035 PM DHV = (000)
 2035 AM DHV = 000
 T = 5.5%
 S.U. = 5%
 COMB. = 0.5%

AFE
 02/2012



NOT TO SCALE

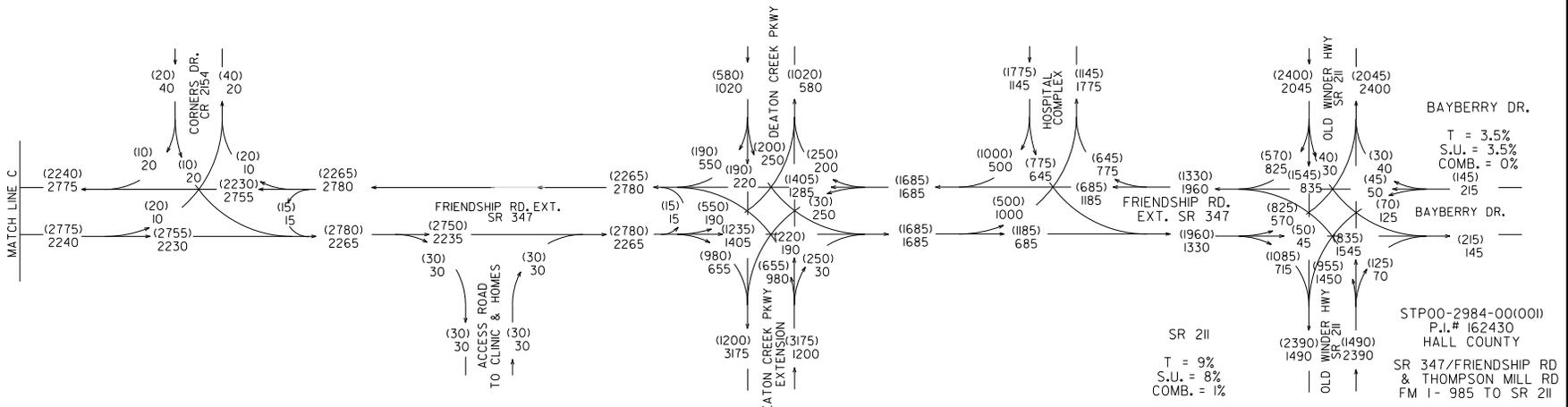
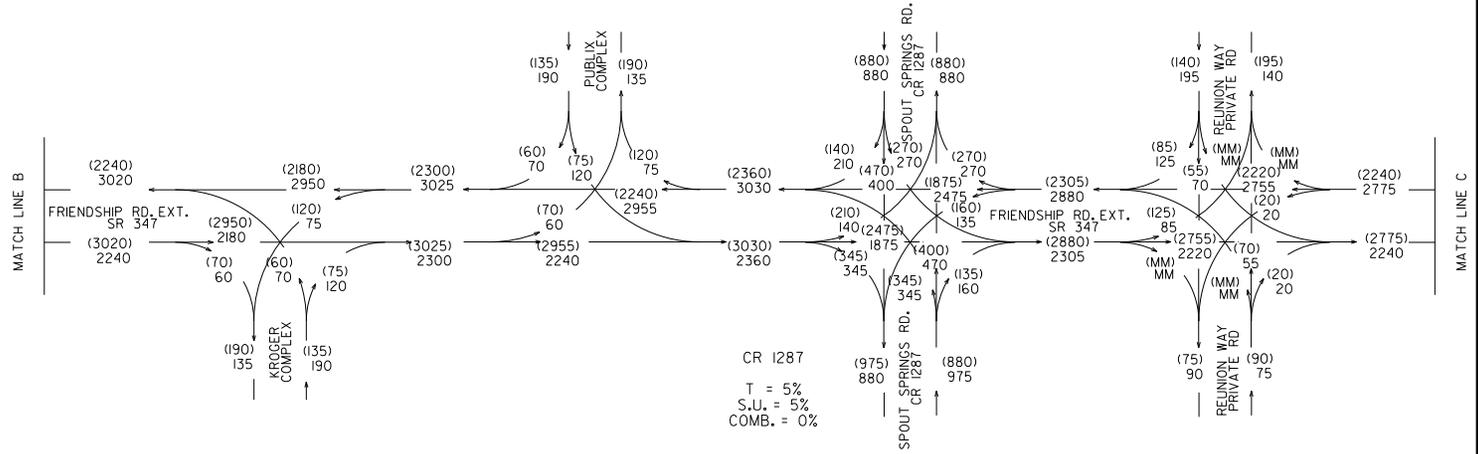
REVISION DATES

