

**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA**

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

**FILE** P.I. # 0013295 **OFFICE** Design Policy & Support  
Spalding County  
GDOT District 3 - Thomaston **DATE** August 15, 2016  
SR 155 @ CS 1020/North Hill Street  
Operational Improvements

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

**TO** SEE DISTRIBUTION

**SUBJECT** APPROVED CONCEPT REPORT

Attached is the approved Concept Report for the above subject project.

Attachment

**DISTRIBUTION:**

Hiral Patel, Director of Engineering  
Joe Carpenter, Director of P3/Program Delivery  
Genetha Rice-Singleton, Assistant Director of P3/Program Delivery  
Albert Shelby, State Program Delivery Engineer  
Darryl VanMeter, State Innovative Delivery Engineer  
Bobby Hilliard, Program Control Administrator  
Cindy VanDyke, State Transportation Planning Administrator  
Eric Duff, State Environmental Administrator  
Bill DuVall, State Bridge Engineer  
Andrew Heath, State Traffic Engineer  
Angela Robinson, Financial Management Administrator  
Lisa Myers, State Project Review Engineer  
Monica Flourmoy, State Materials and Testing Administrator  
Lee Upkins, State Utilities Engineer  
Richard Cobb, Statewide Location Bureau Chief  
Andy Casey, State Roadway Design Engineer  
Adam Smith for District Design Engineer  
Michael Presley, District Engineer  
Adam Smith, District Preconstruction Engineer  
Scott Parker, District Utilities Engineer  
Terry Rogers, Project Manager  
BOARD MEMBER - 3rd Congressional District

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

Project Type:	<u>Operational Improvement</u>	P.I. Number:	<u>0013295</u>
GDOT District:	<u>3</u>	County:	<u>Spalding</u>
Federal Route Number:	<u>NA</u>	State Route Number:	<u>155</u>
	Project Number:		<u>NA</u>

The project is to add a signal and turn lanes at the intersection of SR 155/East Broadway Street, SR 155/North Hill Street, CS 104705/West Broadway Street and CS 102005/North Hill Street in downtown Griffin.

**Submitted for approval:**

<u><i>Albert Shelby</i></u> District Engineer	<u><i>Albert Shelby</i></u>	<u><i>4/29/16</i></u> Date
<u><i>JAC</i></u> State Program Delivery Engineer	<u><i>KESD</i></u>	<u><i>5/3/16</i></u> Date
<u><i>JAC</i></u> GDOT Project Manager		<u><i>05/02/2016</i></u> Date

**Recommendation for approval:**

* <u><i>Eric Duff/KLP</i></u> State Environmental Administrator	<u><i>5-10-16</i></u> Date
* <u><i>Christopher Raymond/KLP</i></u> FOR State Traffic Engineer	<u><i>5-20-16</i></u> Date
* <u><i>Lisa Myers/KLP</i></u> Project Review Engineer	<u><i>5-12-16</i></u> Date
* <u><i>Merishia Robinson/KLP</i></u> FOR State Utilities Engineer	<u><i>5-19-16</i></u> Date

- MPO Area: This project is consistent with the MPO adopted Regional Transportation Plan (RTP)/Long Range Transportation Plan (LRTP).
- Rural Area: This project is consistent with the goals outlined in the Statewide Transportation Plan (SWTP) and/or is included in the State Transportation Improvement Program (STIP).

<u><i>Cynthia L. Vanpke</i></u> State Transportation Planning Administrator	<u><i>5-16-16</i></u> Date
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County: Spalding

## PLANNING AND BACKGROUND

**Project Justification Statement:** This statement was provided by the Office of Traffic Operations. The intersection of SR 155/East Broadway Street, SR 155/North Hill Street, CS 104705/West Broadway Street and CS 102005/North Hill Street in Spalding County was identified for an intersection improvement. The proposed project is to be included in the GDOT Operation Improvement Lump Sum Program from the Office of Traffic Operations. This proposed project was approved by the Operational Improvement Committee.

SR 155/ East Broadway Street is a two lane urban minor arterial that runs east/ west through the city of Griffin. At the intersection of East Broadway Street at North Hill Street, SR 155 turns left/south and becomes a four lane divided urban minor arterial with diagonal on street parking. SR 155 is on the GDOT Oversize Truck Route Network.

The above mentioned intersection, just north of downtown Griffin, is currently two-way stop sign controlled, with stop control on the eastbound and westbound approaches. District Three Traffic Operations Staff conducted field visits to identify operational deficiencies at this intersection. Field observations concluded that heavy northbound traffic volumes during the PM peak along North Hill Street caused vehicles on SR 155/ East Broadway Street (Westbound approach) to have limited gaps resulting in excessive queuing on SR 155/ East Broadway Street. A traffic engineering study and a Synchro Analysis concluded that installing a traffic signal along with a westbound left turn lane on SR 155/East Broadway Street would mitigate the excessive queuing and improve the level of service (LOS). Additionally, there is also a project (P. I. 0010333) to reduce the number of travel lanes on North Hill Street from four lanes to two lanes in downtown Griffin.

Due to the right-of-way constraints, existing corridor features, and the scope approved by the Operational Improvement Committee, a roundabout was considered but not recommended for this location.

The project lies within the boundaries of the Atlanta Regional Commission (ARC), Atlanta's Metropolitan Planning Organization (MPO). As an operational improvement project, this project is categorized under the "operational improvement lump sum category" in the MPO's RTP or TIP.

Crash data from 2010-2014 indicates that 49 crashes occurred at this intersection resulting in 15 total injuries.

**Existing conditions:** SR 155/ West Broadway Street (East Approach) is a two lane urban minor arterial with curbs and sidewalks. SR 155/ North Hill Street (South Approach) has four lanes with side parking, curbs, and sidewalks. East Broadway Street (West Approach) has two lanes with curbs and sidewalks. North Hill Street (North Approach) has four lanes with side parking, curbs and sidewalks. Central of Georgia Railroad runs in an east/ west direction, adjacent and south of Broadway Street. The Railroad has two rail lines traversing through the intersection improvement project. City of Griffin/ Power Operation has overhead line along the Westside of Hill Street. Qwest Communications Corporation has overhead communication line on the Southside of Broadway Street.

### **Other projects in the area:**

LCI Project PI 0010333 proposes to reduce North Hill Street from four lanes to two lanes to create 15' shared lanes for bicycles and cars plus angled parking. It will also replace/upgrade gas and sewer as needed. The limits of construction for this project are south of the railroad and where CS 102005/North Hill Street joins Broadway Street. SR 155/North Hill Street between the railroad and Broadway Street and Broadway Street itself, are not within the project area for PI 0010333. The tie-in region is shown on the concept layout in Attachment 1. PI 0010333 is due to Let before this project.

Project PI 0008682 is a long range project that will relocate SR 155 along CR 498/ S. McDonough Road to SR 16.

**MPO:** Atlanta TMA

**TIP #:** N/A

County: Spalding

**TIA Regional Commission:** Three Rivers RC**Congressional District(s):** 3**Federal Oversight:**  PoDI  Exempt  State Funded  Other**Projected Traffic:** ADT 24 HR T: 5%Current Year (2014): 14,400 Open Year (2020): 15,275 Design Year (2040): 18,600

Traffic Projections Performed by: HNTB

**Functional Classification (Mainline):** Urban Minor Arterial**Complete Streets - Bicycle, Pedestrian, and/or Transit Standard Warrants:**Warrants met:  None  Bicycle  Pedestrian  Transit

Bicycle and pedestrian warrants are met primarily due to the project's proximity to travel generators and destinations. The primary generators are the residential neighborhoods to the NW and NE, the presence of existing sidewalks and the Historic Downtown Commercial District that the project is located in. Within the downtown district, and within 0.5 miles of the project there are churches, stores, theatres, restaurants, a U.S Post Office, a magistrates court, the Griffin Regional Welcome Center and public parking. Bicycle and pedestrian guideline warrants are also met by being within a 1 mile radial distance of schools (including Moore Elementary School, AZ Kelsey Academy etc.), the Spalding Regional Hospital and Fairmont public park.

All existing sidewalks will be retained, and ADA compliant ramps will be installed. 15-foot wide shared lanes for both automobiles and bicycles will be provided along North Hill Street, in conjunction with project PI 0010333. PI 0010333 will also add pedestrian level lighting, handicapped access ramps, bicycle racks, and improved cross walks. The project improvements includes amenities, such as benches and trash receptacles.

**Is this a 3R (Resurfacing, Restoration, & Rehabilitation) Project?**  No  Yes**Pavement Evaluation and Recommendations**Initial Pavement Evaluation Summary Report Required?  No  YesInitial Pavement Type Selection Report Required?  No  YesFeasible Pavement Alternatives:  HMA  PCC  HMA & PCC**DESIGN AND STRUCTURAL****Description of the proposed project:**

This project will change the stop controlled intersection to a signalized intersection. Broadway Street is being widened and will include a left turn lane in both directions. The project is located in downtown Griffin. The proposed project is approximately a quarter mile in length.

**Major Structures:** N/A

County: Spalding

**Mainline Design Features:**

**SR 155/North Hill Street (South Approach) - Urban Minor Arterial**

Feature	Existing	Standard <sup>1</sup>	Proposed
<b>Typical Section</b>			
- Number of Lanes	4	NA	3 <sup>2</sup>
- Lane Width(s)	12 ft	10 to 12 ft	12 ft <sup>2</sup>
- Median Width & Type	11 to 18 ft Grass	N/A	12 ft Grass
- Outside Shoulder or Border Area Width	12 to 21 ft	≥ 8 ft	21 ft
- Outside Shoulder Slope	2%	2% max	2% max
- Inside Shoulder Width	None	NA	None
- Sidewalks	5 ft	5 ft	5 ft
- Auxiliary Lanes	Left turn lane	NA	Right+Left turn lanes
- Bike Lanes	None	NA	Shared
Posted Speed	35 mph		35 mph
Design Speed	35 mph <sup>4</sup>	30 to 60 mph	35 mph
Min Horizontal Curve Radius	NA	371 ft	≥ 371 ft
Maximum Superelevation Rate	Unknown	4%	4%
Maximum Grade	1.5%	8%	8%
Access Control	Permitted	NA	Permitted
Design Vehicle	Unknown	WB-40 or Bus-40	WB-40 <sup>5</sup>
Pavement Type	HMA	NA	HMA

<sup>1</sup> According to current GDOT design policy if applicable

<sup>2</sup> N Hill St between Broad St-Broadway St is outside of PI# 0010333 limits of construction, therefore retain lane and widths and only convert one NB travel lane to right turn lane to accompany proposed traffic signal

<sup>4</sup> Proposed for North Hill Street in PI 0010333

<sup>5</sup> SR 155 is on the GDOT Oversize Truck Network – confirm design is appropriate for oversized vehicles

**SR 155/East Broadway (East Approach) – Urban Minor Arterial**

Feature	Existing	Standard <sup>1</sup>	Proposed
<b>Typical Section</b>			
- Number of Lanes	2	NA	2
- Lane Width(s)	12 ft <sup>2</sup>	10 to 12 ft	11 ft
- Median Width & Type	None	N/A	None
- Outside Shoulder or Border Area Width	11 to 15.5 ft	≥ 8 ft	8 to 19 ft
- Outside Shoulder Slope	2%	2% max	2% max
- Inside Shoulder Width	None	NA	None
- Sidewalks	4 ft	5 ft	4ft <sup>3</sup>
- Auxiliary Lanes	None	NA	Left turn lane
- Bike Lanes	None	NA	None
Posted Speed	35 mph		35 mph
Design Speed	Unknown	30 to 60 mph	35 mph
Min Horizontal Curve Radius	NA	371 ft	≥ 371 ft
Maximum Superelevation Rate	Unknown	4%	4%
Maximum Grade	7%	8%	8%
Access Control	Permitted	NA	Permitted
Design Vehicle	Unknown	WB-40 or Bus-40	WB-40 <sup>4</sup>
Pavement Type	HMA	NA	HMA

<sup>1</sup> According to current GDOT design policy if applicable

<sup>2</sup> Appears gutter have been paved over

<sup>3</sup> No new sidewalk proposed, retain existing sidewalk

<sup>4</sup> SR 155 is on the GDOT Oversize Truck Network – confirm design is appropriate for oversized vehicles

County: Spalding

**CS 104705/West Broadway Street (West Approach) - Urban Collector**

Feature	Existing	Standard <sup>1</sup>	Proposed
<b>Typical Section</b>			
- Number of Lanes	2	NA	2
- Lane Width(s)	12 ft <sup>2</sup>	10 to 12 ft	11 ft
- Median Width & Type	None	NA	None
- Outside Shoulder or Border Area Width	10 to 18 ft	≥ 8 ft	10 to 18 ft
- Outside Shoulder Slope	2%	2% max	2% max
- Inside Shoulder Width	None	NA	None
- Sidewalks	5 ft	5 ft	5 ft <sup>3</sup>
- Auxiliary Lanes	None	NA	Left turn lane
- Bike Lanes	None	NA	None
Posted Speed	35 mph		35 mph
Design Speed	Unknown	≥30 mph	35 mph
Min Horizontal Curve Radius	NA	371 ft	≥ 371 ft
Maximum Superelevation Rate	Unknown	4%	4%
Maximum Grade	4%	10%	10%
Access Control	Permitted	NA	Permitted
Design Vehicle	Unknown	Bus-40 or SU	Bus-40
Pavement Type	HMA	NA	HMA

<sup>1</sup> According to current GDOT design policy if applicable<sup>2</sup> Appears gutters have been paved over<sup>3</sup> No new sidewalk proposed, retain existing sidewalk**CS 102005/North Hill Street (North Approach) - Urban Minor Arterial**

Feature	Existing	Standard <sup>1</sup>	Proposed
<b>Typical Section</b>			
- Number of Lanes	2 <sup>2</sup>	NA	2
- Lane Width(s)	15 ft <sup>2</sup>	10 to 12 ft	15 ft
- Median Width & Type	14 to 24 ft, Grass	NA	14 to 24 ft, Grass
- Outside Shoulder or Border Area Width	12 to 14 ft <sup>4</sup>	≥ 8 ft	12 to 14 ft
- Outside Shoulder Slope	2 %	2% max	2% max
- Inside Shoulder Width	None	NA	None
- Sidewalks	12 to 14 ft <sup>4</sup>	5 ft	12 to 14 ft
- Auxiliary Lanes	Left turn lane, Parking at Angle, Parallel Parking <sup>3</sup>	NA	Left turn lane, Parking at Angle
- Bike Lanes	None	NA	Shared
Posted Speed	25 mph		35 mph <sup>4</sup>
Design Speed	35 mph <sup>4</sup>	30 to 60 mph	35 mph
Min Horizontal Curve Radius	NA	371 ft	≥ 371 ft
Maximum Superelevation Rate	Unknown	4%	4%
Maximum Grade	1.5%	8%	8%
Access Control	Permitted	NA	Permitted
Design Vehicle	Unknown	WB-40 or Bus-40	WB-40
Pavement Type	HMA	NA	HMA

<sup>1</sup> According to current GDOT design policy if applicable<sup>2</sup> PI 0010333 is changing Hill Street from 4 lanes to 2 lanes with 15 ft lanes and will be built prior to PI 0013295<sup>3</sup> PI 0010333 will remove prior to PI 0013295<sup>4</sup> Proposed for North Hill Street in PI 0010333

County: Spalding

**Major Interchanges/Intersections:** The intersection of SR 155/East Broadway Street, SR 155/North Hill Street, CS 104705/West Broadway Street and CS 102005/North Hill Street, just north of downtown Griffin, is currently two-way stop sign controlled, with stop control on the eastbound and westbound approaches.

**Lighting required:**  No  Yes

There is existing lighting at the project location. PI 0010333 has also proposed to add lighting as necessary to compliment the streetscape amenities proposed in that project. An Indication of Support for Streetscape/Enhancement Lighting has been signed by the City of Griffin/GDOT (see attachments).

**Off-site Detours Anticipated:**  No  Yes  Undetermined

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

Special Provision 150 should indicate lane closure restrictions M-F, 6-9am & 4-6pm

**Design Exceptions to FHWA/AASHTO controlling criteria anticipated:**

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

**Design Variances to GDOT Standard Criteria anticipated:**

GDOT Standard Criteria	Reviewing Office	No	Undetermined	Yes	Appvl Date (if applicable)
1. Access Control/Median Openings	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2. Intersection Sight Distance	DP&S	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Potential existing issue (proximity of buildings on N Hill St); issues may arise from restrictive existing conditions.
3. Intersection Skew Angle	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4. Lateral Offset to Obstruction	DP&S	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Eliminating proposed curbing may be considered to protect environmental resources/railroad interests – could create clear zone issue with aerial utility lines
5. Rumble Strips	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6. Safety Edge	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7. Median Usage	DP&S	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SR 155/N Hill St median smaller than GDOT DPM desired width for arterial
8. Roundabout Illumination Levels	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9. Complete Streets	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10. ADA & PROWAG	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11. GDOT Construction Standards	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12. GDOT Drainage Manual	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

County: Spalding

13. GDOT Bridge & Structural Manual	Bridges	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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**VE Study anticipated:**  No  Yes  Completed – Date:

## UTILITY AND PROPERTY

**Railroad Involvement:** Coordination will be required with the Central of Georgia Railroad Company due to the presence of two of their rail lines and an at grade rail crossing in the vicinity of the project. Purchase of easement from the Central of Georgia Railroad Company is anticipated.

### Utility Involvements:

The City of Griffin – Water and Sewer  
 The City of Griffin – Electrical  
 Atlanta Gas Light  
 BellSouth d/b/a AT&T Georgia  
 Spalding County Water  
 Qwest Communications Corp.

**SUE Required:**  No  Yes  Undetermined

**Public Interest Determination Policy and Procedure recommended?**  No  Yes

### Right-of-Way (ROW):

#### Hill Street

Existing width: 120 ft.

#### East Broadway Street

Existing width: 50 ft.

#### West Broadway Street

Existing width: 60 ft.

Required Right-of-Way anticipated:  None  Yes  Undetermined

Easements anticipated:  None  Temporary  Permanent  Utility  Other

Anticipated total number of impacted parcels: 2  
 Railroad parcels

Displacements anticipated: Businesses: 0  
 Residences: 0  
 Other: \_\_\_\_\_  
 Total Displacements: 0

**Location and Design approval:**  Not Required  Required

**Impacts to USACE property anticipated?**  No  Yes  Undetermined

## CONTEXT SENSITIVE SOLUTIONS

### Issues of Concern:

The project intersection lies within the project limits of PI 0010333. The project location is highly environmentally sensitive due to abutting historical buildings and the historic downtown area it is located in.

### Context Sensitive Solutions Proposed:

This project, in conjunction with project 0010333, will avoid the historic buildings and be conscious of the aesthetics of the historic district by using decorative sign posts, landscaping, stamped asphalt/paver crosswalks, and by attempting to match the lighting and signal mast arms to those existing.

County: Spalding

## ENVIRONMENTAL & PERMITS

### Anticipated Environmental Document:

GEPA:

NEPA:  CE

EA/FONSI

EIS

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

This project disturbs approximately 0.54 acres and will add approximately 2,300 ft<sup>2</sup> of impervious area, satisfying Project Level Exclusion #5: ‘Road projects that disturb less than 1 acre or for site development projects that add less than 5,000ft<sup>2</sup> of impervious area.’ The design and installation of MS4 post-construction stormwater BMPs will therefore be excluded from this project.

### Environmental Permits/Variations/Commitments/Coordination anticipated:

Permit/ Variance/ Commitment/ Coordination Anticipated	No	Yes	Remarks
1. U.S. Coast Guard Permit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2. Forest Service/Corps Land	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3. CWA Section 404 Permit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4. 33 USC 408 Decision	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5. Tennessee Valley Authority Permit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
6. Buffer Variance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
7. Coastal Zone Management Coordination	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
8. NPDES	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Contiguous land disturbance is <1 acre
9. FEMA	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
10. Cemetery Permit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
11. Signal Permits	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
12. Other Commitments	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
13. Other Coordination	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

Is a PAR required?  No  Yes  Completed – Date:

### Environmental Comments and Information:

**NEPA/GEPA:** A NEPA CE document is anticipated but currently not approved. However, based on the scope of the project, if 4f Historic resources are not impacted, including de minimis, then the project may be approved as a PCE.

**Ecology:** Based on preliminary site investigations, there are no streams, wetlands, or state waters in the project area. The project fits under appendix A, #3, of Ecology’s JCP and should constitute a write off. There should be no significant ecological issues through project development.

**History:** The project abuts the expanded Griffin Commercial Historic District as well as the Central of Georgia Railroad, an eligible resource for the National Register. The North Hill Street Residential Historic District, an eligible historic district, and the Old Medical College Historical area, a listed district, are within the area of potential effects, as well. The granite curbing, landscaped medians, and surrounding landscaping are all contributing features to these districts. Additional surveys of the area are required as well as SHPO concurrence. As the proposed project is described at this time, no adverse effects to the eligible resources are anticipated; however, a thorough evaluation of the potential effects is required as well as SHPO concurrence.

**Archeology:** No archeological resources are anticipated on this project

County: Spalding

**Air Quality:**

- Is the project located in a PM 2.5 Non-attainment area?  No  Yes
- Is the project located in an Ozone Non-attainment area?  No  Yes
- Carbon Monoxide hotspot analysis:  Required  Not Required  TBD

**Noise Effects:** Type III Noise assessment

**Public Involvement:** A Public Information Open House is not required. The concept for this project was presented at Spalding County’s TCC meeting on May 18, 2016.

**Major stakeholders:** Traveling Public, City of Griffin, Griffin Downtown Development Authority, Griffin-Spalding County School District, Griffin-Spalding Chamber of Commerce, Griffin Regional Welcome Center, Spalding Regional Hospital Emergency Medical Services (EMS), Central of Georgia Railroad Company

**CONSTRUCTION**

**Issues potentially affecting constructability/construction schedule:** N/A

**Early Completion Incentives recommended for consideration:**  No  Yes

**COORDINATION, ACTIVITIES, RESPONSIBILITIES, AND COSTS**

**Initial Concept Meeting:** N/A

**Concept Meeting:** A concept meeting was held on March 31, 2016. The alternatives were discussed and several recommendations were made concerning the preferred alternative. These recommendations included specific design features, ROW/easements from the railroad, and context sensitive solutions. There was also a discussion concerning MS4 requirements, a public meeting and costs. The meeting concluded with a risk analysis question and answer session. See attached minutes for further discussion details.

