

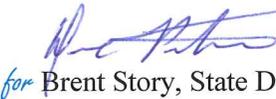
**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

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

FILE P.I. # 721000-
STP00-0189-01(010)
Fulton & Gwinnett Counties
GDOT Districts 1 & 7
SR 120/Abbotts Bridge Road
Widening & Improvements
from SR 141 to Peachtree Industrial Blvd.

OFFICE Design Policy & Support

DATE 7/23/2015

FROM  for Brent Story, State Design Policy Engineer

TO SEE DISTRIBUTION

SUBJECT APPROVED CONCEPT REPORT

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

Attachment

DISTRIBUTION:

Glenn Bowman, Director of Engineering
Joe Carpenter, Director of P3/Program Delivery
Genetha Rice-Singleton, Assistant Director of P3/Program Delivery
Albert Shelby, State Program Delivery Engineer
Darryl VanMeter, State Innovative Delivery Engineer
Bobby Hilliard, Program Control Administrator
Cindy VanDyke, State Transportation Planning Administrator
Hiral Patel, State Environmental Administrator
Ben Rabun, State Bridge Engineer
Andrew Heath, State Traffic Engineer
Angela Robinson, Financial Management Administrator
Lisa Myers, State Project Review Engineer
Charles "Chuck" Hasty, State Materials Engineer
Lee Upkins, State Utilities Engineer
Richard Cobb, Statewide Location Bureau Chief
Brent Cook & Kathy Zahul, District Engineers
Brandon Kirby & Scott Lee, District Preconstruction Engineers
Robbie Oliver & Patrick Allen, District Utilities Engineer
Peter Emmanuel, Project Manager
BOARD MEMBER - 6th & 7th Congressional Districts

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

Project Type: Widening P.I. Number: 721000
 GDOT District: 1,7 County: Fulton / Gwinnett
 Federal Route Number: N/A State Route Numbers: 120, 141
 Project Number: STP00-0189-01(010)

** UPDATED POST OFFICE HEAD REVIEW*

The proposed project would widen State Route (SR) 120/Abbotts Bridge Road from SR 141/Medlock Bridge Road to Peachtree Industrial Boulevard from two to four through lanes. The total project length is approximately 2.5 miles, which includes a 1500' tie-in to SR 120 west of SR 141 and a 1000' tie-in east of Peachtree Industrial Boulevard. The existing bridge over the Chattahoochee River would be replaced with a 3-span, 4-lane bridge.

Submitted for approval:

[Signature] MURKEY ENGINEERS 6/18/15
 Consultant Designer & Firm Office Date

[Signature] State Program Delivery Engineer 6/23/15
 State Program Delivery Engineer Date

[Signature] KUNT 6/18/15
 GDOT Project Manager Date

Azimeye Aby (former GDOT PM)
 Recommendation for approval: 4-8-15

* *Hiral Patel / KLP* 5-11-15
 State Environmental Administrator Date

* *Andrew Heath / KLP* 4-21-15
 State Traffic Engineer Date

* *Lisa Myers / KLP* 4-16-15
 Project Review Engineer Date

* *Nicholas Fields / KLP* 4-24-15
 State Utilities Engineer Date

District Engineer _____ Date _____

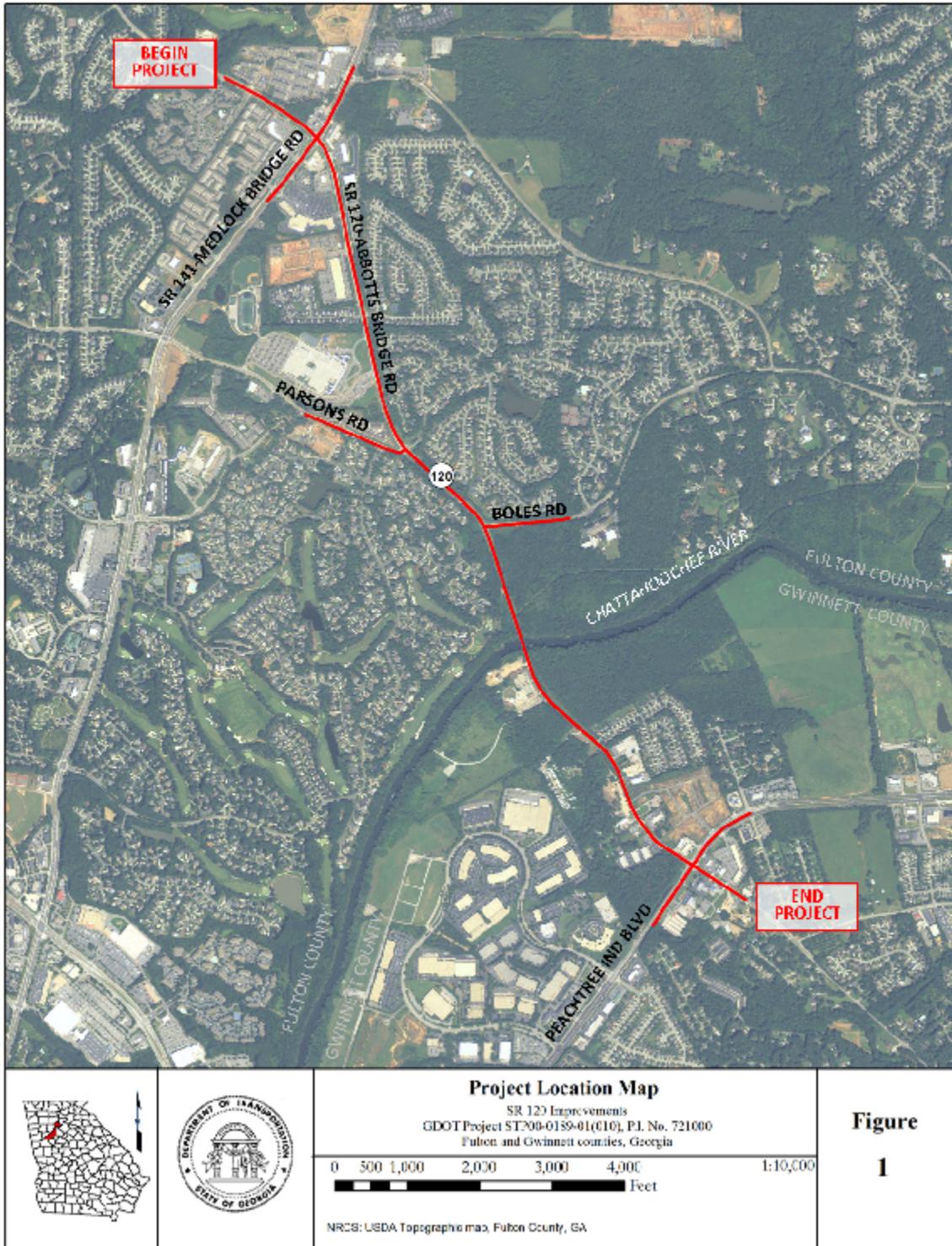
* *Ben Rabun / KLP* 5-4-15
 State Bridge Engineer Date