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PLANNING
TRAFFIC DIAGRAM
 FRIENDSHIP RD 1-985 TO SR 211
 COUNTY: HALL

DRAWING NO.
10-12

SHEET 9 OF 9

HALL COUNTY



	NOT TO SCALE	<table border="1"> <thead> <tr> <th colspan="2">REVISION DATES</th> </tr> </thead> <tbody> <tr><td> </td><td> </td></tr> </tbody> </table>	REVISION DATES												STATE OF GEORGIA DEPARTMENT OF TRANSPORTATION OFFICE: PLANNING TRAFFIC DIAGRAM FRIENDSHIP RD 1-985 TO SR 211 COUNTY: HALL	DRAWING No. 10-13
	REVISION DATES															


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**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

INTERDEPARTMENT CORRESPONDENCE

FILE: STP-2984(1) Hall **OFFICE:** Engineering Services
P.I. No.: 162430
S.R. 347/Friendship/Thompson Mill Road Reconstruction

DATE: January 29, 2008

FROM: Brian K. Summers, PE, Project Review Engineer *REN*

TO: Babs Abubakari, PE, State Program Delivery and Consultant Design Engineer

SUBJECT: IMPLEMENTATION OF VALUE ENGINEERING STUDY ALTERNATIVES

Recommendations for implementation of Value Engineering Study Alternatives are indicated in the table below. Incorporate the VE alternatives recommended for implementation to the extent reasonable in the design of the project.

ALT #	Description	Potential Savings/LCC	Implement	Comments
PROFILE (P)				
P-1	Raise the profile in areas of rock at Sta. 391+00 and Sta. 402+00 to reduce the volume of unclassified excavation by more than 75,000 CY and significantly reduce the risk of rock excavation.	\$525,830	Yes	This should be done.
P-2	Raise the sag vertical curves to create more area for fill at Sta. 415+00 and to reduce the volume of unclassified excavation and Waste by 40,000 CY.	\$260,320	Yes	This should be done.

ALT #	Description	Potential Savings/LCC	Implement	Comments
PROFILE (P) – continued				
P-3	Raise the profile in the vicinity of Sta. 137+00 and Sta. 275+00 to reduce the amount of unclassified excavation by 19,000 CY and Waste by 257,000 CY.	-\$104,770 (cost increase)	No	This would require additional Right of Way in certain areas which results in a net cost increase.
TYPICAL SECTION (S)				
S-1	Design for six lanes, but defer the final two lanes until traffic counts warrant from Sta. 100+00 to Sta. 205+00. Build the section from the outside in, placing the sidewalks and curbs & gutters in their final location for the six-lane section. The median would initially be grassed.	\$2,810,423	No	Updated traffic volumes justify the six lane section is needed prior to the 20 year Design Year.
S-2	Use a 10 ft. wide multi-use path on each side of the road instead of the 5 ft. sidewalk and the 4 ft. bike lane to save 4 ft. of Right of Way on each side of the road.	\$6,245,670	Yes	This route is not a designated Statewide Bicycle Route so this VE Alternative eliminates the 4 ft. of additional full depth paving on each side of the road for Bike Lanes but still provides a 10 ft. multi-use path on each side of the road to accommodate bicycles.