**Other coordination:** Both the existing Griffin-Spalding County airport and the proposed new Griffin-Spalding airport are within 5 miles of the project location. No coordination will be required however, as no large vertical obstructions are planned or needed for construction.

<b>Project Activity</b>	<b>Party Responsible for Performing Task(s)</b>
Concept Development	GDOT - District 3 Design
Design	GDOT – District 3 Design
Right-of-Way Acquisition	GDOT – District 3 Right-Of-Way
Utility Coordination (Preconstruction)	GDOT – District 3 Utilities
Utility Relocation (Construction)	Utility owners
Letting to Contract	GDOT – Office of Bidding Administration
Construction Supervision	GDOT – District 3 Construction
Providing Material Pits	CONTRACTOR
Providing Detours	CONTRACTOR
Environmental Studies, Documents, & Permits	GDOT – Office of Environmental Services
Environmental Mitigation	GDOT – Office of Environmental Services
Construction Inspection & Materials Testing	GDOT – District 3 Construction & Office of Materials

County: Spalding

**Project Cost Estimate Summary and Funding Responsibilities:**

	<b>Breakdown of PE</b>	<b>ROW</b>	<b>Reimbursable Utility</b>	<b>CST*</b>	<b>Environmental Mitigation***</b>	<b>Total Cost</b>
Funded By	GDOT	GDOT	GDOT	GDOT	-	
\$ Amount	\$350,000	\$199,000.00	\$509,000**	\$684,989	-	\$1,742,989
Date of Estimate	8/13/2015	4/12/2016	3/8/2016	8/02/2016	-	

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

\*\* includes Railroad cost of \$488,000 (10/15/2015)

\*\*\*Negligible mitigation costs for history and environmental – see Concept Team Meeting minutes in attachments

**ALTERNATIVES DISCUSSION**

**Alternative selection:**

<b>Preferred Alternative: Signal</b>			
<b>Estimated Property Impacts:</b>	<b>Railroad only</b>	<b>Estimated Total Cost:</b>	<b>\$1,742,989</b>
<b>Estimated ROW Cost:</b>	<b>NA</b>	<b>Estimated CST Time:</b>	<b>12 months</b>
<b>Rationale:</b> Improvement to the operations of the intersection (2017 LOS=C, 2037 LOS=D) with minimum impact to business, railroad and historical parcels.			

<b>No-Build Alternative: No Build</b>			
<b>Estimated Property Impacts:</b>	<b>None</b>	<b>Estimated Total Cost:</b>	<b>\$0</b>
<b>Estimated ROW Cost:</b>	<b>\$0</b>	<b>Estimated CST Time:</b>	<b>0</b>
<b>Rationale:</b> Due to an unacceptable LOS (2014 LOS = F) and an unreduced crash frequency this alternative is not recommended.			

<b>Alternative 1: Roundabout</b>			
<b>Estimated Property Impacts:</b>	<b>Large</b>	<b>Estimated Total Cost:</b>	<b>NA</b>
<b>Estimated ROW Cost:</b>	<b>NA</b>	<b>Estimated CST Time:</b>	<b>24 months</b>
<b>Rationale:</b> Not recommended for this location due to unfavorable conditions: surrounding historical right-of-way constraints, existing corridor features, intersection in close proximity to a signalized intersection where queues may spill back into the roundabout, intersection with an interconnected signal system, signalized intersection in close proximity to an at-grade railroad crossing requiring preemption. The scope of this project has also been approved by the Operational Improvement Committee.			

County: Spalding

### LIST OF ATTACHMENTS/SUPPORTING DATA

1. Concept Layout
2. Typical sections
3. Detailed Cost Estimates:
  - a. Construction including Engineering and Inspection and Contingencies
  - b. Completed Liquid AC Cost Adjustment forms
  - c. Right-of-Way
  - d. Utilities
4. Traffic diagrams
5. Capacity analysis summary
6. TE Study and Signal Warrants (including Crash History)
7. MS4 concept level assessment
8. Preliminary Pavement Design
9. Minutes of Concept meetings
10. Concept Level Risk Assessment
11. Signed Indication of Support for Streetscape/Enhancement Lighting for PI 0010333

### APPROVALS

Concur: Hal Bittel  
Director of Engineering

Approve: Marjorie B. Puklo  
Chief Engineer

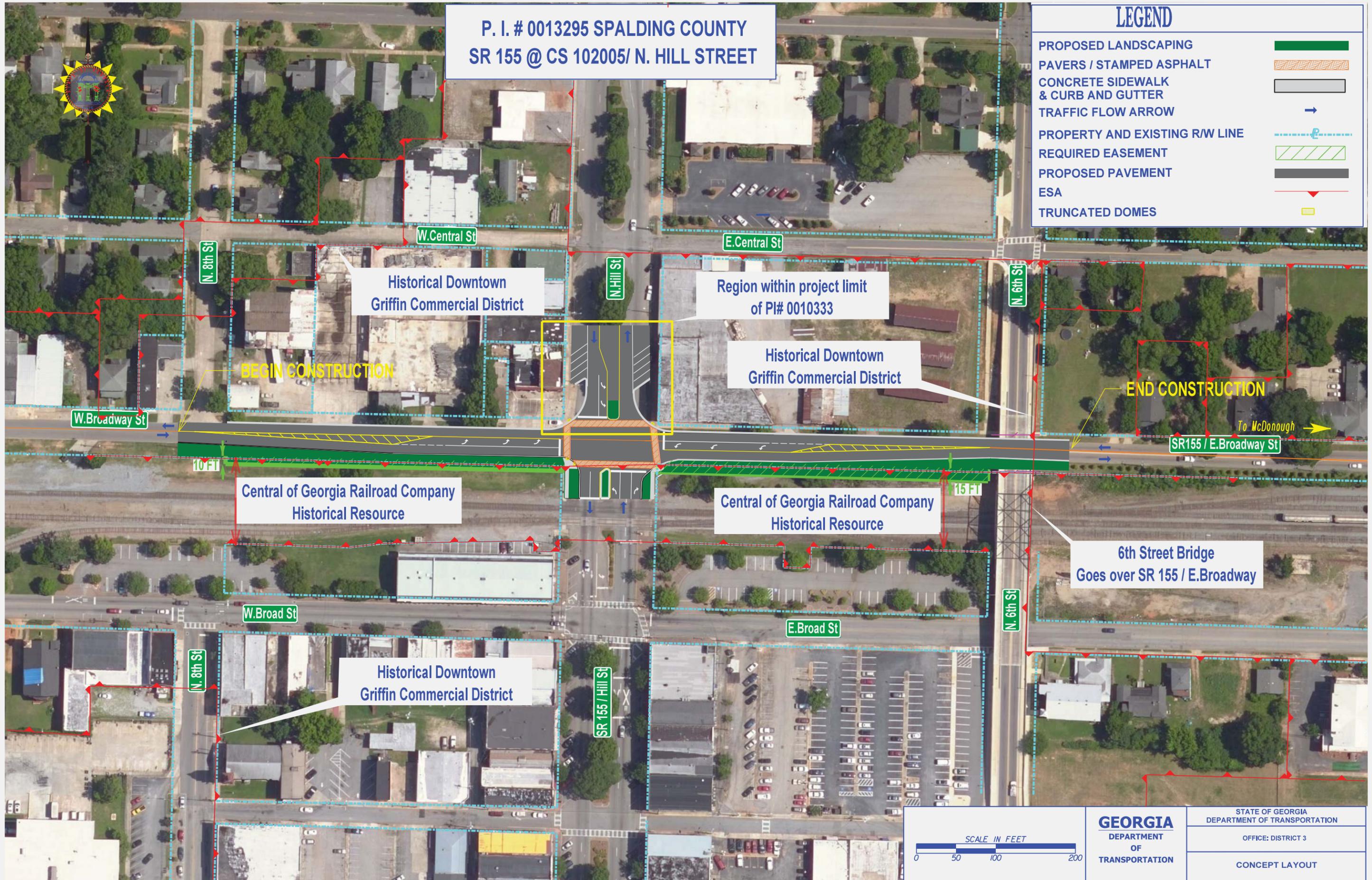
8.10.16  
Date

# **ATTACHMENT 1 – CONCEPT LAYOUT**

**P. I. # 0013295 SPALDING COUNTY  
SR 155 @ CS 102005/ N. HILL STREET**

**LEGEND**

PROPOSED LANDSCAPING	
PAVERS / STAMPED ASPHALT	
CONCRETE SIDEWALK & CURB AND GUTTER	
TRAFFIC FLOW ARROW	
PROPERTY AND EXISTING R/W LINE	
REQUIRED EASEMENT	
PROPOSED PAVEMENT	
ESA	
TRUNCATED DOMES	



**BEGIN CONSTRUCTION**

**END CONSTRUCTION**

Central of Georgia Railroad Company  
Historical Resource

Central of Georgia Railroad Company  
Historical Resource

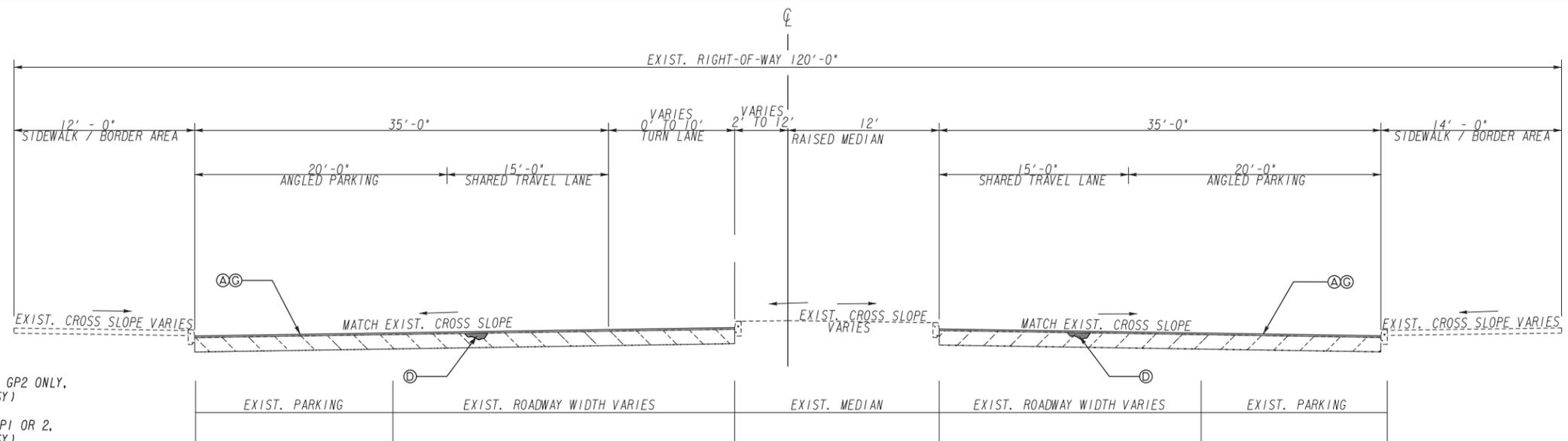
6th Street Bridge  
Goes over SR 155 / E. Broadway



**GEORGIA**  
DEPARTMENT  
OF  
TRANSPORTATION

STATE OF GEORGIA  
DEPARTMENT OF TRANSPORTATION  
OFFICE: DISTRICT 3  
CONCEPT LAYOUT

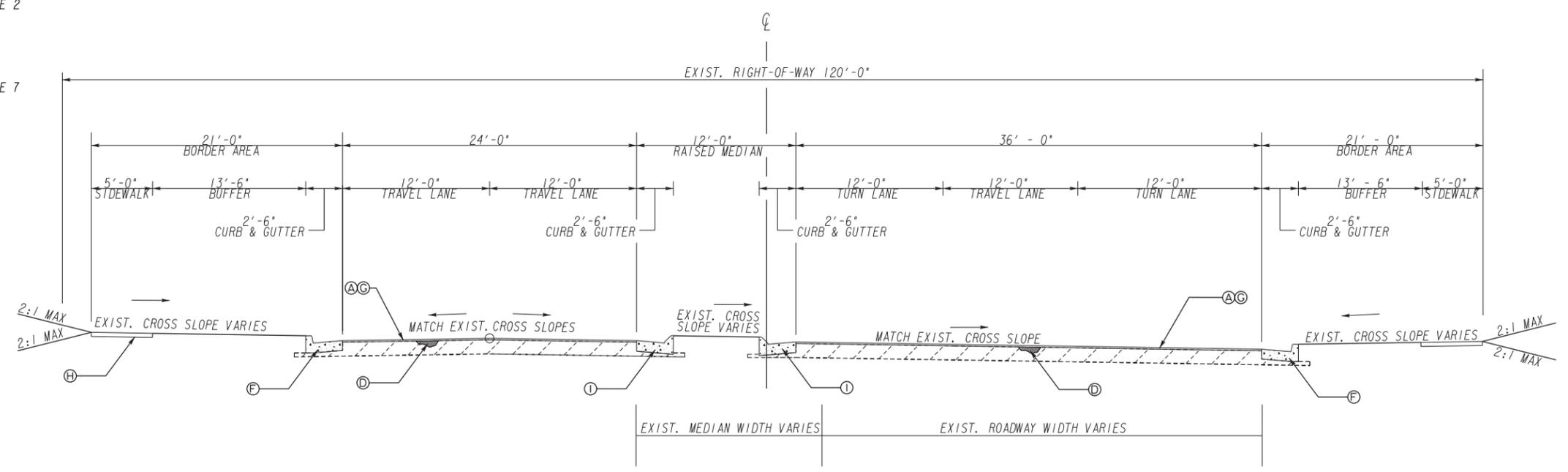
# **ATTACHMENT 2 – TYPICAL SECTIONS**



- (A) RECYCLED ASPH CONC 12.5 MM SUPERPAVE, GP2 ONLY, INCL BITUM MATL & H LIME (165 LBS/SY)
- (B) RECYCLED ASPH CONC 19 MM SUPERPAVE, GP1 OR 2, INCL BITUM MATL & H LIME (220 LBS/SY)
- (C) RECYCLED ASPH CONC 25 MM SUPERPAVE, GP1 OR 2, INCL BITUM MATL & H LIME (660 LBS/SY)
- (D) RECYCLED ASPH CONC. LEVELING, INCL BITUM MATL & H LIME
- (E) GRADED AGGREGATE BASE COURSE INCL. MATL., (12 INCH)
- (F) CONCRETE CURB & GUTTER, 8" X 30", TYPE 2
- (G) MILL ASPH CONC PVMT, VARIABLE DEPTH
- (H) CONC SIDEWALK, 4 INCH
- (I) CONCRETE CURB & GUTTER, 8" X 30", TYPE 7

CS 102005 / NORTH HILL STREET

NOTE: T-1 MATCH PI#0010333 TYPICAL SECTION - 01 ALONG N HILL ST, AS TO TIE INTO PI#0010333 PROPOSED DESIGN

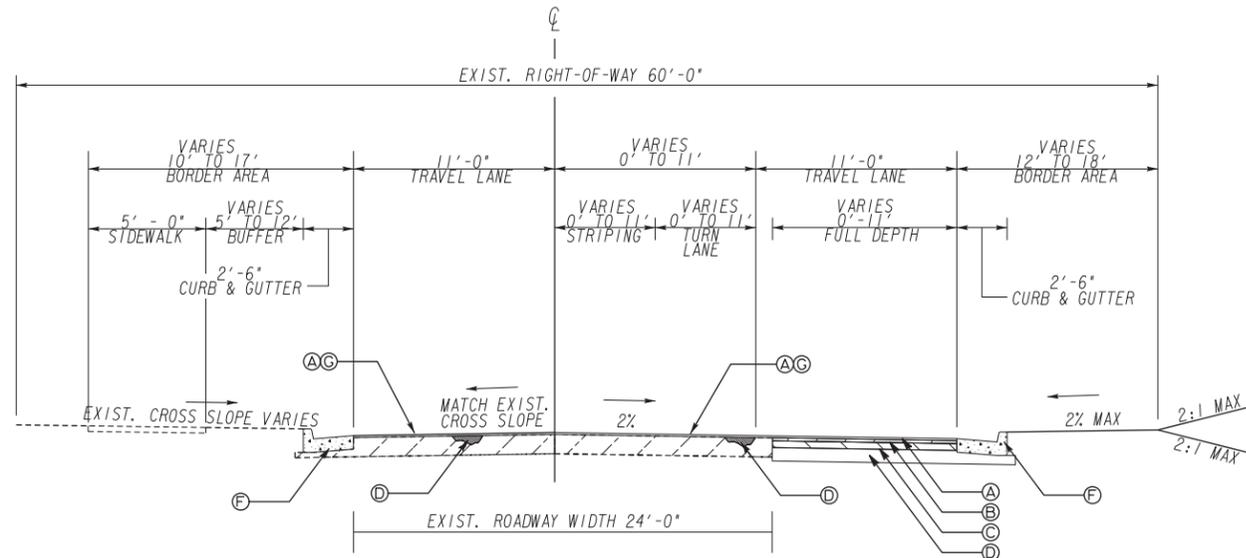


SR 155 / NORTH HILL STREET



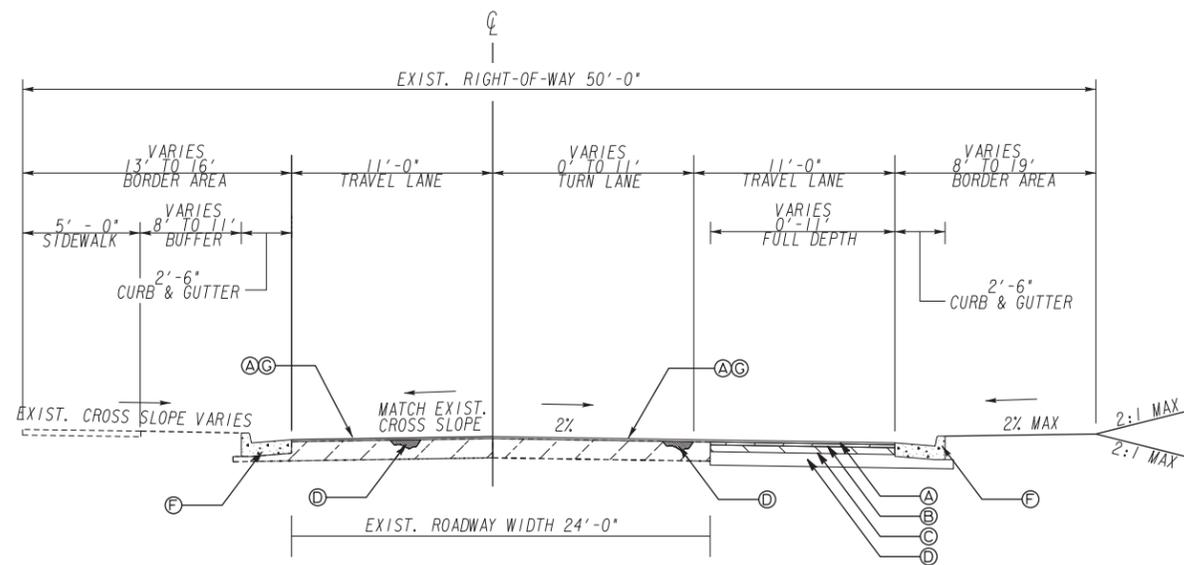
NOT TO SCALE

REVISION DATES		TYPICAL SECTIONS	
		SR 155 @ CS 102005/N HILL STREET	
CHECKED:	DATE:	DRAWING No.	
BACKCHECKED:	DATE:	05-0001	
CORRECTED:	DATE:		
VERIFIED:	DATE:		



T - 3  
CS 104705 / WEST BROADWAY STREET

- (A) RECYCLED ASPH CONC 12.5 MM SUPERPAVE, GP2 ONLY, INCL BITUM MATL & H LIME (165 LBS/SY)
- (B) RECYCLED ASPH CONC 19 MM SUPERPAVE, GP1 OR 2, INCL BITUM MATL & H LIME (220 LBS/SY)
- (C) RECYCLED ASPH CONC 25 MM SUPERPAVE, GP1 OR 2, INCL BITUM MATL & H LIME (660 LBS/SY)
- (D) RECYCLED ASPH. CONC. LEVELING, INCL BITUM MATL & H LIME
- (E) GRADED AGGREGATE BASE COURSE INCL. MATL., (12 INCH)
- (F) CONCRETE CURB & GUTTER, 8" X 30", TYPE 2
- (G) MILL ASPH CONC PVMT, VARIABLE DEPTH
- (H) CONC SIDEWALK, 4 INCH
- (I) CONCRETE CURB & GUTTER, 8" X 30", TYPE 7



T - 4  
SR 155 / EAST BROADWAY STREET



NOT TO SCALE

REVISION DATES

NO.	DATE	DESCRIPTION

TYPICAL SECTIONS

SR 155 @ CS 102005/N HILL STREET

CHECKED:	DATE:	DRAWING No.
BACKCHECKED:	DATE:	05-0002
CORRECTED:	DATE:	
VERIFIED:	DATE:	

# **ATTACHMENT 3 – DETAILED COST ESTIMATES**

**JOB NUMBER:** 0013295      **FED/STATE PROJECT NUMBER:** -  
**SPEC YEAR:** 13  
**DESCRIPTION:** SR 155 @ CS 1020/N HILL ST  
 OPERATIONAL IMPROVEMENT - SIGNAL AND TURN LANES

**ITEMS FOR JOB 0013295**

**0010 - ROADWAY**

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0005	150-1000	1.00	LS	\$68,000.00	TRAFFIC CONTROL - 0013295 *	\$68,000.00
0010	210-0100	1.00	LS	\$156,000.00	GRADING COMPLETE - 0013295 **	\$156,000.00
0015	310-1101	180.00	TN	\$28.54	GR AGGR BASE CRS, INCL MATL	\$5,136.87
0020	318-3000	25.00	TN	\$28.78	AGGR SURF CRS	\$719.40
0025	402-1812	50.00	TN	\$97.71	RECYL AC LEVELING,INC BM&HL	\$4,885.71
0030	402-3121	90.00	TN	\$98.09	RECYL AC 25MM SP,GP1/2,BM&HL	\$8,828.42
0035	402-3129	460.00	TN	\$82.00	RECYL AC 12.5 MM MIX,GP2,BM&HL	\$37,720.00
0040	402-3190	40.00	TN	\$110.16	RECYL AC 19 MM SP,GP 1 OR 2 ,INC BM&HL	\$4,406.53
0045	413-0750	365.00	GL	\$4.36	TACK COAT	\$1,591.40
0050	432-5010	5600.00	SY	\$3.69	MILL ASPH CONC PVMT,VARB DEPTH	\$20,643.11
0055	441-0104	100.00	SY	\$42.77	CONC SIDEWALK, 4 IN	\$4,276.76
0350	441-0108	40.00	SY	\$61.66	CONC SIDEWALK, 8 IN	\$2,466.31
0370	441-0303	2.00	EA	\$1,744.34	CONC SPILLWAY, TP 3	\$3,488.69
0365	441-0748	12.00	SY	\$56.79	CONC MEDIAN, 6 IN	\$681.53
0335	441-6222	2800.00	LF	\$16.86	CONC CURB & GUTTER/ 8X30TP2	\$47,208.00
0330	441-6740	100.00	LF	\$20.55	CONC CURB & GUTTER/ 8X30 TP7	\$2,054.72
0065	500-9999	20.00	CY	\$194.03	CL B CONC,BASE OR PVMT WIDEN	\$3,880.56
0070	511-1000	500.00	LB	\$1.38	BAR REINF STEEL	\$689.43
0075	550-1180	100.00	LF	\$56.87	STM DR PIPE 18,H 1-10	\$5,686.96
0080	550-1240	20.00	LF	\$68.82	STM DR PIPE 24,H 1-10	\$1,376.39
0090	668-1100	4.00	EA	\$2,351.50	CATCH BASIN, GP 1	\$9,405.99
0095	668-1110	4.00	LF	\$189.60	CATCH BASIN, GP 1, ADDL DEPTH	\$758.40
0100	668-2100	2.00	EA	\$1,987.99	DROP INLET, GP 1	\$3,975.98
0105	668-4300	1.00	EA	\$2,004.99	STORM SEW MANHOLE, TP 1	\$2,004.99
0110	668-4311	2.00	LF	\$217.96	ST SEW MANHOLE,TP 1,A DEP,CL 1	\$435.92
0345	999-5200	40.00	SF	\$25.22	DETECTABLE WARNING SURFACE	\$1,008.80
<b>SUBTOTAL FOR ROADWAY:</b>						<b>\$397,330.88</b>

*\*Estimated by D3 Lead Estimator*  
*\*\*Estimated by D3 Lead Estimator, using following APPROX. values:*  
*Project Area = 1.65 acres, Mill+Overlay = 1.10 acres, New Construction = 0.05 acres*  
*Disturbed Area (incl. Shoulders) = 0.54 acres, Curb+Gutter = 2800 ft*

**0020 - EROSION CONTROL**

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0115	163-0232	1.00	AC	\$449.44	TEMPORARY GRASSING	\$449.44
0120	163-0240	6.00	TN	\$388.38	MULCH	\$2,330.29
0125	163-0300	1.00	EA	\$1,431.16	CONSTRUCTION EXIT	\$1,431.16
0355	163-0550	5.00	EA	\$136.07	CONS & REM INLET SEDIMENT TRAP	\$680.36

0140	165-0030	1315.00	LF	\$0.75	MAINT OF TEMP SILT FENCE, TP C	\$982.73
0145	165-0101	1.00	EA	\$635.50	MAINT OF CONST EXIT	\$635.50
0360	165-0105	5.00	EA	\$41.29	MAINT OF INLET SEDIMENT TRAP	\$206.47
0165	171-0030	2630.00	LF	\$3.16	TEMPORARY SILT FENCE, TYPE C	\$8,315.48
0170	603-2182	10.00	SY	\$44.49	STN DUMPED RIP RAP, TP 3, 24	\$444.93
0175	603-7000	10.00	SY	\$4.77	PLASTIC FILTER FABRIC	\$47.68
0180	643-8200	500.00	LF	\$1.65	BARRIER FENCE (ORANGE), 4 FT	\$826.12
0185	700-6910	1.00	AC	\$852.16	PERMANENT GRASSING	\$852.16
0190	700-7000	15.00	TN	\$123.91	AGRICULTURAL LIME	\$1,858.71
0195	700-8000	0.50	TN	\$661.29	FERTILIZER MIXED GRADE	\$330.64
0200	700-8100	250.00	LB	\$3.01	FERTILIZER NITROGEN CONTENT	\$752.56
<b>SUBTOTAL FOR EROSION CONTROL:</b>						<b>\$20,144.22</b>

### 0030 - SIGNING AND MARKING

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0205	636-1020	20.00	SF	\$17.78	HWY SGN,TP1MAT,REFL SH TP3	\$355.50
0210	636-1029	20.00	SF	\$18.22	HWY SGN,TP2 MATL,REFL SH TP 3	\$364.48
0215	636-1033	20.00	SF	\$23.29	HWY SIGNS, TP1MAT,REFL SH TP 9	\$465.74
0220	636-1072	20.00	SF	\$27.10	HWY SIGNS,ALUM EXTRD PNLS, RS TP 3	\$542.02
0225	636-2070	50.00	LF	\$9.96	GALV STEEL POSTS, TP 7	\$497.80
0230	636-2080	50.00	LF	\$9.98	GALV STEEL POSTS, TP 8	\$498.76
0235	636-2090	50.00	LF	\$8.46	GALV STEEL POSTS, TP 9	\$423.19
0240	636-5010	12.00	EA	\$41.71	DELINEATOR, TP 1	\$500.55
0245	653-0100	2.00	EA	\$457.16	THERM PVMT MARK, RR/HWY X SYM	\$914.32
0250	653-0105	2.00	EA	\$400.00	PAVEMENT MARKING, BIKE SHARED LN SYM	\$800.00
0265	653-0120	9.00	EA	\$86.20	THERM PVMT MARK, ARROW, TP 2	\$775.82
0255	653-1501	2500.00	LF	\$0.64	THERMO SOLID TRAF ST 5 IN, WHI	\$1,600.50
0260	653-1502	2500.00	LF	\$0.56	THERMO SOLID TRAF ST, 5 IN YEL	\$1,392.88
0270	653-1704	110.00	LF	\$6.67	THERM SOLID TRAF STRIPE,24,WH	\$733.35
0380	653-3500	210.00	GLF	\$0.45	THERMO SOLID TRAF ST, 4 IN, WH	\$94.50
0275	653-6006	305.00	SY	\$4.48	THERM TRAF STRIPING, YELLOW	\$1,365.34
0280	654-1001	40.00	EA	\$5.72	RAISED PVMT MARKERS TP 1	\$228.87
0285	654-1003	40.00	EA	\$5.20	RAISED PVMT MARKERS TP 3	\$207.98
0290	654-1010	10.00	EA	\$36.10	RAISED PVMT MARKERS TP 10	\$360.96
0385	681-4300	2.00	EA	\$3,300.00	LT STD, 30' MH, 6' ARM	\$6,600.00
0340	999-1500	300.00	SF	\$20.00	INT COLOR HOT APP SYN ASP (STAMPED ASP)	\$6,000.00
<b>SUBTOTAL FOR SIGNING AND MARKING:</b>						<b>\$24,722.56</b>

### 0040 - SIGNAL

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0300	639-5000	4.00	EA	\$7,123.67	PRESTRESSED CONC STR POLE, TP- 0013295	\$28,494.67
0305	647-1000	1.00	LS	\$100,000.00	TRAF SIGNAL INSTALLATION NO - 0013295	\$100,000.00
0310	647-6057	4.00	EA	\$200.00	PEDESTAL POLE	\$800.00
0375	682-9000	1.00	LS	\$7,800.00	MAIN SVC PICK UP POINT	\$7,800.00
<b>SUBTOTAL FOR SIGNAL:</b>						<b>\$137,094.67</b>

**0050 - LANDSCAPING**

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0315	700-9300	600.00	SY	\$5.51	SOD	\$3,304.32
0395	702-0470	50.00	EA	\$51.67	ILEX VOMITORIA NANA - 0013295	\$2,583.31
0390	702-9025	190.00	SY	\$9.56	LANDSCAPE MULCH	\$1,815.47
<b><i>SUBTOTAL FOR LANDSCAPING:</i></b>						<b>\$7,703.10</b>

**TOTALS FOR JOB 0013295**

<b>ITEMS COST:</b>	<b>\$586,995.43</b>	
<b>ENGINEERING AND INSPECTION:</b>	<b>\$29,349.77</b>	5 percent
<b>CONTINGENCY PERCENT:</b>	<b>\$61,634.52</b>	10 percent
<b>LIQUID AC ADJUSTMENT</b>	<b>\$7,008.94</b>	
ESTIMATED COST WITH CONTINGENCY AND E&I:	\$684,988.67	

PROJ. NO.	13295
P.I. NO.	0013295
DATE	8/2/2016

CALL NO.

INDEX (TYPE)	DATE	INDEX
REG. UNLEADED	Aug-16	\$ 1.989
DIESEL		\$ 2.299
LIQUID AC		\$ 348.00

Link to Fuel and AC Index:

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

**LIQUID AC ADJUSTMENTS**

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

**Asphalt**

Price Adjustment (PA)					<b>6681.6</b>		<b>\$</b>	<b>6,681.60</b>
Monthly Asphalt Cement Price month placed (APM)	Max. Cap	60%	\$	556.80				
Monthly Asphalt Cement Price month project let (APL)			\$	348.00				
Total Monthly Tonnage of asphalt cement (TMT)								<b>32</b>

ASPHALT	Tons	%AC	AC ton
Leveling	50	5.0%	2.5
12.5 OGFC	0	5.0%	0
12.5 mm	460	5.0%	23
9.5 mm SP	0	5.0%	0
25 mm SP	90	5.0%	4.5
19 mm SP	40	5.0%	2
	<b>640</b>		<b>32</b>

**BITUMINOUS TACK COAT**

Price Adjustment (PA)					<b>\$ 327.34</b>		<b>\$</b>	<b>327.34</b>
Monthly Asphalt Cement Price month placed (APM)	Max. Cap	60%	\$	556.80				
Monthly Asphalt Cement Price month project let (APL)			\$	348.00				
Total Monthly Tonnage of asphalt cement (TMT)								<b>1.567711837</b>

Bitum Tack	Gals	gals/ton	tons
	365	232.8234	1.56771184

**BITUMINOUS TACK COAT (surface treatment)**

Price Adjustment (PA)					<b>0</b>		<b>\$</b>	<b>-</b>
Monthly Asphalt Cement Price month placed (APM)	Max. Cap	60%	\$	556.80				
Monthly Asphalt Cement Price month project let (APL)			\$	348.00				
Total Monthly Tonnage of asphalt cement (TMT)								<b>0</b>

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

**TOTAL LIQUID AC ADJUSTMENT** **\$ 7,008.94**

GEORGIA DEPARTMENT OF TRANSPORTATION  
PRELIMINARY ROW COST ESTIMATE SUMMARY

Date: 4/12/2016 Project: 0013295  
 Revised: County: Spalding  
 PI: 0013295

Description: SR 155 Hill Street @ Broadway Street  
 Project Termini: Intersection Improvement

Existing ROW: Varies  
 Required ROW: Varies  
 Parcels: 2

Land and Improvements \_\_\_\_\_ \$116,250.00

Proximity Damage	\$0.00
Consequential Damage	\$0.00
Cost to Cures	\$0.00
Trade Fixtures	\$0.00
Improvements	\$10,000.00

Valuation Services \_\_\_\_\_ \$12,500.00

Legal Services \_\_\_\_\_ \$38,850.00

Relocation \_\_\_\_\_ \$4,000.00

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

Administrative \_\_\_\_\_ \$26,500.00

TOTAL ESTIMATED COSTS \_\_\_\_\_ \$198,100.00

**TOTAL ESTIMATED COSTS (ROUNDED) \_\_\_\_\_ \$199,000.00**

Preparation Credits	Hours	Signature

Prepared By: Deshone Alexander CG#: 286999 04/12/2016 (DATE)

Approved By: Deshone Alexander CG#: 286999 04/12/2016 (DATE)

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

# Concept Utility Report

**Project Number:** 0013295

**County:** Spalding

**P.I. #** 0013295

**District:** 3

**Prepared by:** Gene McKissick

**Date:** 3/8/2016

**Project Description:** Intersection improvement at SR 155/N. Hill St. at W. Broadway ST. and E. Broadway St.

*The information provided herein has been gathered from Georgia811 and/or field visits and serves as an estimate. Nothing contained in this report is to be used as a substitute for 1<sup>st</sup> Submission or SUE.*

**Are SUE services recommended?** No Level: A B C D

**Public Interest Determination (PID):**  Automatic  Mandatory  Consideration  
 No Use  Exempt

**Is a separate utility funding phase recommended?** No

## Existing Facilities:

The following utilities have facilities within the project limits. Utilities have been located using Georgia811 and/or field visits.

Utility Company	Service	Non-Reimbursable	Reimbursable	Total
Atlanta Gas Light	Natural Gas	\$5000	\$0	\$5000
BellSouth d/b/a AT&T	Communications	\$550,000	\$0	\$550,000
City of Griffin	Electrical	\$0	\$21,000	\$21,000
City of Griffin	Water & Sewer	\$5000	\$0	\$5000
Qwest Communications	Communications	\$5000	\$0	\$5000
Totals		\$565,000	\$21,000	\$586,000

**Potential Project (Schedule/Budget) Impacts:** None

**Capital Improvement Projects (Utilities) Anticipated in the Area:** None

**Project Specific Recommendations for Avoidance/Mitigation:** None

**Right of Way Coordination:** Include the right to place utilities in permanent easements

**Environmental Coordination:** \_\_\_\_\_

**Additional Remarks:** \_\_\_\_\_

**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA**

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**INTERDEPARTMENT CORRESPONDENCE**

**FILE:** PI # 0013295, Spalding County **OFFICE:** State Utilities Office  
**FROM:** *Jill Franks For:*  
**Lee E. Upkins, State Utility Engineer** **DATE:** October 15, 2015  
**TO:** Albert Shelby, State Program Delivery Engineer  
**Attn: Justin Banks, Project Manager**  
**SUBJECT: PRELIMINARY RAILROAD COST (CONCEPT ESTIMATE)**

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

FACILITY OWNER	NON-REIMBURSABLE	REIMBURSABLE
<b>Central of GA Railroad</b>		
– P.E. cost for Parallel impacts	\$0.00	\$14,800.00– GDOT
– Const. cost for Parallel impacts	\$0.00	\$28,200.00– GDOT
– P.E. for warning devices	\$0.00	\$25,000.00– GDOT
– Const. cost for warning devices	\$0.00	\$420,000.00– GDOT
<hr/>		
<b>Total Reimbursement Cost:</b>	<b>\$0.00</b>	<b>\$488,000.00</b>

Total railroad surface work and warning device reimbursable cost for the above project is estimated to be:

**\$488,000.00**

Please note that this amount does not include other reimbursable utility costs that may be associated with this project. This project is GDOT funded.

If you have any questions, please contact Jill Franks, (404) 631-1370, [jfranks@dot.ga.gov](mailto:jfranks@dot.ga.gov) or Marcela Coll, (404)631-1372 [mcoll@dot.ga.gov](mailto:mcoll@dot.ga.gov).

LEU:mgc

cc: Vacant, State Utilities Preconstruction Engineer  
Angela Robinson, State Financial Management Administrator  
Scott Parker, Assistant District 3 Utilities Engineer  
Michael Nash, Railroad Crossing Program Manager

# **ATTACHMENT 4 – TRAFFIC DIAGRAMS**

# Department of Transportation State of Georgia

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## INTERDEPARTMENT CORRESPONDENCE

**FILE** Spalding County **OFFICE** Planning  
P.I. # 0013295  
**DATE** July 8, 2016

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

**TO** Albert Shelby, State Program Delivery Engineer  
**Attention:** Terry Rodgers

**SUBJECT** **Updated Design** Traffic for SR 155 @ CS 1020/NORTH HILL STREET

Updated Design Traffic for the above project is attached in Adobe Acrobat 0013295 Traffic Diagram.Pdf and Microstation file TRAFFIC DIAGRAMS 0013295.dgn

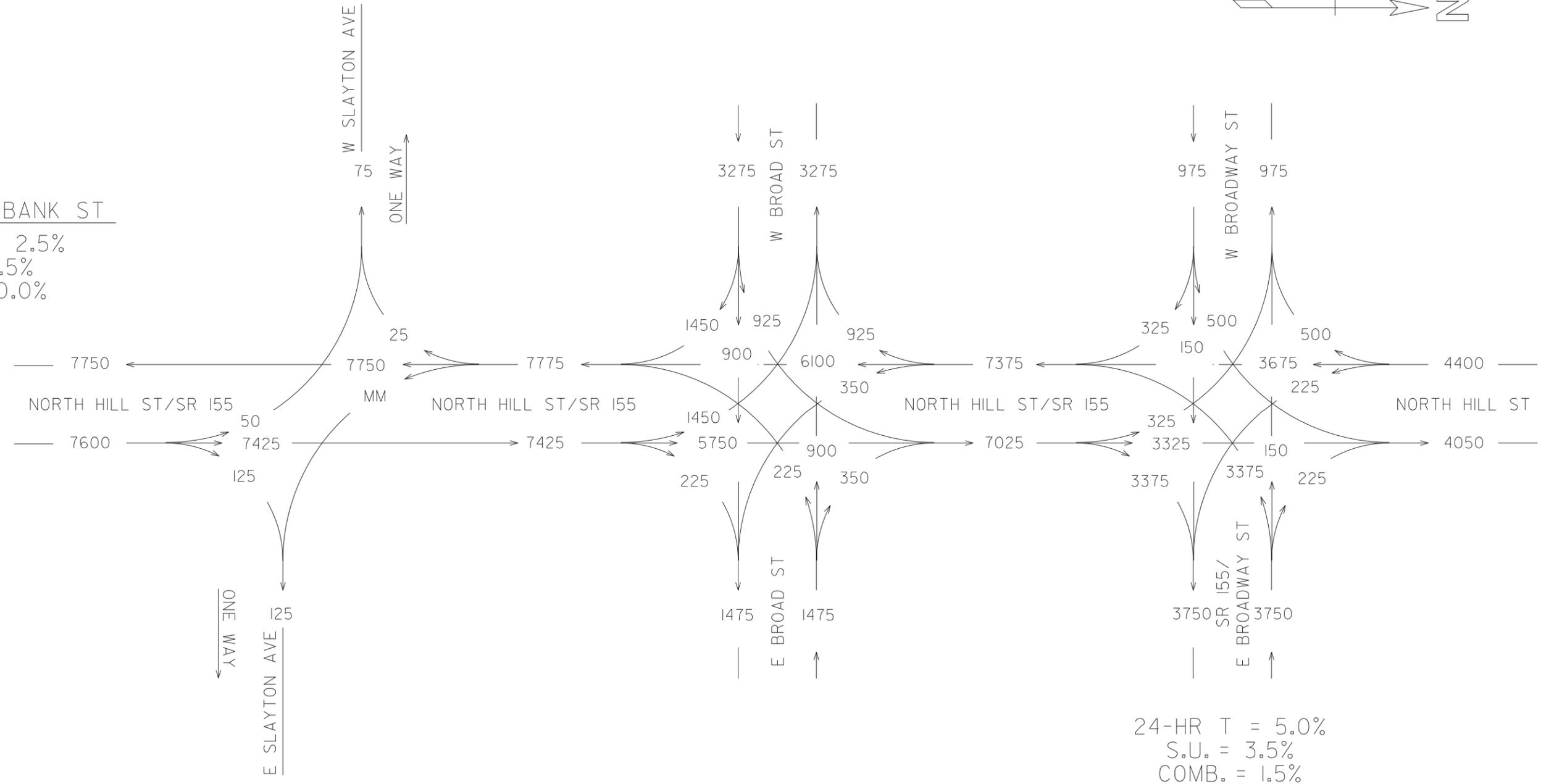
If you have any questions concerning this information please contact Andre Washington at (404) 631-1925.