ALT #	Description	Potential Savings/LCC	Implement	Comments
TYPICAL SECTION (S) – continued				
S-3	Reduce the width of the outside lanes from 12 ft. to 11 ft. on both sides of the road. The 2 ft. gutter and 4 ft. wide bike lanes would not be affected. All other lanes would remain 12 ft.	\$1,994,845 (original) \$3,989,690 (revised)	Yes	This should be done since the project is in an urban area with minimum truck traffic. In addition to the two outside lanes being changed to 11 ft. the two inside lanes will be changed to 11 ft.
S-4	Use a 24 in. wide curb & gutter in lieu of 30 in. to save 6 in. of Right of Way along each side of the road.	\$1,931,067	No	This would require a redesign of the Drainage Systems.
S-9	Use a grassed median in lieu of a 7 ½ in. thick concrete median. Use a 4 in. thick concrete median only in areas directly adjacent to the turn lanes for added protection and improved visibility.	\$2,548,523	Yes	This should be done.
S-10	Use a 4 in. thick concrete median in lieu of 7 ½ in. concrete.	\$1,606,232	Yes	This should be done.
DRAINAGE (D)				
D-1	Use precast sedimentation vaults in lieu of purchased Right of Way for ponds.	Design Suggestion	No	Since this project has changed from a rural design to an urban design, most Sediment Basins have now been deleted.

ALT #	Description	Potential Savings/LCC	Implement	Comments
DRAINAGE (D) – continued				
D-2	Reduce the number of catch basins by increasing the gutter spread from 8 ft. to 10 ft. as allowed by GDOT criteria. This 25% increase in gutter spread could result in a net 10% savings in catch basins and pipe.	\$894,520	No	Since VE Alternative S-2 is recommended which eliminated the 4 ft. Bike Lanes, this no longer is applicable.
CONSTRUCTION MANAGEMENT (CM)				
CM-1	Bid the project as one large job in lieu of two smaller pieces. The west half of the project is a net Borrow job, while the east half is a net Waste job. To reduce the extra cost from excessive Borrow and Waste, combine the project into a single contract.	Design Suggestion	Yes	This has already been done.
RIGHT-OF-WAY (RW)				
RW-1	Generally, reduce the cut and fill areas in the profile to minimize extensive slopes and Right of Way takes.	Design Suggestion	Yes	This should be done.

A meeting was held on January 7, 2008 and Mike Reynolds, Fred Enloe, and Jayaram Kottapally with Kisinger Campo & Associates, Mike Haithcock with Consultant Design, and Brian Summers, Ron Wishon and Lisa Myers of Engineering Services were in attendance.

Additional information was provided on January 23, 2008.

STP-2984(1) Hall

P.I. No. 162430

Implementation of Value Engineering Study Alternatives

Page 5.

The results above reflect the consensus of those in attendance and those who provided input.

Approved:  Date: 2/14/08
Gerald M. Ross, P. E., Chief Engineer

BKS/REW

Attachments

c: Gus Shanine, FHWA
Todd Long
James Magnus
Randy Davis
Brandon Kirby
Hiral Patel
Ken Werho
Nabil M. Raad
Funmi Adesesan
Lisa Myers

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

INTERDEPARTMENT CORRESPONDENCE



FILE **STP-2984(1) Hall County**
SR 347/Friendship/Thompson Mill Road Reconstruction
P.I. No. 162430

OFFICE Consultant Design

M Babs Abubakar (MBA)
FROM M. Babs Abubakari, P.E.,
State Consultant Design / Program Delivery Engineer

DATE November 13, 2007

TO Brian Summers, State Design Review Engineer
Attn: Lisa Myers

SUBJECT **VE STUDY RESPONSES**

The following are responses to the Value Engineering Study Report dated October 23, 2007 for the Reconstruction of SR 347/Friendship/Thompson Mill Road from I-985 to SR 211. The intention of these responses are to provide rationale for accepting, rejecting, or modifying the Value Engineering proposals listed throughout the report. These responses reflect input from GDOT and Kissinger Campo, and Associates.

Alternative Number Description / Response

P-1 Raise the profile in areas of rock

We recommend against this suggestion for the following reasons:

- The proposed grade at Station 170+00 drops at 4.3% grade in the area of the proposed entrance to Blue Circle Quarry. The alignment and grade at this point has been coordinated with the quarry and raising the grade at this location would be a hazard for loaded trucks that must climb the already steep profile.
- Revising the grade would make construction staging and access to existing driveways more difficult in the area of Station 165+00 to Station 167+00.
- The current profile is tying into an existing 4-lane section at Station 373+44 and to a sidestreet at Station 406+35.
- The current grade at Station 402+00 is controlled by the sidestreet of Reunion Way at Station 406+35.