CLV/AMW



SR 155 S/O BANK ST

24-HR T = 2.5%  
 S.U. = 2.5%  
 COMB. = 0.0%



24-HR T = 5.0%  
 S.U. = 3.5%  
 COMB. = 1.5%

AJP 6/2016

P.I. #0013295  
 SPALDING COUNTY  
 SR 155 @ CS 1020/NORTH HILL ST

2014 EXISTING  
 ADT = 000

**HNTB**  
 3715 NORTHSIDE PARKWAY, NW  
 200 NORTHCREEK, SUITE 800  
 ATLANTA, GEORGIA 30327



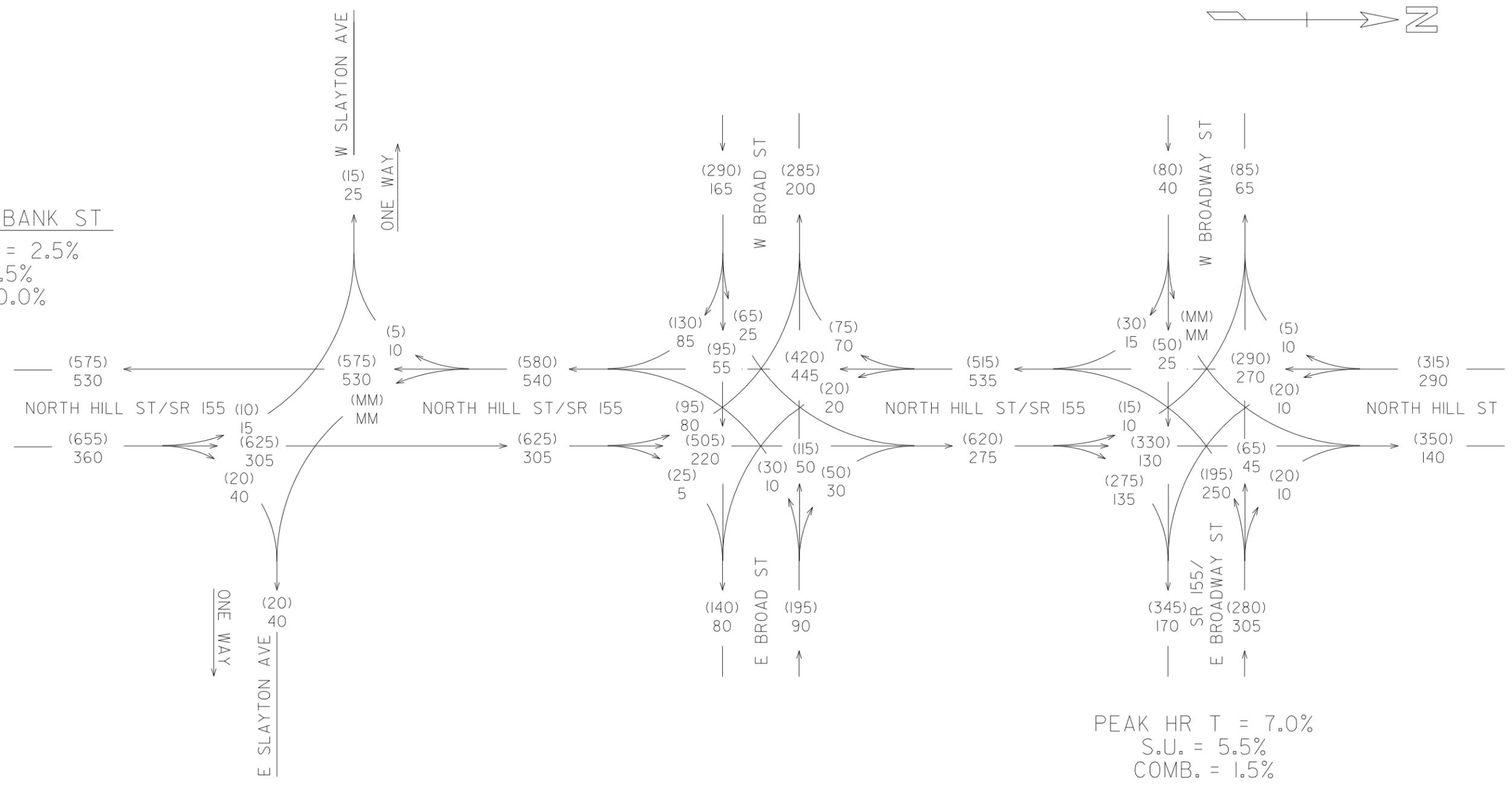
REVISION DATES	

STATE OF GEORGIA  
 DEPARTMENT OF TRANSPORTATION

**TRAFFIC DIAGRAM**

DRAWING No.  
**10-01**

SR I55 S/O BANK ST  
 PEAK HR T = 2.5%  
 S.U. = 2.5%  
 COMB. = 0.0%



PEAK HR T = 7.0%  
 S.U. = 5.5%  
 COMB. = 1.5%

AJP 6/2016

P.I. #0013295  
 SPALDING COUNTY  
 SR I55 @ CS 1020/NORTH HILL ST

2014 EXISTING  
 PEAK HOUR PM = (000)  
 PEAK HOUR AM = 000

**HNTB**  
 3715 NORTHSIDE PARKWAY, NW  
 200 NORTHCREEK, SUITE 800  
 ATLANTA, GEORGIA 30327



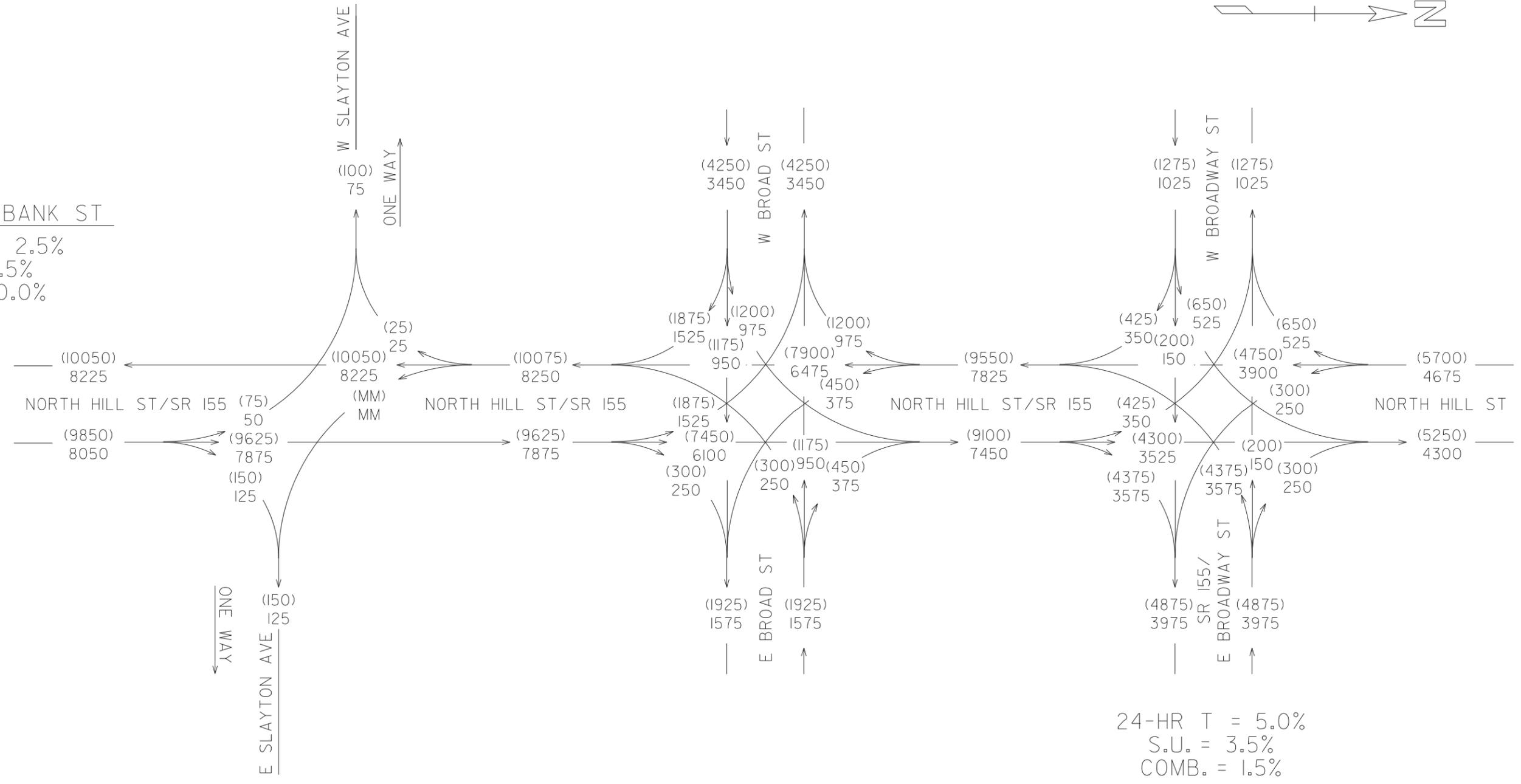
REVISION DATES	

STATE OF GEORGIA  
 DEPARTMENT OF TRANSPORTATION  
**TRAFFIC DIAGRAM**  
 DRAWING No. 10-02



SR 155 S/O BANK ST

24-HR T = 2.5%  
 S.U. = 2.5%  
 COMB. = 0.0%



24-HR T = 5.0%  
 S.U. = 3.5%  
 COMB. = 1.5%

AJP 6/2016

P.I. #0013295  
 SPALDING COUNTY  
 SR 155 @ CS 1020/NORTH HILL ST

BUILD / NO-BUILD  
 2040 ADT = (000)  
 2020 ADT = 000

**HNTB**  
 3715 NORTHSIDE PARKWAY, NW  
 200 NORTHCREEK, SUITE 800  
 ATLANTA, GEORGIA 30327



REVISION DATES	

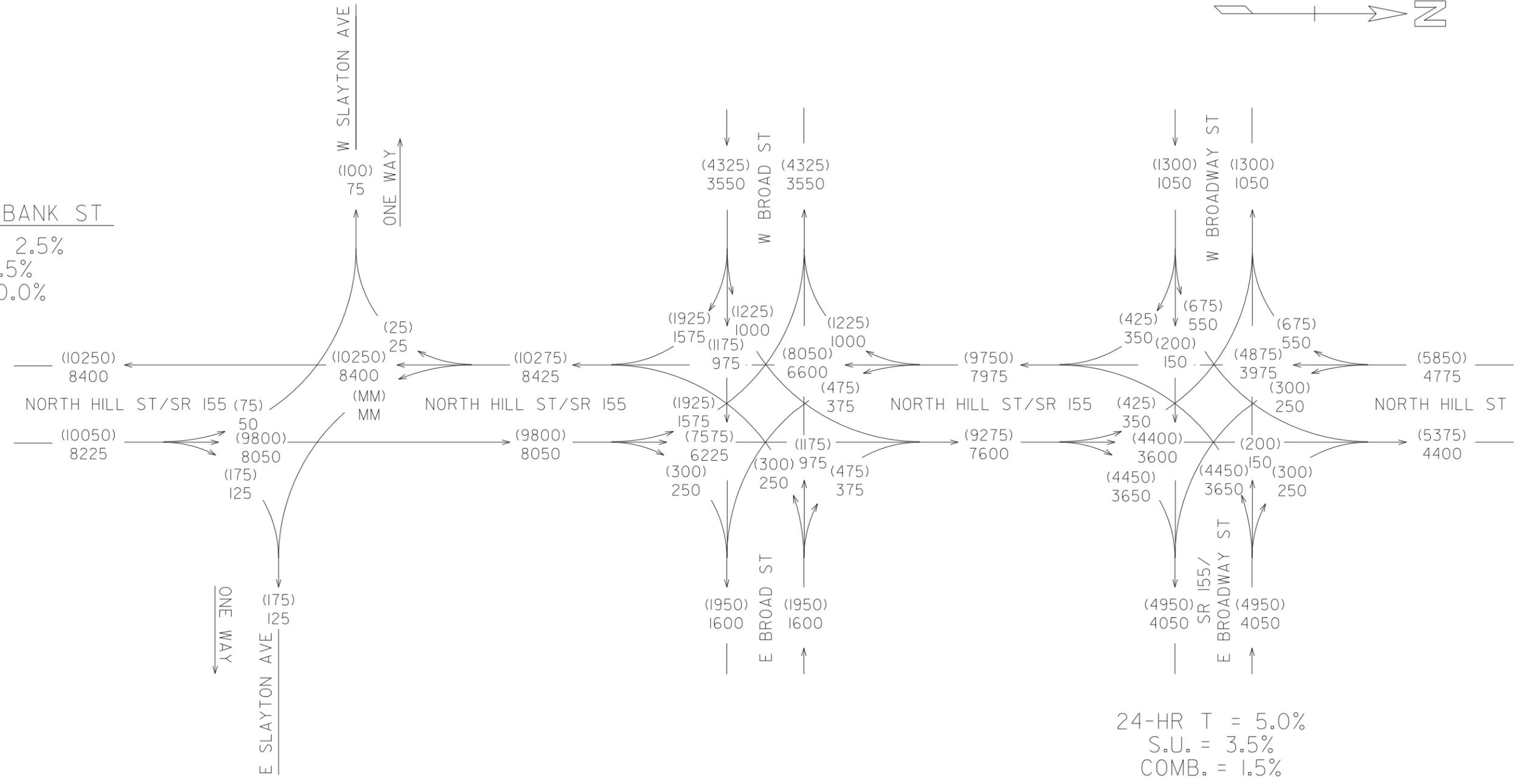
STATE OF GEORGIA  
 DEPARTMENT OF TRANSPORTATION

**TRAFFIC DIAGRAM**

DRAWING No.  
**10-03**



SR 155 S/O BANK ST  
 24-HR T = 2.5%  
 S.U. = 2.5%  
 COMB. = 0.0%



24-HR T = 5.0%  
 S.U. = 3.5%  
 COMB. = 1.5%

AJP 6/2016

P.I. #0013295  
 SPALDING COUNTY  
 SR 155 @ CS 1020/NORTH HILL ST

BUILD / NO-BUILD  
 2042 ADT = (000)  
 2022 ADT = 000

**HNTB**  
 3715 NORTHSIDE PARKWAY, NW  
 200 NORTHCREEK, SUITE 800  
 ATLANTA, GEORGIA 30327



REVISION DATES	

STATE OF GEORGIA  
 DEPARTMENT OF TRANSPORTATION

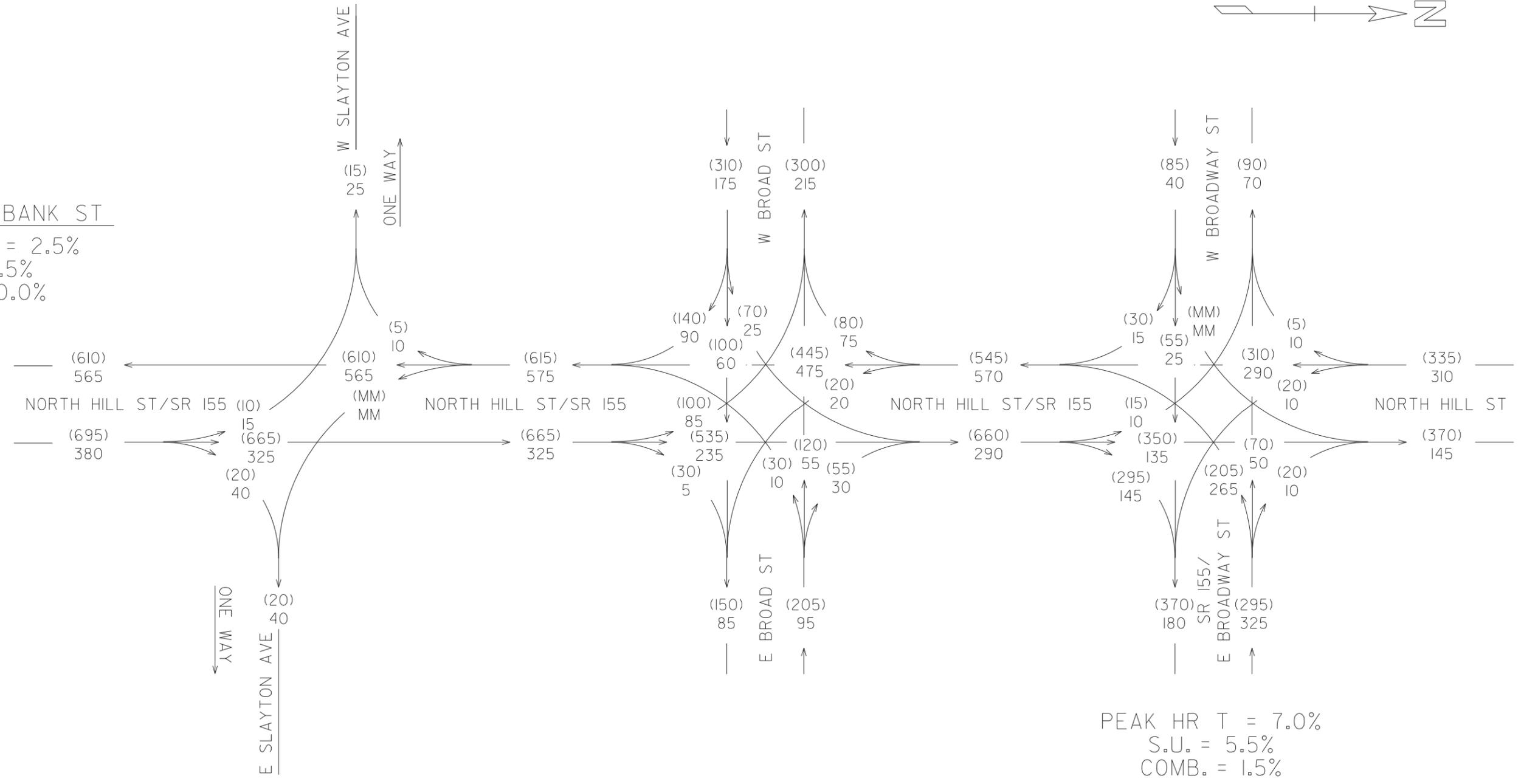
**TRAFFIC DIAGRAM**

DRAWING No.  
**10-04**

GPLN  
 #0013295  
 #0013295  
 #0013295  
 #0013295



SR 155 S/O BANK ST  
 PEAK HR T = 2.5%  
 S.U. = 2.5%  
 COMB. = 0.0%



AJP 6/2016

P.I. #0013295  
 SPALDING COUNTY  
 SR 155 @ CS 1020/NORTH HILL ST

BUILD / NO-BUILD  
 2020 DHV PM = (000)  
 2020 DHV AM = 000

**HNTB**  
 3715 NORTHSIDE PARKWAY, NW  
 200 NORTHCREEK, SUITE 800  
 ATLANTA, GEORGIA 30327

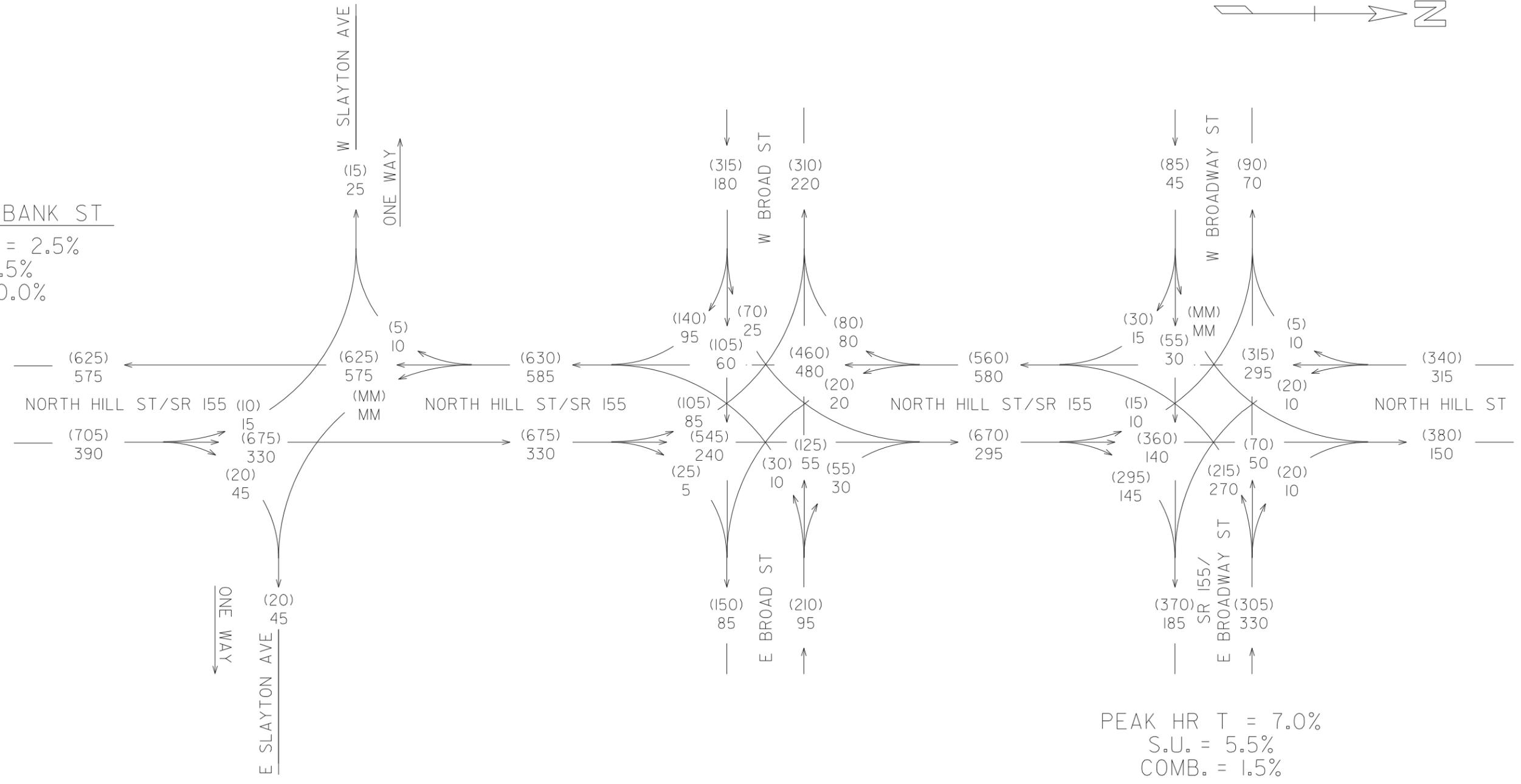


REVISION DATES	

STATE OF GEORGIA  
 DEPARTMENT OF TRANSPORTATION  
**TRAFFIC DIAGRAM**  
 DRAWING No.  
**10-05**



SR 155 S/O BANK ST  
 PEAK HR T = 2.5%  
 S.U. = 2.5%  
 COMB. = 0.0%



PEAK HR T = 7.0%  
 S.U. = 5.5%  
 COMB. = 1.5%

AJP 6/2016

P.I. #0013295  
 SPALDING COUNTY  
 SR 155 @ CS 1020/NORTH HILL ST

BUILD / NO-BUILD  
 2022 DHV PM = (000)  
 2022 DHV AM = 000

**HNTB**  
 3715 NORTHSIDE PARKWAY, NW  
 200 NORTHCREEK, SUITE 800  
 ATLANTA, GEORGIA 30327

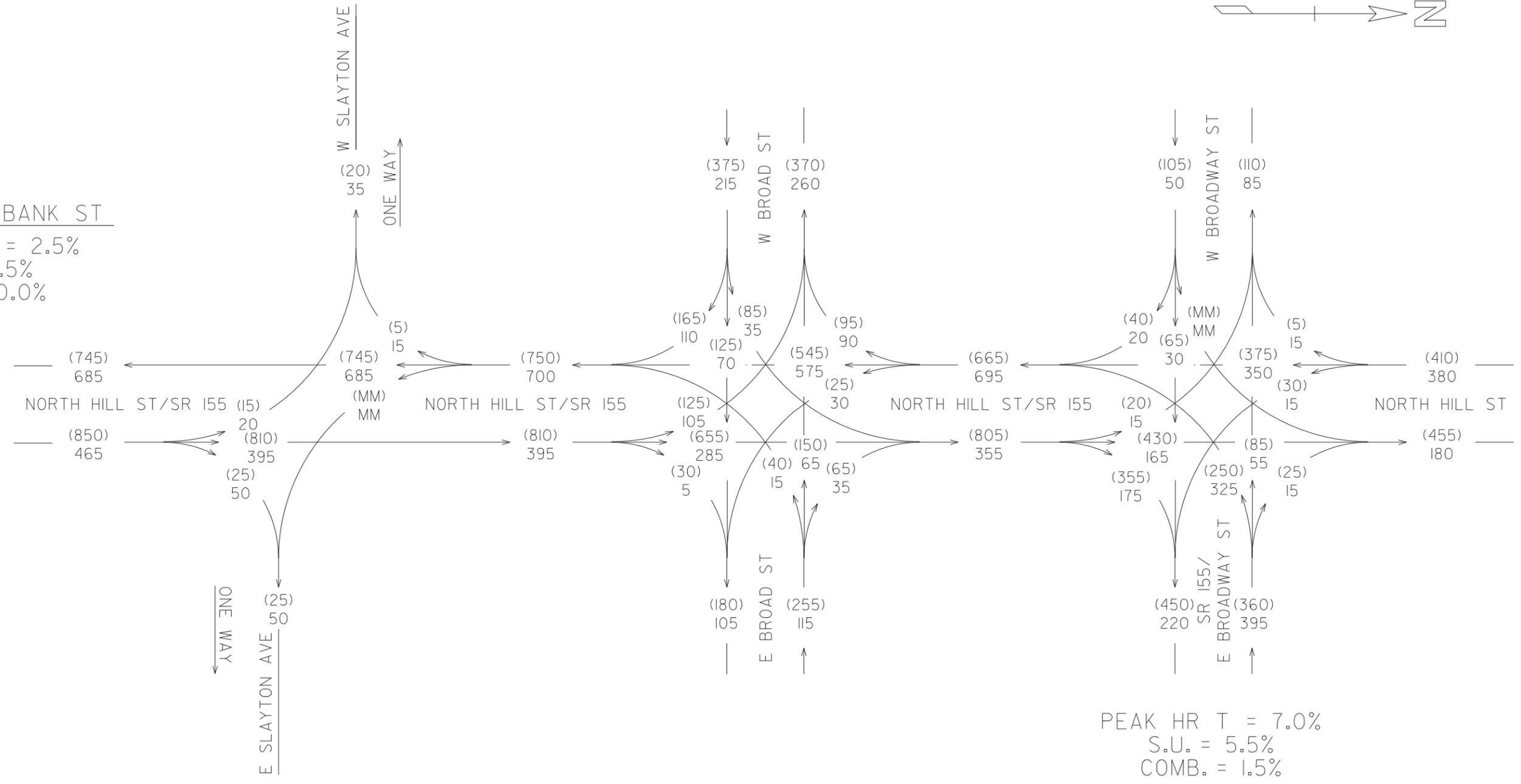


REVISION DATES	

STATE OF GEORGIA  
 DEPARTMENT OF TRANSPORTATION  
**TRAFFIC DIAGRAM**  
 DRAWING No.  
**10-06**



SR 155 S/O BANK ST  
 PEAK HR T = 2.5%  
 S.U. = 2.5%  
 COMB. = 0.0%



PEAK HR T = 7.0%  
 S.U. = 5.5%  
 COMB. = 1.5%

AJP 6/2016

P.I. #0013295  
 SPALDING COUNTY  
 SR 155 @ CS 1020/NORTH HILL ST

BUILD / NO-BUILD  
 2040 DHV PM = (000)  
 2040 DHV AM = 000

**HNTB**  
 3715 NORTHSIDE PARKWAY, NW  
 200 NORTHCREEK, SUITE 800  
 ATLANTA, GEORGIA 30327

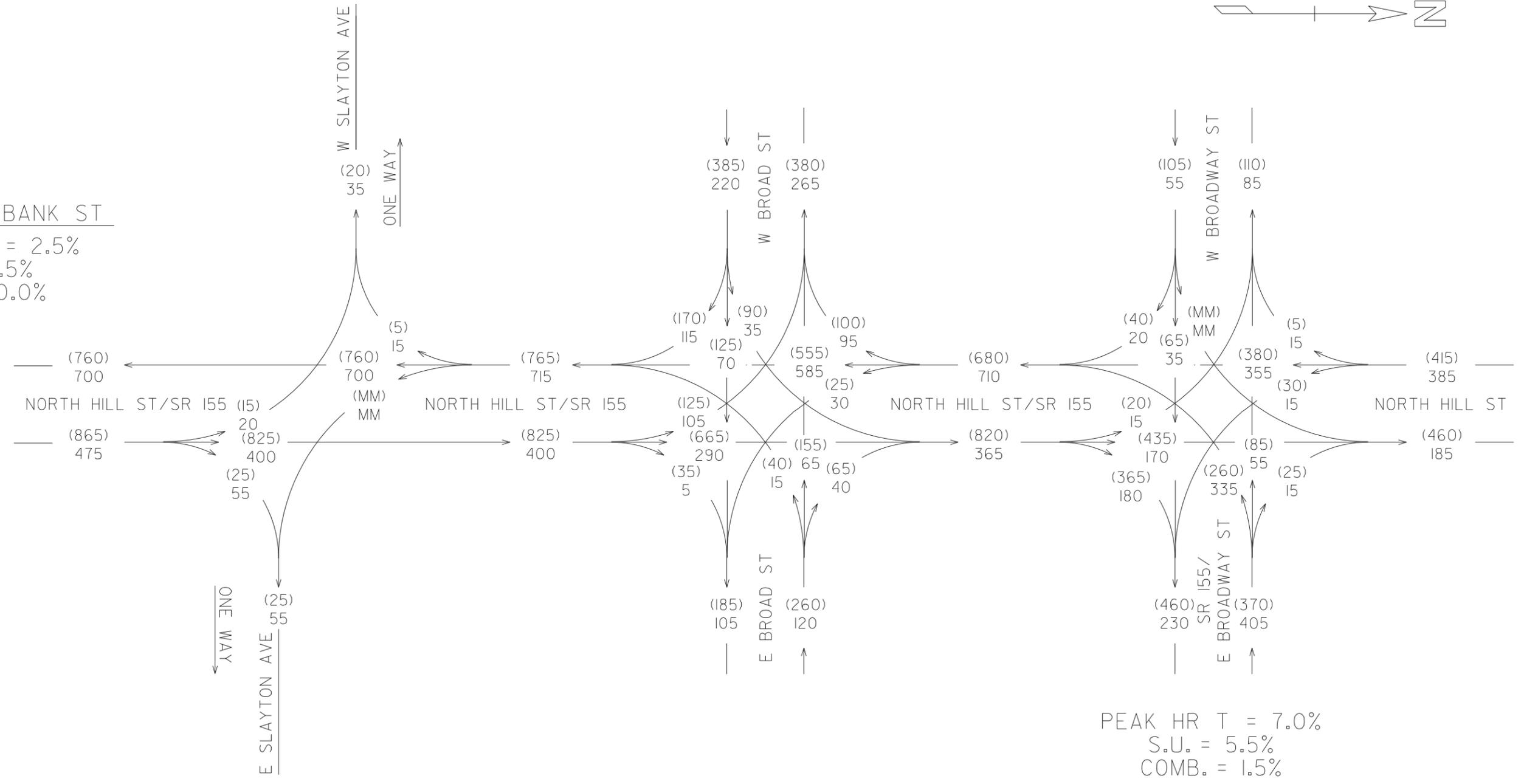


REVISION DATES	

STATE OF GEORGIA  
 DEPARTMENT OF TRANSPORTATION  
**TRAFFIC DIAGRAM**  
 DRAWING No.  
**10-07**



SR I55 S/O BANK ST  
 PEAK HR T = 2.5%  
 S.U. = 2.5%  
 COMB. = 0.0%



PEAK HR T = 7.0%  
 S.U. = 5.5%  
 COMB. = 1.5%

AJP 6/2016

P.I. #0013295  
 SPALDING COUNTY  
 SR I55 @ CS 1020/NORTH HILL ST

BUILD / NO-BUILD  
 2042 DHV PM = (000)  
 2042 DHV AM = 000

**HNTB**  
 3715 NORTHSIDE PARKWAY, NW  
 200 NORTHCREEK, SUITE 800  
 ATLANTA, GEORGIA 30327



REVISION DATES	

STATE OF GEORGIA  
 DEPARTMENT OF TRANSPORTATION  
**TRAFFIC DIAGRAM**  
 DRAWING No.  
**10-08**

# **ATTACHMENT 5 – CAPACITY ANALYSIS**

Intersection												
Int Delay, s/veh	10.8											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	25	15	250	45	10	10	130	135	10	270	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	7	7	7	7	7	7	7	7	7	7	7	7
Mvmt Flow	0	27	16	272	49	11	11	141	147	11	293	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	438	631	152	418	562	144	304	0	0	288	0	0
Stage 1	321	321	-	236	236	-	-	-	-	-	-	-
Stage 2	117	310	-	182	326	-	-	-	-	-	-	-
Critical Hdwy	7.64	6.64	7.04	7.64	6.64	7.04	4.24	-	-	4.24	-	-
Critical Hdwy Stg 1	6.64	5.64	-	6.64	5.64	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.64	5.64	-	6.64	5.64	-	-	-	-	-	-	-
Follow-up Hdwy	3.57	4.07	3.37	3.57	4.07	3.37	2.27	-	-	2.27	-	-
Pot Cap-1 Maneuver	491	386	851	507	424	862	1218	-	-	1235	-	-
Stage 1	651	638	-	732	696	-	-	-	-	-	-	-
Stage 2	861	645	-	788	635	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	435	379	851	464	416	862	1218	-	-	1235	-	-
Mov Cap-2 Maneuver	435	379	-	464	416	-	-	-	-	-	-	-
Stage 1	645	632	-	725	690	-	-	-	-	-	-	-
Stage 2	783	639	-	733	629	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.3	30	0.3	0.3
HCM LOS	B	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1218	-	-	479	463	1235	-	-
HCM Lane V/C Ratio	0.009	-	-	0.091	0.716	0.009	-	-
HCM Control Delay (s)	8	-	-	13.3	30	7.9	-	-
HCM Lane LOS	A	-	-	B	D	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	5.6	0	-	-

Intersection	
Int Delay, s/veh	46.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Vol, veh/h	0	50	30	195	65	20	15	330	275
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	7	7	7	7	7	7	7	7	7
Mvmt Flow	0	54	33	212	71	22	16	359	299

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	608	1051	160	769	905	329	321	0	0
Stage 1	361	361	-	541	541	-	-	-	-
Stage 2	247	690	-	228	364	-	-	-	-
Critical Hdwy	7.64	6.64	7.04	7.64	6.64	7.04	4.24	-	-
Critical Hdwy Stg 1	6.64	5.64	-	6.64	5.64	-	-	-	-
Critical Hdwy Stg 2	6.64	5.64	-	6.64	5.64	-	-	-	-
Follow-up Hdwy	3.57	4.07	3.37	3.57	4.07	3.37	2.27	-	-
Pot Cap-1 Maneuver	370	218	841	282	266	652	1200	-	-
Stage 1	616	612	-	480	507	-	-	-	-
Stage 2	721	432	-	740	610	-	-	-	-
Platoon blocked, %									
Mov Cap-1 Maneuver	274	210	841	~ 211	256	652	1200	-	-
Mov Cap-2 Maneuver	274	210	-	~ 211	256	-	-	-	-
Stage 1	608	597	-	474	500	-	-	-	-
Stage 2	590	426	-	631	595	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	22.5	209.4	0.2
HCM LOS	C	F	

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1200	-	-	292	232	893	-	-
HCM Lane V/C Ratio	0.014	-	-	0.298	1.312	0.024	-	-
HCM Control Delay (s)	8	-	-	22.5	209.4	9.1	-	-
HCM Lane LOS	A	-	-	C	F	A	-	-
HCM 95th %tile Q(veh)	0	-	-	1.2	16.1	0.1	-	-

Notes  
 -: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

**Intersection**

Int Delay, s/veh

Movement	SBL	SBT	SBR
Vol, veh/h	20	290	5
Conflicting Peds, #/hr	0	0	0
Sign Control	Free	Free	Free
RT Channelized	-	-	None
Storage Length	0	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	92	92	92
Heavy Vehicles, %	7	7	7
Mvmt Flow	22	315	5

**Major/Minor Major2**

Conflicting Flow All	658	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.24	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.27	-	-
Pot Cap-1 Maneuver	893	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	893	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

**Approach SB**

HCM Control Delay, s 0.6

HCM LOS

**Minor Lane/Major Mvmt**

Intersection												
Int Delay, s/veh	13.6											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	25	15	265	50	10	10	135	145	10	290	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	7	7	7	7	7	7	7	7	7	7	7	7
Mvmt Flow	0	27	16	288	54	11	11	147	158	11	315	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	464	668	163	440	595	152	326	0	0	304	0	0
Stage 1	342	342	-	247	247	-	-	-	-	-	-	-
Stage 2	122	326	-	193	348	-	-	-	-	-	-	-
Critical Hdwy	7.64	6.64	7.04	7.64	6.64	7.04	4.24	-	-	4.24	-	-
Critical Hdwy Stg 1	6.64	5.64	-	6.64	5.64	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.64	5.64	-	6.64	5.64	-	-	-	-	-	-	-
Follow-up Hdwy	3.57	4.07	3.37	3.57	4.07	3.37	2.27	-	-	2.27	-	-
Pot Cap-1 Maneuver	470	368	837	489	406	851	1195	-	-	1218	-	-
Stage 1	633	624	-	721	688	-	-	-	-	-	-	-
Stage 2	855	635	-	776	620	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	410	361	837	446	399	851	1195	-	-	1218	-	-
Mov Cap-2 Maneuver	410	361	-	446	399	-	-	-	-	-	-	-
Stage 1	627	618	-	714	682	-	-	-	-	-	-	-
Stage 2	770	629	-	721	614	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.7	38	0.3	0.3
HCM LOS	B	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1195	-	-	459	444	1218	-	-
HCM Lane V/C Ratio	0.009	-	-	0.095	0.796	0.009	-	-
HCM Control Delay (s)	8	-	-	13.7	38	8	-	-
HCM Lane LOS	A	-	-	B	E	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	7.2	0	-	-

**Intersection**

Int Delay, s/veh 70.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Vol, veh/h	0	55	30	205	70	20	15	350	295
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	7	7	7	7	7	7	7	7	7
Mvmt Flow	0	60	33	223	76	22	16	380	321

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	644	1117	171	815	959	351	342	0	0
Stage 1	383	383	-	573	573	-	-	-	-
Stage 2	261	734	-	242	386	-	-	-	-
Critical Hdwy	7.64	6.64	7.04	7.64	6.64	7.04	4.24	-	-
Critical Hdwy Stg 1	6.64	5.64	-	6.64	5.64	-	-	-	-
Critical Hdwy Stg 2	6.64	5.64	-	6.64	5.64	-	-	-	-
Follow-up Hdwy	3.57	4.07	3.37	3.57	4.07	3.37	2.27	-	-
Pot Cap-1 Maneuver	348	198	827	261	247	631	1178	-	-
Stage 1	598	598	-	459	490	-	-	-	-
Stage 2	707	412	-	726	596	-	-	-	-
Platoon blocked, %									
Mov Cap-1 Maneuver	245	190	827	~ 184	237	631	1178	-	-
Mov Cap-2 Maneuver	245	190	-	~ 184	237	-	-	-	-
Stage 1	590	583	-	453	483	-	-	-	-
Stage 2	567	406	-	610	581	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	26.2	\$ 318.2	0.2
HCM LOS	D	F	

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1178	-	-	261	205	859	-	-
HCM Lane V/C Ratio	0.014	-	-	0.354	1.564	0.025	-	-
HCM Control Delay (s)	8.1	-	-	26.2	\$ 318.2	9.3	-	-
HCM Lane LOS	A	-	-	D	F	A	-	-
HCM 95th %tile Q(veh)	0	-	-	1.5	20.4	0.1	-	-

**Notes**

~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

**Intersection**

Int Delay, s/veh

Movement	SBL	SBT	SBR
Vol, veh/h	20	310	5
Conflicting Peds, #/hr	0	0	0
Sign Control	Free	Free	Free
RT Channelized	-	-	None
Storage Length	0	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	92	92	92
Heavy Vehicles, %	7	7	7
Mvmt Flow	22	337	5

**Major/Minor Major2**

Conflicting Flow All	701	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.24	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.27	-	-
Pot Cap-1 Maneuver	859	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	859	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

**Approach SB**

HCM Control Delay, s 0.6

HCM LOS

**Minor Lane/Major Mvmt**

HCM 2010 Signalized Intersection Summary  
 3: SR 155/Hill/Hill & Broadway/SR 155/Broadway

**BUILD 2020 - AM**  
 7/27/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	25	15	265	50	10	10	135	145	10	290	10
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1776	1776	1900	1776	1776	1900	1776	1776	1776	1776	1776	1776
Adj Flow Rate, veh/h	0	27	16	288	54	11	11	147	158	11	315	11
Adj No. of Lanes	1	1	0	1	1	0	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	7	7	7	7	7	7	7	7	7	7	7	7
Cap, veh/h	144	335	198	738	745	152	317	568	483	408	568	483
Arrive On Green	0.00	0.32	0.32	0.12	0.52	0.52	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	1269	1046	620	1691	1432	292	1001	1776	1509	1020	1776	1509
Grp Volume(v), veh/h	0	0	43	288	0	65	11	147	158	11	315	11
Grp Sat Flow(s),veh/h/ln	1269	0	1666	1691	0	1724	1001	1776	1509	1020	1776	1509
Q Serve(g_s), s	0.0	0.0	0.9	5.3	0.0	0.9	0.5	3.1	4.0	0.4	7.3	0.2
Cycle Q Clear(g_c), s	0.0	0.0	0.9	5.3	0.0	0.9	7.8	3.1	4.0	3.5	7.3	0.2
Prop In Lane	1.00		0.37	1.00		0.17	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	144	0	533	738	0	897	317	568	483	408	568	483
V/C Ratio(X)	0.00	0.00	0.08	0.39	0.00	0.07	0.03	0.26	0.33	0.03	0.55	0.02
Avail Cap(c_a), veh/h	144	0	533	738	0	897	317	568	483	408	568	483
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	11.9	8.3	0.0	6.0	17.3	12.6	12.9	13.9	14.1	11.6
Incr Delay (d2), s/veh	0.0	0.0	0.3	1.6	0.0	0.2	0.2	1.1	1.8	0.1	3.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.4	2.7	0.0	0.5	0.1	1.6	1.9	0.1	4.2	0.1
LnGrp Delay(d),s/veh	0.0	0.0	12.2	9.8	0.0	6.1	17.5	13.7	14.7	14.0	17.9	11.7
LnGrp LOS			B	A		A	B	B	B	B	B	B
Approach Vol, veh/h		43			353			316			337	
Approach Delay, s/veh		12.2			9.1			14.3			17.6	
Approach LOS		B			A			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6		8				
Phs Duration (G+Y+Rc), s		20.0	10.0	20.0		20.0		30.0				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0		4.0				
Max Green Setting (Gmax), s		16.0	6.0	16.0		16.0		26.0				
Max Q Clear Time (g_c+I1), s		9.8	7.3	2.9		9.3		2.9				
Green Ext Time (p_c), s		1.8	0.0	0.4		1.9		0.5				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			13.5									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary  
 3: SR 155/Hill/Hill & Broadway/SR 155/Broadway

**BUILD 2020 - PM**  
 7/27/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	55	30	205	70	20	15	350	295	20	310	5
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1776	1776	1900	1776	1776	1900	1776	1776	1776	1776	1776	1776
Adj Flow Rate, veh/h	0	60	33	223	76	22	16	380	321	22	337	5
Adj No. of Lanes	1	1	0	1	1	0	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	7	7	7	7	7	7	7	7	7	7	7	7
Cap, veh/h	144	345	190	659	662	192	327	604	513	257	604	513
Arrive On Green	0.00	0.32	0.32	0.10	0.50	0.50	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	1232	1078	593	1691	1325	383	986	1776	1509	708	1776	1509
Grp Volume(v), veh/h	0	0	93	223	0	98	16	380	321	22	337	5
Grp Sat Flow(s),veh/h/ln	1232	0	1671	1691	0	1708	986	1776	1509	708	1776	1509
Q Serve(g_s), s	0.0	0.0	2.0	4.1	0.0	1.5	0.7	9.0	8.9	1.3	7.7	0.1
Cycle Q Clear(g_c), s	0.0	0.0	2.0	4.1	0.0	1.5	8.4	9.0	8.9	10.3	7.7	0.1
Prop In Lane	1.00		0.35	1.00		0.22	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	144	0	535	659	0	854	327	604	513	257	604	513
V/C Ratio(X)	0.00	0.00	0.17	0.34	0.00	0.11	0.05	0.63	0.63	0.09	0.56	0.01
Avail Cap(c_a), veh/h	144	0	535	659	0	854	327	604	513	257	604	513
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	12.2	8.6	0.0	6.6	16.9	13.9	13.8	18.2	13.4	10.9
Incr Delay (d2), s/veh	0.0	0.0	0.7	1.4	0.0	0.3	0.3	4.9	5.7	0.7	3.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	1.0	2.1	0.0	0.8	0.2	5.2	4.5	0.3	4.4	0.1
LnGrp Delay(d),s/veh	0.0	0.0	12.9	10.0	0.0	6.9	17.1	18.8	19.5	18.8	17.1	11.0
LnGrp LOS			B	A		A	B	B	B	B	B	B
Approach Vol, veh/h		93			321			717			364	
Approach Delay, s/veh		12.9			9.0			19.1			17.2	
Approach LOS		B			A			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6		8				
Phs Duration (G+Y+Rc), s		21.0	9.0	20.0		21.0		29.0				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0		4.0				
Max Green Setting (Gmax), s		17.0	5.0	16.0		17.0		25.0				
Max Q Clear Time (g_c+I1), s		11.0	6.1	4.0		12.3		3.5				
Green Ext Time (p_c), s		2.9	0.0	0.7		2.4		1.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			16.1									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary  
 3: SR 155/Hill/Hill & Broadway/SR 155/Broadway