P-2 Raise the sag vertical curves and create more fill areas at Sta. 415+00.

We recommend against this suggestion for the following reasons:

The proposed grade at Station 415+00 is a sag vertical curve in the vicinity of the Celebration Baptist Ministries property, but raising the grade would increase the length of a proposed culvert at Station 412+00 and the height of fill and Right of Way impacts on the church property.

P-3 Raise the profile in the vicinity of Sta. 137+00 and Sta. 275+00.

We recommend against this suggestion for the following reasons:

- The proposed grade at this location is controlled by a historical boundary 80 feet left of Station 140+50 and raising the grade could force a retaining wall next to the historic property. Raising the grade in this area would also result in greater impacts to ball fields on school property at Station 137+00 120 feet to the right.
- The proposed grade at Station 275+00 is controlled by a residence 94 feet to the left and a residence 96 feet to the right of Station 280+00 both in fill just beyond current construction limits. The use of a wall would eliminate the driveway in both cases making raising the grade unfeasible without displacements.

S-1 Design for 6-lanes, but build only 4-lanes – Sta. 100+00 to Sta. 205+00 with 44' median.

We recommend against this suggestion for the following reasons:

- Six lanes with a raised median from sta. 100+00 to sta. 205+00 as is currently designed minimizes right of way impacts consistent with operational requirements of heavy truck traffic from Blue Circle Quarry and with agreements already made with the management of the quarry.
- Six lanes are required to meet the needs of 20 year projections of traffic thru Hog Mountain Road.

S-2 Use a 10' multi-use path on both sides of the road in place of bike lanes and sidewalks.

We recommend against this suggestion for the following reasons:

The PIOH held for this project indicated overwhelming support for bike lanes and sidewalks and they have been added to the project by GDOT in response. 10' multi-use path will require a center barrier to separate opposing pedestrians and bicyclists, and probably a wider path to accommodate all. Keeping bike lanes lends weight to agreeing to **Alternates D2 and S3**.

S-3 *Reduce outside lanes from 12' to 11' wide on both sides of the road.*

We recommend against this suggestion for the following reasons:

GDOT Design Manual and policy states 11' lanes can only be used in an "Urban Area Type A", otherwise a design variance will be required for widths less than 12'. ADT for this project is 62,000, well above AASHTO 'Green Book' minimum for 12' lanes.

S-4 *Use 24" curb and gutter in lieu of 30" curb and gutter.*

We recommend against this suggestion for the following reasons:

The current GDOT catch basin standards call for a 2' gutter to effectively handle storm flow and reduce gutter spread. All standards and construction details reference a 2' minimum. A 2' offset to barrier curb has been considered a safety requirement for state routes and other high class roadways for some time. Transition to 18" gutter is sometimes used to tie to existing curb and gutter on side roads placed by local governments and developers.

S-9 *Use a grass median in lieu of 7 ½" thick median pavement.*

We agree to this suggestion for the following reasons:

The use of grass median with curb and gutter has been recommended as the locally preferred option at the PFPR and is to be included in the plans at this time. Medians will be paved only at left turn bays as detailed in the Median Cross Over Construction Detail M-3.

S-10 *Use a 4" thick concrete median in lieu of 7 ½" thick concrete.*

We agree to this suggestion for the following reasons:

Curb and gutter with 4" median paving adjacent to median turn lanes will be used at all median openings as per choice of GDOT District 1 in final plans.

D-2 *Reduce the number of catch basins by increasing the gutter spread from 8' to 10'.*

We agree to this suggestion for the following reasons:

Considering a 2' gutter spread, 4' bike lane, and half lane width of 6'. That equals 12', so the recommended 10' is conservative. Many of the "apparent excess" catch basins are functioning as junction boxes intercepting water from drop inlets and others are in place to intercept back slope runoff.

CM-1 *Bid the project as one large project.*

We agree to this suggestion for the following reasons:

However, funding and coordination with development as well as early re-routing of SR 347 may lead to a split project or an 'exception length'.

RW-1 *Reduce the cut and fill areas in the profile to minimize extensive slopes and right of way.*

We agree to this suggestion for the following reasons:

Coordination is ongoing with many development tracts to reduce the project's cut and fill requirements , thus reducing construction limits and R/W.