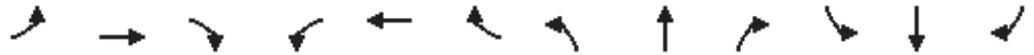
**BUILD 2040 - AM**  
 7/27/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	30	20	325	55	15	15	165	175	15	350	15
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1776	1776	1900	1776	1776	1900	1776	1776	1776	1776	1776	1776
Adj Flow Rate, veh/h	0	33	22	353	60	16	16	179	190	16	380	16
Adj No. of Lanes	1	1	0	1	1	0	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	7	7	7	7	7	7	7	7	7	7	7	7
Cap, veh/h	131	290	193	718	688	183	288	613	521	393	613	521
Arrive On Green	0.00	0.29	0.29	0.15	0.51	0.51	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	1256	995	663	1691	1352	360	938	1776	1509	962	1776	1509
Grp Volume(v), veh/h	0	0	55	353	0	76	16	179	190	16	380	16
Grp Sat Flow(s),veh/h/ln	1256	0	1659	1691	0	1712	938	1776	1509	962	1776	1509
Q Serve(g_s), s	0.0	0.0	1.3	7.7	0.0	1.3	0.8	4.0	5.2	0.7	9.8	0.4
Cycle Q Clear(g_c), s	0.0	0.0	1.3	7.7	0.0	1.3	10.6	4.0	5.2	4.7	9.8	0.4
Prop In Lane	1.00		0.40	1.00		0.21	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	131	0	483	718	0	872	288	613	521	393	613	521
V/C Ratio(X)	0.00	0.00	0.11	0.49	0.00	0.09	0.06	0.29	0.36	0.04	0.62	0.03
Avail Cap(c_a), veh/h	131	0	483	718	0	872	288	613	521	393	613	521
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	14.3	9.8	0.0	6.9	19.4	13.1	13.5	14.8	15.0	11.9
Incr Delay (d2), s/veh	0.0	0.0	0.5	2.4	0.0	0.2	0.4	1.2	2.0	0.2	4.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.7	3.9	0.0	0.6	0.2	2.1	2.4	0.2	5.5	0.2
LnGrp Delay(d),s/veh	0.0	0.0	14.8	12.2	0.0	7.1	19.8	14.3	15.4	15.0	19.6	12.0
LnGrp LOS			B	B		A	B	B	B	B	B	B
Approach Vol, veh/h		55			429			385			412	
Approach Delay, s/veh		14.8			11.3			15.1			19.2	
Approach LOS		B			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6		8				
Phs Duration (G+Y+Rc), s		23.0	12.0	20.0		23.0		32.0				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0		4.0				
Max Green Setting (Gmax), s		19.0	8.0	16.0		19.0		28.0				
Max Q Clear Time (g_c+I1), s		12.6	9.7	3.3		11.8		3.3				
Green Ext Time (p_c), s		2.3	0.0	0.5		2.5		0.6				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			15.1									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary  
 3: SR 155/Hill/Hill & Broadway/SR 155/Broadway

**BUILD 2040 - PM**  
 7/27/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	65	40	250	85	25	20	430	355	30	375	5
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1776	1776	1900	1776	1776	1900	1776	1776	1776	1776	1776	1776
Adj Flow Rate, veh/h	0	71	43	272	92	27	22	467	386	33	408	5
Adj No. of Lanes	1	1	0	1	1	0	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	7	7	7	7	7	7	7	7	7	7	7	7
Cap, veh/h	131	302	183	575	600	176	335	710	604	245	710	604
Arrive On Green	0.00	0.29	0.29	0.09	0.45	0.45	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	1208	1037	628	1691	1320	387	924	1776	1509	614	1776	1509
Grp Volume(v), veh/h	0	0	114	272	0	119	22	467	386	33	408	5
Grp Sat Flow(s),veh/h/ln	1208	0	1665	1691	0	1707	924	1776	1509	614	1776	1509
Q Serve(g_s), s	0.0	0.0	2.9	5.0	0.0	2.2	1.0	11.8	11.3	2.5	9.8	0.1
Cycle Q Clear(g_c), s	0.0	0.0	2.9	5.0	0.0	2.2	10.9	11.8	11.3	14.3	9.8	0.1
Prop In Lane	1.00		0.38	1.00		0.23	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	131	0	484	575	0	776	335	710	604	245	710	604
V/C Ratio(X)	0.00	0.00	0.24	0.47	0.00	0.15	0.07	0.66	0.64	0.13	0.57	0.01
Avail Cap(c_a), veh/h	131	0	484	575	0	776	335	710	604	245	710	604
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	14.8	12.1	0.0	8.8	17.1	13.4	13.3	19.3	12.9	9.9
Incr Delay (d2), s/veh	0.0	0.0	1.1	2.8	0.0	0.4	0.4	4.7	5.1	1.1	3.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	1.5	1.4	0.0	1.1	0.3	6.6	5.5	0.5	5.4	0.1
LnGrp Delay(d),s/veh	0.0	0.0	16.0	14.9	0.0	9.2	17.5	18.2	18.4	20.4	16.2	10.0
LnGrp LOS			B	B		A	B	B	B	C	B	A
Approach Vol, veh/h		114			391			875			446	
Approach Delay, s/veh		16.0			13.1			18.3			16.5	
Approach LOS		B			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6		8				
Phs Duration (G+Y+Rc), s		26.0	9.0	20.0		26.0		29.0				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0		4.0				
Max Green Setting (Gmax), s		22.0	5.0	16.0		22.0		25.0				
Max Q Clear Time (g_c+I1), s		13.8	7.0	4.9		16.3		4.2				
Green Ext Time (p_c), s		4.5	0.0	0.9		3.4		1.2				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			16.6									
HCM 2010 LOS			B									



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.940			0.968				0.850			0.850
Flt Protected				0.950			0.950			0.950		
Satd. Flow (prot)	1776	1669	0	1687	1719	0	1687	1776	1509	1687	1776	1509
Flt Permitted				0.577			0.377			0.644		
Satd. Flow (perm)	1776	1669	0	1025	1719	0	669	1776	1509	1144	1776	1509
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22			16				190			99
Link Speed (mph)		35			35			35				35
Link Distance (ft)		357			345			509				381
Travel Time (s)		7.0			6.7			9.9				7.4
Lane Group Flow (vph)	0	55	0	353	76	0	16	179	190	16	380	16
v/c Ratio		0.11		0.57	0.09		0.07	0.29	0.29	0.04	0.62	0.03
Control Delay		10.7		12.8	6.1		13.1	14.8	3.9	12.4	20.3	0.1
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		10.7		12.8	6.1		13.1	14.8	3.9	12.4	20.3	0.1
Queue Length 50th (ft)		8		65	9		3	41	0	3	101	0
Queue Length 95th (ft)		29		117	25		14	82	34	14	178	0
Internal Link Dist (ft)		277			265			429			301	
Turn Bay Length (ft)												
Base Capacity (vph)		501		618	882		231	613	645	395	613	586
Starvation Cap Reductn		0		0	0		0	0	0	0	0	0
Spillback Cap Reductn		0		0	0		0	0	0	0	0	0
Storage Cap Reductn		0		0	0		0	0	0	0	0	0
Reduced v/c Ratio		0.11		0.57	0.09		0.07	0.29	0.29	0.04	0.62	0.03

**Intersection Summary**

Area Type: Other



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%				0%
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.943			0.966				0.850			0.850
Flt Protected				0.950			0.950			0.950		
Satd. Flow (prot)	1776	1674	0	1687	1715	0	1687	1776	1509	1687	1776	1509
Flt Permitted				0.547			0.388			0.325		
Satd. Flow (perm)	1776	1674	0	971	1715	0	689	1776	1509	577	1776	1509
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		43			27				386			99
Link Speed (mph)		35			35			35				35
Link Distance (ft)		357			345			509				381
Travel Time (s)		7.0			6.7			9.9				7.4
Lane Group Flow (vph)	0	114	0	272	119	0	22	467	386	33	408	5
v/c Ratio		0.22		0.54	0.15		0.08	0.66	0.46	0.14	0.57	0.01
Control Delay		11.4		14.7	7.7		11.3	18.9	3.6	12.5	16.8	0.0
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		11.4		14.7	7.7		11.3	18.9	3.6	12.5	16.8	0.0
Queue Length 50th (ft)		17		54	16		4	119	0	7	99	0
Queue Length 95th (ft)		48		100	40		16	207	42	22	174	0
Internal Link Dist (ft)		277			265			429			301	
Turn Bay Length (ft)												
Base Capacity (vph)		517		506	794		275	710	835	230	710	663
Starvation Cap Reductn		0		0	0		0	0	0	0	0	0
Spillback Cap Reductn		0		0	0		0	0	0	0	0	0
Storage Cap Reductn		0		0	0		0	0	0	0	0	0
Reduced v/c Ratio		0.22		0.54	0.15		0.08	0.66	0.46	0.14	0.57	0.01

**Intersection Summary**

Area Type: Other

# **ADDITIONAL CAPACITY ANALYSIS – EXISTING**

**SIDRA**

GEORGIA DEPARTMENT OF TRANSPORTATION

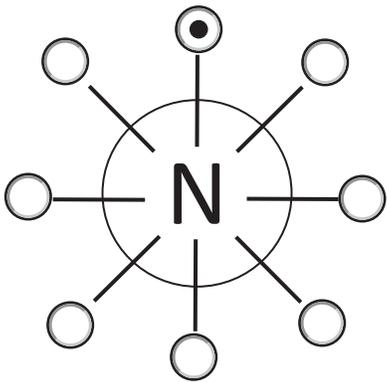
COUNT SHEET

SR: 155 MP: \_\_\_\_\_ COUNTY: Spalding

LOCATION: SR 155/Hill St at SR 155/Broadway St

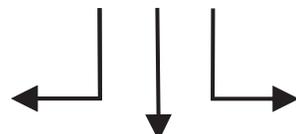
COUNT DATE: 2015

TIME: 8am & 5pm



ROAD: Hill St

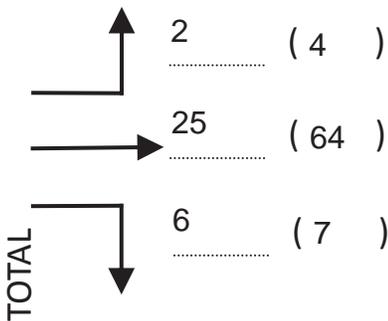
TOTAL



7      175      11  
 .....  
 ( 10 ) ( 249 ) ( 11 )

ROAD:

Broadway St



2      ( 4 )  
 .....  
 25      ( 64 )  
 .....  
 6      ( 7 )  
 .....

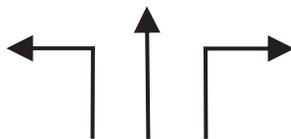
10      ( 11 )  
 .....  
 52      ( 57 )  
 .....  
 228      ( 189 )  
 .....

TOTAL

ROAD:

SR 155/Broadway St

6      115      133  
 .....  
 ( 12 ) ( 183 ) ( 287 )



TOTAL

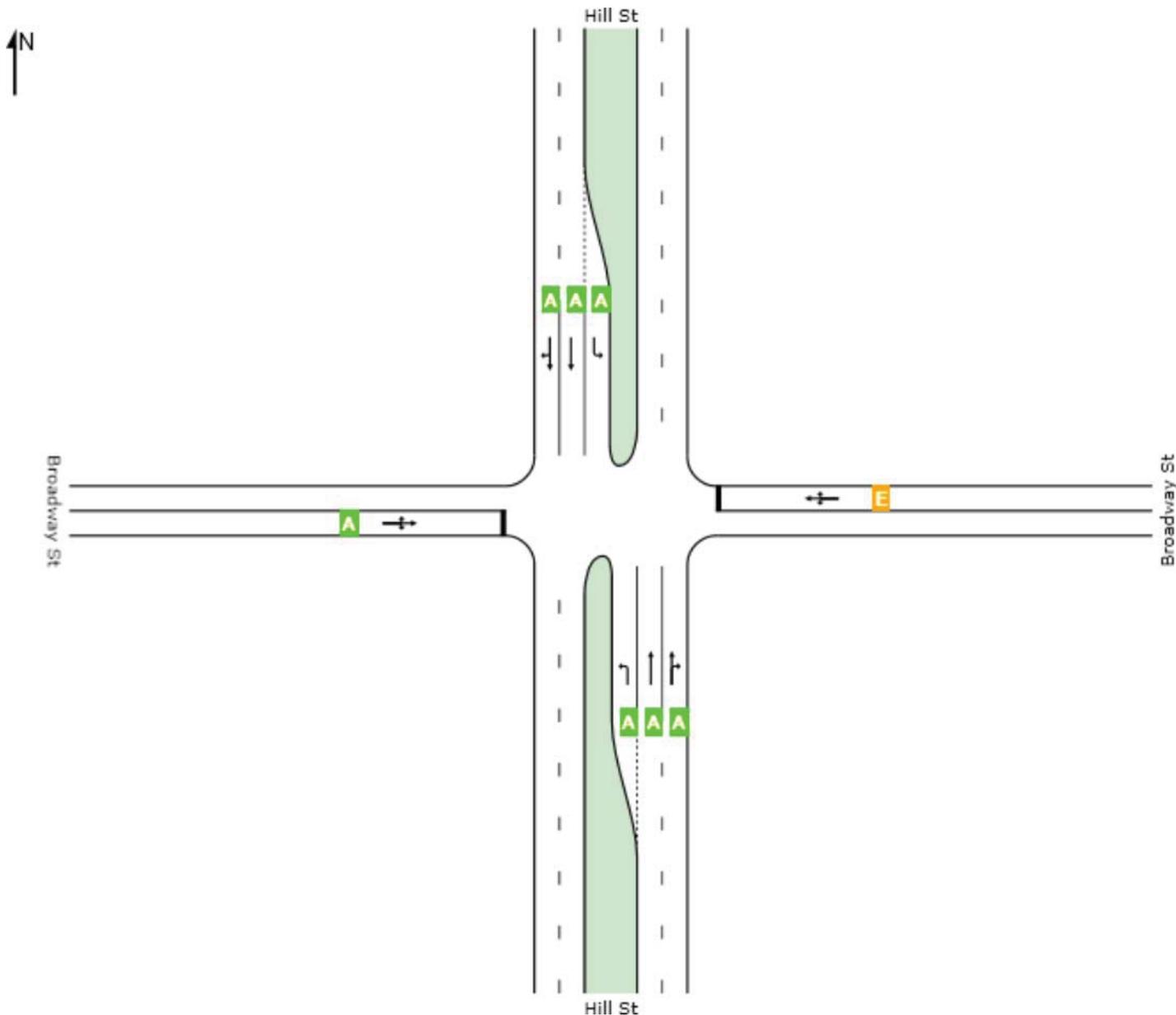
AM  
 .....  
 (PM)

ROAD: SR 155/Hill St

# LEVEL OF SERVICE

## Site: Existing AM

Existing stop control  
 Stop (Two-Way)



	South	East	North	West	Intersection
LOS	NA	E	NA	A	NA

Level of Service (LOS) Method: Delay & v/c (HCM 2010).

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).

Minor Road Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).

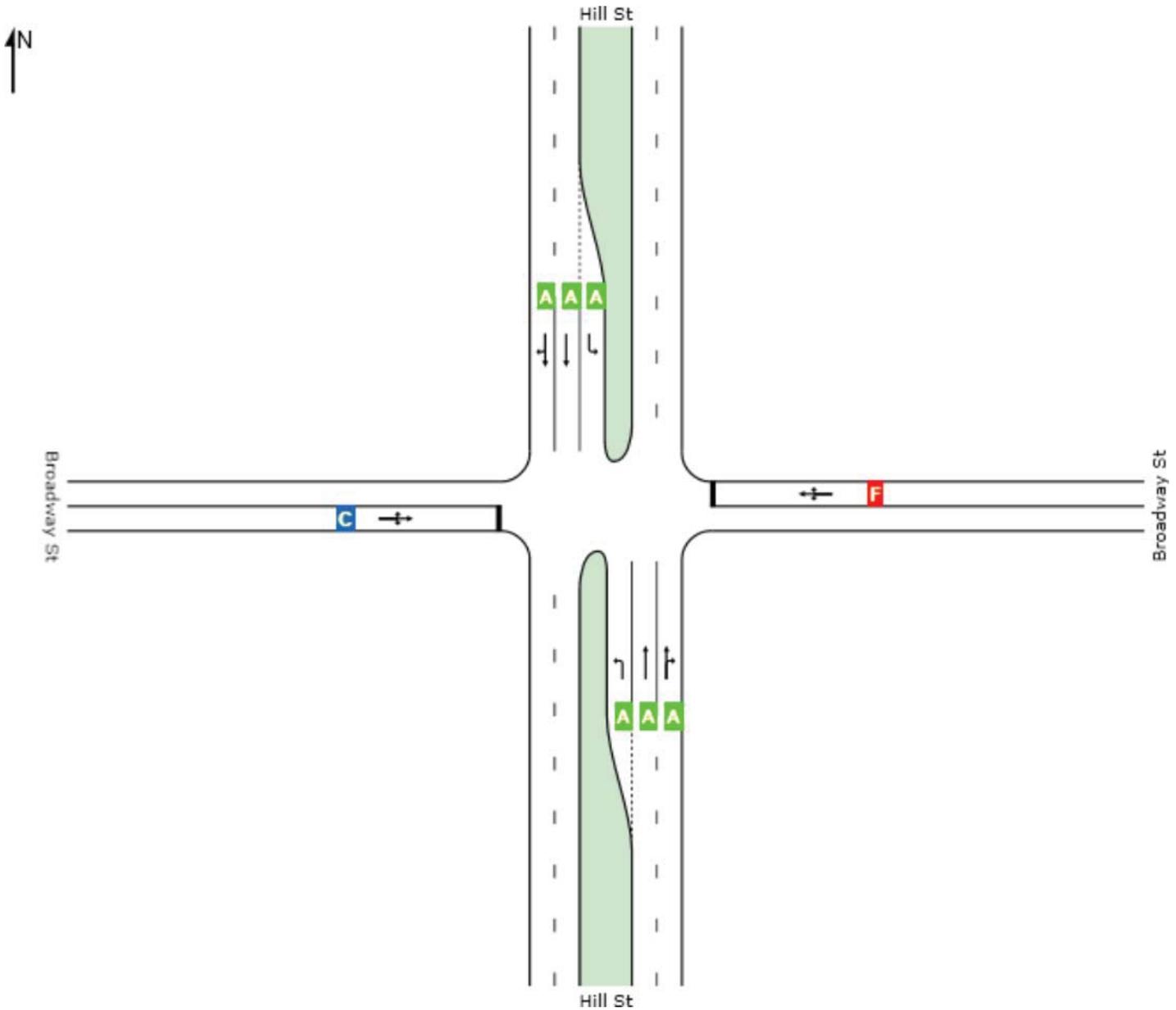
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

# LEVEL OF SERVICE

## Site: Existing PM

Existing stop control  
Stop (Two-Way)



	South	East	North	West	Intersection
LOS	NA	F	NA	C	NA

Level of Service (LOS) Method: Delay & v/c (HCM 2010).

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).

Minor Road Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

# **ATTACHMENT 6 – TE STUDY AND SIGNAL WARRANTS**

**GEORGIA DEPARTMENT OF TRANSPORTATION**

**TRAFFIC ENGINEERING REPORT**

For the intersection of:  
SR 155/Hill Street at SR 155/Broadway Street

**Spalding County**



**Report Prepared by:**  
Patrick Weaver, EIT  
D3 Traffic Operations  
March 7, 2016

**Location:** State Route 155/Hill Street at State Route 155/E Broadway Street, Spalding County

**Reason for Study:** To determine the need for the installation of a traffic control device to improve operations.

**Description of the Intersection:** Hill Street is a four-lane divided roadway traveling north and south with a raised grass median. There are short turn bays in both directions and on-street parking north of the intersection. Broadway Street is a two-lane street traveling east and west. Currently Broadway Street traffic is stop-controlled and Hill Street is free-flowing. SR 155 approaches the intersection from the south on Hill Street and turns east on Broadway Street. There are two sets of railroad tracks that cross Hill Street approximately 90 feet south of the intersection, parallel to Broadway Street.

**Vehicular Volumes:** The following volumes are current volumes based on traffic counts:  
Hill Street – 8,208 ADT  
Broadway Street – 5,357 ADT

**Vehicular Speeds:** The posted speed for Hill Street is 35 mph. The posted speed for Broadway Street is 35 mph.

**Pedestrian Movements:** Sidewalks are provided on both sides of Hill Street and on the north side of Broadway Street.

**Parking:** On-street parking is provided along Hill Street. For northbound lanes, there is parallel and angular parking north of the intersection. For southbound lanes, there is angular parking north of the intersection and south of the railroad tracks.

**Collision History:** From 2010-2014, there were 28 correctable collisions at this location. Of those crashes, 5 were injury crashes with 9 total injuries. The table below shows the crashes by year.

Year	Correctable Crashes
2010	5
2011	7 (2 injury crashes)
2012	3
2013	10 (2 injury crashes)
2014	3 (1 injury crash)

**Adjacent Signalized Intersections:** There are currently signals located along Hill Street at Chappell Street (approximately 530 feet north of the intersection) and at Broad Street (approximately 225 feet south of the intersection). There are signals on Hill Street south of Broad Street that are part of a coordinated system through downtown Griffin.

**Warrant Analysis:** Two variations of the signal warrant analysis were: (1) North and south approaches (Hill Street) as the major street and (2) North and west approaches (SR 155) as the major street. In both instances, the intersection met Warrants 1, 2, 7, and 8 using 100% volumes. All analyses were performed with all single-lane approaches as per proposed lane configuration for the LCI project for Hill Street (PI #0010333).

**Roundabout Analysis:** A single lane roundabout was analyzed for this location. Using the current volumes, a single-lane roundabout would provide Level of Service (LOS) of A for all approaches during morning and evening peak hours. After 20 years, a single-lane roundabout would provide LOS of A for the morning peak hour, but a LOS of B for the evening peak hour with the northbound approach at a LOS of C. A single-lane roundabout would reach capacity after 30 years.

A benefit-cost analysis was conducted for this intersection. Based on the crash data mentioned above, a roundabout would provide a B/C ratio of 3.20. This was based on a project cost of \$1.2 million.

**Other Information:** There are buildings, possibly historic, along Hill Street north of the railroad tracks that restrict sight distance for drivers on Broadway Street. There are also trees in the median of Hill Street that can obscure sight distance.

It was observed while in the field that vehicles from Broadway Street would cross Hill Street in a two stage crossing, waiting in the median. The median is only 25 feet in width and creates a safety concern for drivers making a two-stage turn.

There is a LCI project for Hill Street (PI # 0010333) proposing a road diet. The road diet would reduce the number of through lanes for Hill Street from 4 to 2 with bike lanes. The project extends from downtown Griffin north through the intersection with Broadway Street.

**Conclusion:** Based on the information collected, a traffic signal is justified at this location. A traffic signal would provide operational improvements for State Route 155/Broadway Street with minimal impact to the area. Construction of a roundabout could require additional right-of-way impacts to either the railroad or buildings, or both, increasing the cost and reducing the B/C ratio of the roundabout.

**Recommendation:** It is recommended a traffic signal permit be issued to the City of Griffin and installed at this location.

  
\_\_\_\_\_  
Traffic Engineer

  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
District Traffic Engineer

  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
District Engineer

  
\_\_\_\_\_  
Date

\_\_\_\_\_  
State Traffic Engineer

\_\_\_\_\_  
Date

\_\_\_\_\_  
Division Director

\_\_\_\_\_  
Date

Time	Hill St/ SR 155 NB	Hill St SB	Broadway St/ SR 155 WB	Broadway St EB
0:00	24	30	37	6
1:00	20	12	15	5
2:00	12	8	15	4
3:00	17	8	16	5
4:00	37	23	32	13
5:00	105	49	84	29
6:00	185	88	171	45
7:00	226	298	325	67
8:00	259	233	340	37
9:00	231	216	243	47
10:00	278	201	257	57
11:00	289	229	251	70
12:00	303	262	220	56
13:00	310	255	250	64
14:00	376	243	258	77
15:00	395	297	295	97
16:00	389	174	311	69
17:00	411	162	314	83
18:00	311	174	259	73
19:00	293	139	190	50
20:00	134	109	139	48
21:00	126	71	100	36
22:00	90	65	88	23
23:00	2	39	74	12
<b>Total</b>	<b>4,823</b>	<b>3,385</b>	<b>4,284</b>	<b>1,073</b>

# GDOT - District 3

Spalding County  
SR 155/Hill St at SR 155/Broadway St  
February 1, 2016

## Signal Warrants - Summary

### Major Street Approaches

#### Northbound: Hill St/SR 155

Number of Lanes: 1  
Approach Speed: 35  
Total Approach Volume: 4,823

#### Southbound: Hill St

Number of Lanes: 1  
Approach Speed: 35  
Total Approach Volume: 3,385

### Minor Street Approaches

#### Eastbound: Broadway St

Number of Lanes: 1  
Total Approach Volume: 1,073

#### Westbound: Broadway St/SR 155

Number of Lanes: 1  
Total Approach Volume: 4,284

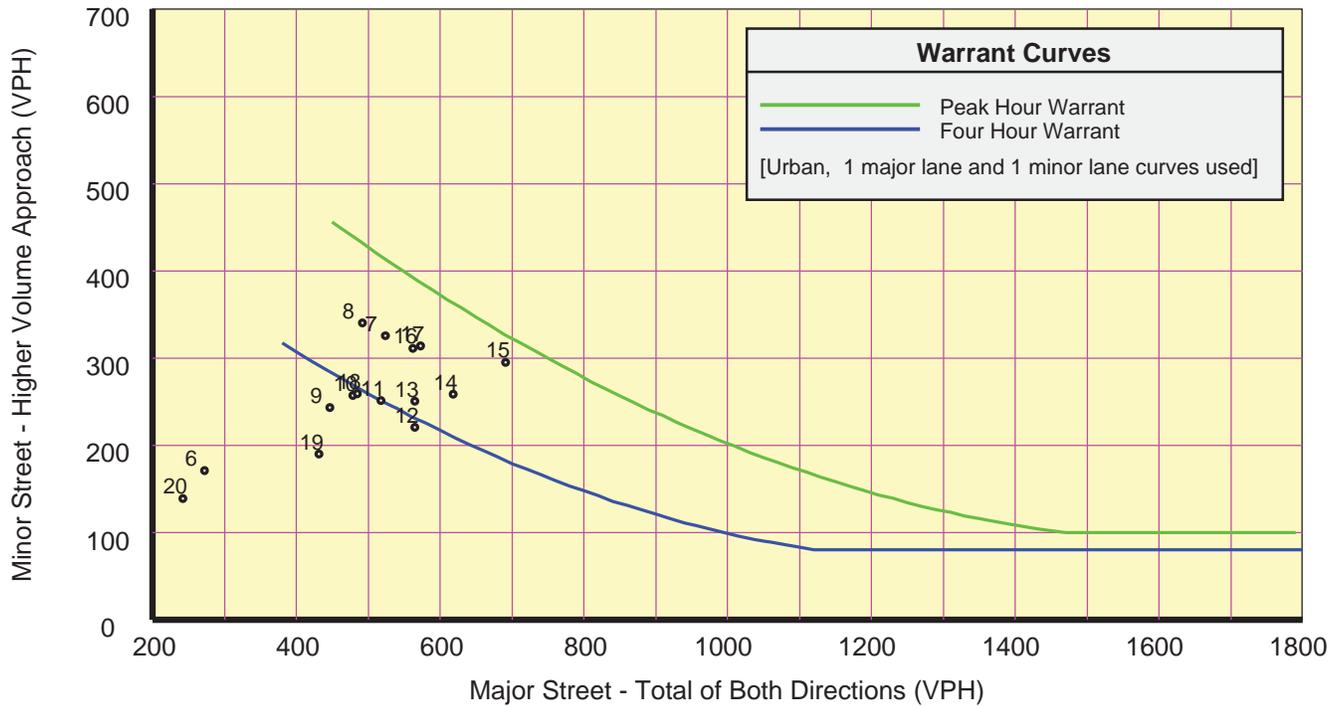
### Warrant Summary (Urban values apply.)

<b>Warrant 1 - Eight Hour Vehicular Volumes</b> .....	<b>Satisfied</b>
<b>Warrant 1A - Minimum Vehicular Volume</b> .....	<b>Satisfied</b>
Required volumes reached for 8 hours, 8 are needed	
<b>Warrant 1B - Interruption of Continuous Traffic</b> .....	<b>Not Satisfied</b>
Required volumes reached for 0 hours, 8 are needed	
<b>Warrant 1 A&amp;B - Combination of Warrants</b> .....	<b>Not Satisfied</b>
Required volumes reached for 2 hours, 8 are needed	
<b>Warrant 2 - Four Hour Volumes</b> .....	<b>Satisfied</b>
Number of hours (8) volumes exceed minimum $\geq$ minimum required (4).	
<b>Warrant 3 - Peak Hour</b> .....	<b>Not Satisfied</b>
<b>Warrant 3A - Peak Hour Delay</b> .....	<b>Not Satisfied</b>
Total approach volumes and delays on minor street do not exceed minimums for any hour.	
<b>Warrant 3B - Peak Hour Volumes</b> .....	<b>Not Satisfied</b>
Volumes do not exceed minimums for any hour.	
<b>Warrant 4 - Pedestrian Volumes</b> .....	<b>Not Satisfied</b>
Required 4 Hr pedestrian volume reached for 0 hour(s) and the single hour volume for 0 hour(s)	
<b>Warrant 5 - School Crossing</b> .....	<b>Not Satisfied</b>
Number of gaps $>$ .0 seconds (0) exceeds the number of minutes in the crossing period (0).	
<b>Warrant 6 - Coordinated Signal System</b> .....	<b>Not Satisfied</b>
Nearest coordinated signal (230) is less than 1,000 feet away.	
<b>Warrant 7 - Crash Experience</b> .....	<b>Satisfied</b>
Number of accidents (8) is more than minimum (5) and volume requirements are met.	
<b>Warrant 8 - Roadway Network</b> .....	<b>Satisfied</b>
Major Route conditions met. Volume requirements met.	

# GDOT - District 3

Spalding County  
SR 155/Hill St at SR 155/Broadway St  
February 1, 2016

## Signal Warrants - Summary



### Analysis of 8-Hour Volume Warrants:

Hour Begin	Major Total	Higher Minor Vol	Dir	War-1A			War-1B			War-1A&B		
				Major Crit	Minor Crit	Meets?	Major Crit	Minor Crit	Meets?	Major Crit	Minor Crit	Meets?
00:00	54	37	WB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
01:00	32	15	WB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
02:00	20	15	WB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
03:00	25	16	WB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
04:00	60	32	WB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
05:00	154	84	WB	500-No	150-No	---	750-No	75-Yes	Minor	600-No	120-No	---
06:00	273	171	WB	500-No	150-Yes	Minor	750-No	75-Yes	Minor	600-No	120-Yes	Minor
07:00	524	325	WB	500-Yes	150-Yes	Both	750-No	75-Yes	Minor	600-No	120-Yes	Minor
08:00	492	340	WB	500-No	150-Yes	Minor	750-No	75-Yes	Minor	600-No	120-Yes	Minor
09:00	447	243	WB	500-No	150-Yes	Minor	750-No	75-Yes	Minor	600-No	120-Yes	Minor
10:00	479	257	WB	500-No	150-Yes	Minor	750-No	75-Yes	Minor	600-No	120-Yes	Minor
11:00	518	251	WB	500-Yes	150-Yes	Both	750-No	75-Yes	Minor	600-No	120-Yes	Minor
12:00	565	220	WB	500-Yes	150-Yes	Both	750-No	75-Yes	Minor	600-No	120-Yes	Minor
13:00	565	250	WB	500-Yes	150-Yes	Both	750-No	75-Yes	Minor	600-No	120-Yes	Minor
14:00	619	258	WB	500-Yes	150-Yes	Both	750-No	75-Yes	Minor	600-Yes	120-Yes	Both
15:00	692	295	WB	500-Yes	150-Yes	Both	750-No	75-Yes	Minor	600-Yes	120-Yes	Both
16:00	563	311	WB	500-Yes	150-Yes	Both	750-No	75-Yes	Minor	600-No	120-Yes	Minor
17:00	573	314	WB	500-Yes	150-Yes	Both	750-No	75-Yes	Minor	600-No	120-Yes	Minor
18:00	485	259	WB	500-No	150-Yes	Minor	750-No	75-Yes	Minor	600-No	120-Yes	Minor
19:00	432	190	WB	500-No	150-Yes	Minor	750-No	75-Yes	Minor	600-No	120-Yes	Minor
20:00	243	139	WB	500-No	150-No	---	750-No	75-Yes	Minor	600-No	120-Yes	Minor
21:00	197	100	WB	500-No	150-No	---	750-No	75-Yes	Minor	600-No	120-No	---
22:00	155	88	WB	500-No	150-No	---	750-No	75-Yes	Minor	600-No	120-No	---
23:00	41	74	WB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---

**GDOT - District 3**  
 Spalding County  
 SR 155/Hill St at SR 155/Broadway St  
 February 1, 2016  
 (SR 155 NB and WB as the major street)

**Signal Warrants - Summary**

**Major Street Approaches**

**Northbound: Hill St/SR 155**

Number of Lanes: 1  
 Approach Speed: 35  
 Total Approach Volume: 4,823

**Southbound: Broadway St/SR 155**

Number of Lanes: 1  
 Approach Speed: 35  
 Total Approach Volume: 4,284

**Minor Street Approaches**

**Eastbound: Broadway St**

Number of Lanes: 1  
  
 Total Approach Volume: 1,073

**Westbound: Hill St**

Number of Lanes: 1  
  
 Total Approach Volume: 3,385

**Warrant Summary (Urban values apply.)**

<b>Warrant 1 - Eight Hour Vehicular Volumes</b> .....	<b>Satisfied</b>
<b>Warrant 1A - Minimum Vehicular Volume</b> ..... <b>Satisfied</b>	
Required volumes reached for 11 hours, 8 are needed	
<b>Warrant 1B - Interruption of Continuous Traffic</b> ..... <b>Not Satisfied</b>	
Required volumes reached for 0 hours, 8 are needed	
<b>Warrant 1 A&amp;B - Combination of Warrants</b> ..... <b>Not Satisfied</b>	
Required volumes reached for 4 hours, 8 are needed	
<b>Warrant 2 - Four Hour Volumes</b> .....	<b>Satisfied</b>
Number of hours (6) volumes exceed minimum $\geq$ minimum required (4).	
<b>Warrant 3 - Peak Hour</b> .....	<b>Not Satisfied</b>
<b>Warrant 3A - Peak Hour Delay</b> ..... <b>Not Satisfied</b>	
Total approach volumes and delays on minor street do not exceed minimums for any hour.	
<b>Warrant 3B - Peak Hour Volumes</b> ..... <b>Not Satisfied</b>	
Volumes do not exceed minimums for any hour.	
<b>Warrant 4 - Pedestrian Volumes</b> .....	<b>Not Satisfied</b>
Required 4 Hr pedestrian volume reached for 0 hour(s) and the single hour volume for 0 hour(s)	
<b>Warrant 5 - School Crossing</b> .....	<b>Not Satisfied</b>
Number of gaps $>$ .0 seconds (0) exceeds the number of minutes in the crossing period (0).	
<b>Warrant 6 - Coordinated Signal System</b> .....	<b>Not Satisfied</b>
Nearest coordinated signal (230) is less than 1,000 feet away.	
<b>Warrant 7 - Crash Experience</b> .....	<b>Satisfied</b>
Number of accidents (8) is more than minimum (5) and volume requirements are met.	
<b>Warrant 8 - Roadway Network</b> .....	<b>Satisfied</b>
Major Route conditions met. Volume requirements met.	

# GDOT - District 3

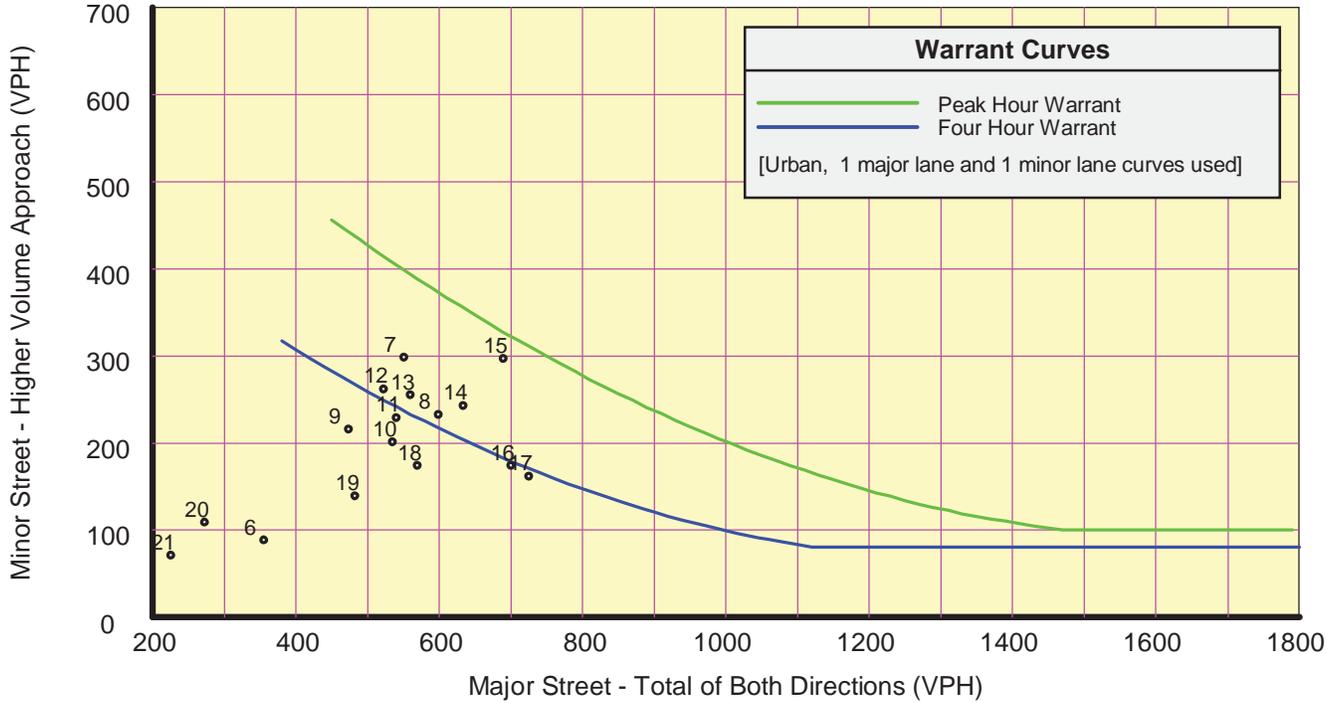
Spalding County

SR 155/Hill St at SR 155/Broadway St

February 1, 2016

(SR 155 NB and WB as the major street)

## Signal Warrants - Summary



### Analysis of 8-Hour Volume Warrants:

Hour Begin	Major Total	Higher Minor Vol	Dir	War-1A			War-1B			War-1A&B		
				Major Crit	Minor Crit	Meets?	Major Crit	Minor Crit	Meets?	Major Crit	Minor Crit	Meets?
00:00	61	30	WB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
01:00	35	12	WB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
02:00	27	8	WB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
03:00	33	8	WB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
04:00	69	23	WB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
05:00	189	49	WB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
06:00	356	88	WB	500-No	150-No	---	750-No	75-Yes	Minor	600-No	120-No	---
07:00	551	298	WB	500-Yes	150-Yes	Both	750-No	75-Yes	Minor	600-No	120-Yes	Minor
08:00	599	233	WB	500-Yes	150-Yes	Both	750-No	75-Yes	Minor	600-No	120-Yes	Minor
09:00	474	216	WB	500-No	150-Yes	Minor	750-No	75-Yes	Minor	600-No	120-Yes	Minor
10:00	535	201	WB	500-Yes	150-Yes	Both	750-No	75-Yes	Minor	600-No	120-Yes	Minor
11:00	540	229	WB	500-Yes	150-Yes	Both	750-No	75-Yes	Minor	600-No	120-Yes	Minor
12:00	523	262	WB	500-Yes	150-Yes	Both	750-No	75-Yes	Minor	600-No	120-Yes	Minor
13:00	560	255	WB	500-Yes	150-Yes	Both	750-No	75-Yes	Minor	600-No	120-Yes	Minor
14:00	634	243	WB	500-Yes	150-Yes	Both	750-No	75-Yes	Minor	600-Yes	120-Yes	Both
15:00	690	297	WB	500-Yes	150-Yes	Both	750-No	75-Yes	Minor	600-Yes	120-Yes	Both
16:00	700	174	WB	500-Yes	150-Yes	Both	750-No	75-Yes	Minor	600-Yes	120-Yes	Both
17:00	725	162	WB	500-Yes	150-Yes	Both	750-No	75-Yes	Minor	600-Yes	120-Yes	Both
18:00	570	174	WB	500-Yes	150-Yes	Both	750-No	75-Yes	Minor	600-No	120-Yes	Minor
19:00	483	139	WB	500-No	150-No	---	750-No	75-Yes	Minor	600-No	120-Yes	Minor
20:00	273	109	WB	500-No	150-No	---	750-No	75-Yes	Minor	600-No	120-No	---
21:00	226	71	WB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
22:00	178	65	WB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
23:00	76	39	WB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---

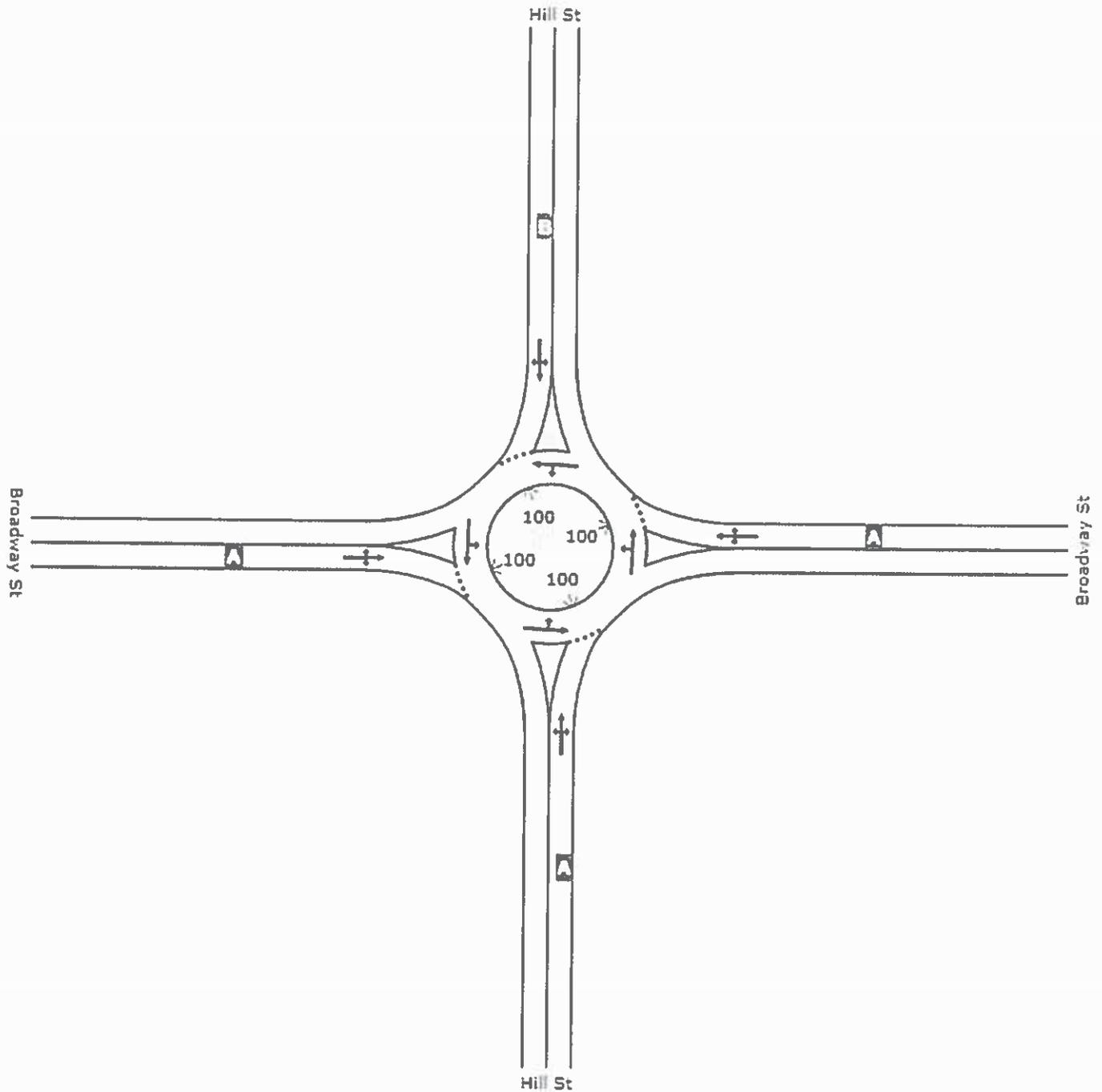
# LEVEL OF SERVICE

Site: Roundabout AM

Existing stop control

Roundabout

Design Life Analysis (Practical Capacity): Results for 20 years



	South	East	North	West	Intersection
LOS	A	A	B	A	A

Level of Service (LOS) Method: Delay & v/c (HCM 2010).

Roundabout LOS Method: Same as Sign Control.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).

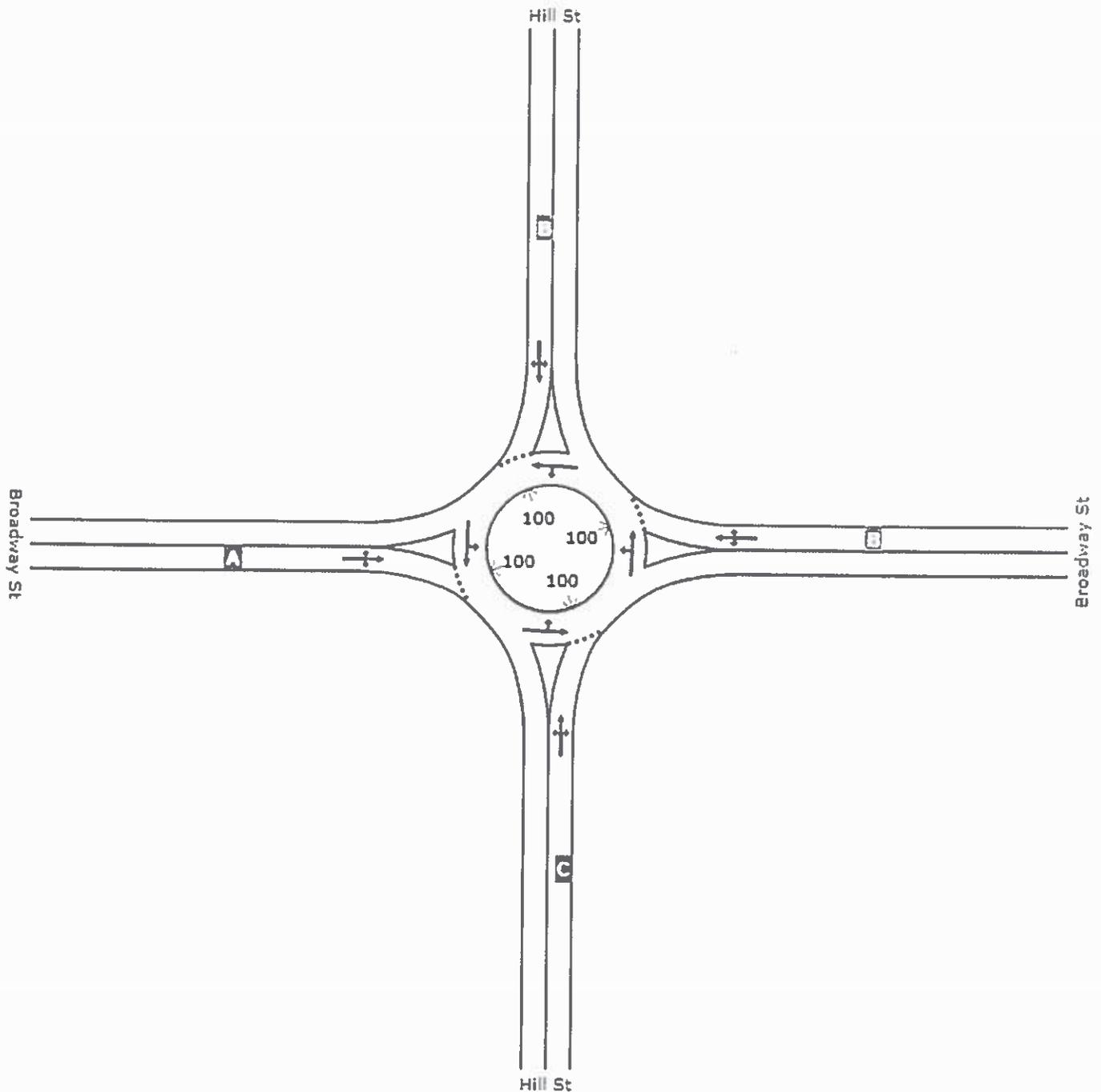
# LEVEL OF SERVICE

Site: Roundabout PM

Existing stop control

Roundabout

Design Life Analysis (Practical Capacity): Results for 20 years



	South	East	North	West	Intersection
LOS	C	B	B	A	B

Level of Service (LOS) Method: Delay & v/c (HCM 2010).

Roundabout LOS Method: Same as Sign Control.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).

sum: Injuries Fatalities PDO

9 0 23

Crash Type	5 Year Avg. Crashes	Value Satisfical Life	Reduction	Total
Fatal: 0.0		\$9,100,000.00	0.8	\$0.00
Injury: 1.8		\$523,250.00	0.8	\$753,480.00
PDO: 4.6		\$7,531.07	0.42	\$14,550.03
		Benefit per Year		\$768,030.03
		5 Year Benefit		\$3,840,150.13
		Estimated Project Cost		\$ 1,200,000.00
		Roundabout b:c		3.20

**ATTACHMENT 7 – MS4 CONCEPT LEVEL ASSESSMENT**



## POST-CONSTRUCTION STORMWATER REPORT

PI Number:	0013295	Submittal Date:	-
Project Name:	SR 155@CS 1020/N HILL ST	Consultant:	N/A
City/County:	Spalding	Let Date:	01/17/19
District:	3	Contact Info:	N/A

**Milestone Submittal:**       CONCEPT       PFPR       FFPR

### General Project Information:

Is there a Project Level Exclusion that applies to this project:     Yes     No

If yes, please indicate which of the following exclusions apply:

- Roadway not owned or operated by GDOT
- Project not located within an MS4 area
- Maintenance or safety project (multiple unconnected sites disturbing < 1 acre)
- Project with environmental documents approved or R/W plans submitted on or before June 30th, 2012
- Road project disturbing < 1 acre or site development project adding < 5,000 ft<sup>2</sup> of impervious area

Is there an Outfall Level Exclusion that applies to this project:     Yes     No

If yes, please indicate in Attachments B and C

<b>Disturbed Area of Site:</b>	0.54	acres
<b>Impervious Area Added:</b>	2,300	sq. ft
<b>Net Length of Project:</b>	0.25	miles
<b>Existing Cross-Section:</b>	-	
<b>Proposed Cross-Section:</b>	-	
<b>ADT (Design Year)"</b>	18,600	

### Submittal Requirements:

Yes / No

- GDOT LID / GI Checklist (Attachment A)
- GDOT Post-Construction BMP Summary (Attachment B)
- MS4 Infeasibility & Outfall Level Exclusion Report (Attachment C)
- Milestone Plan Submittal Checklist (Attachment D)

# **ATTACHMENT 8 – PRELIMINARY PAVEMENT DESIGN**

## Flexible Pavement Design Analysis

<b>PI Number</b>	0013295	<b>County(s)</b>	Spalding
<b>Project Number</b>	-	<b>Design Name</b>	Full Depth
<b>Project Description</b>	SR 155 @ CS 1020 N Hill St		

Traffic Data (AADTs are one-way)					Miscellaneous Data		
<b>Initial Design Year</b>	2017	<b>Initial AADT, VPD</b>	7,725	<b>24 Hour Truck %</b>	5.00	<b>Lanes in one direction</b>	1
<b>Final Design Year</b>	2037	<b>Final AADT, VPD</b>	9,400	<b>SU Truck %</b>	3.50	<b>Curb &amp; Gutter/Barrier</b>	Yes
		<b>Mean AADT, VPD</b>	8,563	<b>MU Truck %</b>	1.50		

Design Data					
<b>Lane Distribution Factor (%)</b>	100.00	<b>Soil Support Value</b>	2.50	<b>Single Unit ESAL</b>	0.40
<b>Terminal Serviceability Index</b>	2.50	<b>Regional Factor</b>	1.60	<b>Multiple Unit ESAL</b>	1.50
		<b>User Defined 18-KIP ESAL</b>	0.00	<b>Calculated 18-KIP ESAL</b>	0.73
<b>Non-Standard Value Comment</b>					

Design Loading (Calculated 18-KIP ESAL)					
<b>Mean AADT, VPD</b>	<b>LDF (%)</b>	<b>Vehicle Type</b>	<b>Volume (%)</b>	<b>ESAL Factor</b>	<b>Daily ESAL</b>
8,563	100.00	Single Unit Truck	3.50	0.40	120
		Multi Unit Truck	1.50	1.50	193
<b>Total Daily ESALs</b>					313
<b>Total Design Period ESALs</b>					2,284,900

Proposed Flexible Full Depth Pavement Structure				
<b>Course</b>	<b>Material</b>	<b>Thickness (inches)</b>	<b>Structural Coefficient</b>	<b>Structural Value</b>
Course 1	12.5 mm Superpave	1.50	0.4400	0.66
Course 2	19 mm Superpave	2.00	0.4400	0.88
Course 3	25 mm Superpave	1.00	0.4400	0.44
		5.00	0.3000	1.50
Course 4	Graded Aggregate Base	12.00	0.1600	1.92
<b>Required SN</b>	5.12	<b>Proposed pavement is 5.49% Overdesigned</b>		<b>Proposed SN</b>
				5.40

<b>Design Remarks</b>	Matching pavement section for neighboring project PI 0010333
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<b>Prepared By</b>	Daniel Trevorrow Civil Engineer 2	4/29/2016 3:32 PM
	Date	
<b>Recommended By</b>	State Roadway Design Engineer	Date
	Date	
<b>Approved By</b>	State Pavement Engineer	Date
	Date	

# **ATTACHMENT 9 – MINUTES OF CONCEPT MEETING**



**SUBJECT: Concept Meeting – Spalding 0013295 – SR 155 @ CS 1020/North Hill St.**

**MEETING DATE: 3/31/2016**

**LOCATION: District 3 Office, Thomaston, GA**

**MEETING PARTICIPANTS:**

Name	Organization	Phone	Email
BJ Martin	Paragon	678-341-4701	bmartin@pcgeng.com
Justin A. Banks	GDOT – Program Delivery	404-631-1153	jubanks@dot.ga.gov
Krystal Stovall-Dixon	GDOT – Program Delivery	404-631-1572	kstovall-dixon@dot.ga.gov
Elliott Robertson	GDOT – Environmental Services	404-631-1190	erobertson@dot.ga.gov
Cayley Champeau	GDOT – Environmental Services	404-631-1060	cchampeau@dot.ga.gov
David English	GDOT – Engineering Services	706-646-7577	denglish@dot.ga.gov
Gene McKissick	GDOT – District 3 Utilities	706-646-7604	gmckissick@dot.ga.gov
Greg Smith	GDOT – District 3 Utilities	706-646-7605	grsmith@dot.ga.gov
Patrick Weaver	GDOT – District 3 Traffic Operations	706-646-7636	pweaver@dot.ga.gov
Chance Baxley	GDOT – District 3 Traffic Operations	706-646-7589	cbaxley@dot.ga.gov
Tyler Peek	GDOT – District 3 Traffic Operations	706-646-7591	tpeek@dot.ga.gov
JD Stallings	GDOT – District 3 Right of Way	706-646-7558	jstallings@dot.ga.gov
Adam Smith	GDOT – District 3 Preconstruction	706-621-9704	adsmith@dot.ga.gov
Jack Reed	GDOT – District 3 Planning/Programming	706-741-3627	jreed@dot.ga.gov
David Taylor	GDOT – District 3 Location	706-646-7582	dataylor@dot.ga.gov
Jason Mobley	GDOT – District 3 Design	404-646-7571	jmobley@dot.ga.gov
Jim Hoskins	GDOT – District 3 Design	706-646-7574	jhoskins@dot.ga.gov
Sheldon Minor	GDOT – District 3 Construction	706-646-7509	sminor@dot.ga.gov
Kimberly Larson	GDOT – District 3 Communications	706-741-3439	klarson@dot.ga.gov

**MEETING SUMMARY**

- Opening - Justin Banks, GDOT Project Manager, began the meeting with introductions.
- Concept Discussion - Jim Hoskins, GDOT Roadway Designer, presented the project need, existing conditions, alternatives considered, and the proposed solution. The following issues were discussed:
  - Cayley Champeau stated almost everything the project touched was potentially historic, with many of the trees contributing.
  - Cayley asked if the granite curbing on Hill Street could be worked around. Jim Hoskins stated the curbing could likely be saved.
  - Jason Mobley asked Cayley to provide updated boundaries for inclusion in the report
  - Adam Smith stated the City of Griffin would like a roundabout to be considered. Jason stated Traffic Operations initially eliminated the roundabout from consideration due to the right of way

constraints and historic properties. He also stated the proximity to the railroad, signalized intersections, and coordinated grid network made the roundabout less desirable. Tyler Peek confirmed the main concern was right of way and that it would be difficult to justify the history impacts. He added that project 10333 would reduce Hill Street to one through lane, potentially increasing the chances that traffic would back up into a proposed roundabout.

- Adam Smith asked if road diet project 10333 was considered in the study. Tyler Peek and Justin Banks stated that it was. Jason Mobley stated updated capacity analysis would be needed with the most recent traffic projections.
- Jason Mobley stated that eliminating left turn lanes could offer many benefits (reduced right of way, fewer water quality requirements, smaller impacts to environmental resources, etc). Tyler Peek recommended keeping the left turn lanes, noting signal phasing complications and lack of opportunities to improve the intersection if future traffic increased. He stated the Office of Traffic Operations also supported keeping the left turn lanes.
- Gene McKissick expressed concerns with the construction limits pushing out the aerial utility lines. Adam Smith asked if any utilities were being relocated with the adjacent project. Justin Banks stated there were no relocations. Gene requested all easements be permanent with the right to place utilities. Jason Mobley stated that might depend on the railroad's requirements.
- Jason Mobley stated easements could be reduced.
- Tyler suggested 11' lanes be considered. Jason Mobley stated the existing 12' lanes may have resulted from paving over the gutters.
- Tyler Peek recommended removing sidewalks from railroad side.
- Jason Mobley asked if eliminating curb was possibility. Gene McKissick stated that could create a clear zone problem with the aerial utility line. Jason Mobley stated a design variance could be considered if it meant protecting environmental resources or railroad interests.
- Jason Mobley mentioned it would likely be infeasible to implement water quality BMP's due to the environmental constraints. BJ Martin suggested coordinating with the City of Griffin and their water quality program. He also suggested that the reduced impervious area with project 10333 could provide water quality mitigation for this project.
- Jim Hoskins stated we would attempt to match existing mast arms in accordance with Context Sensitive Design.
- Justin Banks stated there would be no PIOH. He stated we would present the concept at Spalding County's upcoming TCC meeting instead. Jason Mobley stated the TMP would need to be corrected to show no PI.
- Adam Smith asked if the projects could be in the same CE. Elliot Robertson stated project 10333 was a PCE.
- Elliot Robertson stated just assume negligible mitigation costs for history and environmental.
- Closing - Justin concluded the meeting with a risk analysis question-and-answer session with each unit.
- Post-meeting – The following comments were submitted by District Traffic Operations via email:

Page numbers based on report handed out at meeting.

Include SR 155 in project description

Page 4

**Project Justification Statement**

SR 155/ **East Broadway** Street is a two lane urban minor arterial that that runs east/ west through the city of Griffin. At the intersection of **East Broadway** Street at North Hill Street, SR155 turns **left/south** and becomes a four lane divided urban minor arterial with diagonal on street parking.

Existing Conditions

**Existing Conditions**

Is "LCI Project 0010333 will replace and upgrade the gas and sewer as needed" necessary?

Page 5

**Complete Streets**

Project 0010333 in conjunction with project **0013295** will provide a 15-foot wide shared lanes for both automobiles and bicycles. The project will also add pedestrian level lighting, decorative sign posts, landscaping, handicapped access ramps, bicycle racks, and improved cross walks. The project improvements includes amenities, such as benches and trash receptacles.

**Description of Project**

The proposed project improves an operationally deficient intersection. This project will **change the stop controlled intersection to a traffic signal**. Broadway Street is being widened that will include **a left turn lane in each direction**. The project is located in downtown Griffin. The proposed project is approximately a quarter mile.

Page 6

Broadway Street (East Approach), would 5 ft sidewalks be sufficient?

Page 7

Hill Street also has parallel parking.

Page 8

**Lighting Required**

Is lighting necessary?

**Design Exceptions**

FHWA/AASHTO Controlling Criteria	No	<b>Undeter- mined</b>	Yes	Appvl Date (if applicable)
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Page 9

**Railroad**

Is the railroad Norfolk Southern or Central of Georgia RR?

**Right-of-Way**

Verify the existing and proposed widths for East and West Broadway Street are correct.

**Context Sensitive Solutions**

Project 0010333 in conjunction with project 0013295 will provide a 15-foot wide shared lanes for both automobiles and bicycles. The project will also add pedestrian level lighting, decorative sign posts, landscaping, handicapped access ramps, bicycle racks, and improved cross walks. The project improvements includes amenities, such as benches and trash receptacles.

Page 11

**Major stakeholders**

Should railroad be listed here as well?

Page 12

**Project Cost Estimate**

\*\* includes Railroad cost of \$488,000

**No-Build Alternative Rationale**

Due to 2014 LOS = F, this alternative is not recommended.

# **ATTACHMENT 10 – CONCEPT LEVEL RISK ASSESSMENT**

**Risk Breakdown Structure (RBS)**

Bridge Design	Construction	Design Policy	District	Environmental	OMAT	Project Management	Roadway Design	Right Of Way	Traffic Operation	Utilities	Risk Legend
Hydraulic Issues.	Constructability Issues.	Survey Availability Issues.	Local Government Support.	Major Natural Environment Issues.	Project is at Areas with less than Desirable Soil.	Funding Issues.	Geometric Issues.	Project in Residential Area.	Safety Issues.	Railroad Involvement.	Low
Structural or Foundation Issues.	Access Issues.	Erosion Control Issues.	Local Stakeholder (citizens) Support.	Major Human Environment Issues.	Pavement Design Issues.	Schedule Issues.	Potential Drainage Issues.	Project in Commercial Area.	Traffic Signal Justifications or Permits.	Major Utilities.	Medium Low
Constructability Issues.	Issues with Payment.	MS4 Issues.	Coordination Among different Entities.	Significant Coordination Issues.		Scope Issues.	Traffic Analysis or Capacity Issues.	Access Issues in the Project Corridor.	New Equipment.	Relocation of Major Utilities.	Medium
Environmental Issues.				Significant Time Constraints for Studies or Permits.			Utility Conflict Issues.	Displacement Issues in the Project Corridor.		Known Utility Coordination Issues.	Medium High
				Environmental Impact Statement (EIS).			Staging or Constructability Issues.	Properties with Potential Contaminated Soils.		SUE or PID.	High
								Environmental Issues.			

**ATTACHMENT 11 – SIGNED INDICATION OF SUPPORT FOR  
STREETSCAPE/ENHANCEMENT LIGHTING FOR PI 0010333**

DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA

**INDICATION OF SUPPORT**  
*STREETScape/ENHANCEMENT LIGHTING*

Georgia Department of Transportation  
Office of Design Policy & Support  
One Georgia Center ~ 26<sup>th</sup> Floor  
600 West Peachtree Street, NW  
Atlanta, Georgia 30308  
ATTN: Scott MacLean, Lead Design Engineer

**Location**

The City of Griffin supports the consideration of streetscape/enhancement Lighting at the location specified below.

Description: North Hill Street; Soloman Street & 5<sup>th</sup> Street in downtown Griffin - LCI

State/County Route Numbers: (see above)

Project: P.I. No. 0010333 ~ Spalding County

**Associated Conditions**

The undersigned agrees to participate in the following maintenance:

- The full and entire cost to energize the installed Lighting systems and to provide for the operation/maintenance thereof.

We agree to participate in a formal *Local Government Lighting Project Agreement* during the preliminary design phase. This Indication of Support is submitted and all the conditions are hereby agreed to. The undersigned are duly authorized to execute this agreement.

This 13<sup>th</sup> day of MARCH, 2015

Attest:

Deresa A. Watson  
City Clerk

By: [Signature]

Title: CITY MANAGER