- 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).

* *Cynthia Van Dyke* 4-20-15
 State Transportation Planning Administrator Date

** Recommendations on file*

PROJECT LOCATION MAP



PLANNING AND BACKGROUND

Project Justification Statement:

Background

This project is identified in the Atlanta Regional Commission's PLAN 2040 Regional Transportation Plan (RTP) and current (FY 2014-2019) Transportation Improvement Program (TIP) as a Roadway/General Purpose Capacity improvement for SR 120 from SR 141/Medlock Bridge Road to Peachtree Industrial Boulevard in Fulton and Gwinnett Counties (ARC TIP ID No. FN-264).

This project was originally programmed in 1991 to widen SR 120 from a two-lane roadway to a four-lane roadway with a 44-foot median from Old Milton Parkway in Fulton County to Peachtree Industrial Boulevard in Gwinnett County. A lack of funding delayed the project for several years, and the project was ultimately split into several Project ID numbers. The City of Johns Creek has sponsored the re-programming of these projects, and this project retained the original Project ID No. 721000.

In March 2011, the GDOT Office of Planning recommended that Project ID No. 721000 be programmed as SR 120 from Parsons Rd to Peachtree Industrial Boulevard, widening two to four lanes (with possible operational improvements between SR 141 and Parsons Rd). In August 2013, the City of Johns Creek requested that ARC change the limits from Parsons Road to Peachtree Industrial Boulevard to Medlock Bridge Road to Peachtree Industrial Boulevard. The City reprogrammed the project, as there is a large amount of traffic to and from SR 120 that travels to the SR 141 intersection to then access points north, including the Johns Creek Technology Park.

The SR 120 corridor is included as part of an identified east-west corridor in the Atlanta Strategic Truck Route Master Plan¹ (ASTRoMaP), as well as the Regional Thoroughfare Network (RTN) and Regional Strategic Transportation System (RSTS).² However, the corridor is not on the National Highway System (NHS) or on the Strategic Highway Network (STRAHNET). The truck percentage along this route is estimated to be three percent (3%).³

The project corridor from Medlock Bridge Road to the Chattahoochee River is also identified in the Johns Creek Transportation Master Plan as part of the city's multi-use trail and sidewalk network.⁴

Other projects in the vicinity include proposed (long range) operational improvements and pedestrian connectivity on SR 120 from Parsons Road (West) to SR 141/Medlock Bridge Road (PI 0012788, ARC RTP ID No. FN-287), as well as operational improvements to the intersection of SR 120 and SR 141/Medlock Bridge Road (P.I. 0007061), which were recently completed.

Existing and Projected Traffic Volumes

Current (2014) traffic on the roadway segments between the proposed termini on SR 120 operate at Level of Service (LOS) E. Design year (2042) traffic along SR 120 under the no build condition is anticipated to operate at LOS F, compared to LOS B or C under the build condition. Based on the traffic analysis, capacity and/or operational deficiencies exist along the SR 120 corridor from SR 141 (Medlock Bridge Road) to Peachtree Industrial Boulevard, where predicted

¹ Atlanta Regional Commission, Atlanta Strategic Truck Route Master Plan (ASTRoMaP), June 2009.

² Atlanta Regional Commission, Strategic Regional Thoroughfare Plan, January 2012.

³ Wilburn Engineering, Traffic Study - SR 120 (Abbotts Bridge Road) Widening - PI 72100, April 2014.

⁴ City of Johns Creek, Comprehensive Plan 2009-2030, November 2008.

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future no build LOS is F. Existing, no build, and build traffic volumes and levels of service for roadway segments within the proposed termini are summarized in Table 1.

Table 1: Existing, No Build, and Build Condition AADT and LOS for Road Segments in the Proposed Termini⁵

Road Segment	Annual Average Daily Traffic (AADT)/Level of Service (LOS)				
	Existing (2014)	Build Year (2022)		Design Year (2042)	
		No Build	Build	No Build	Build
SR 120 - Medlock Bridge to Parsons	19,700 / E	21,700 / E	23,300 / B	26,150 / F	30,900 / B
SR 120 - Parsons to Boles	24,400 / E	27,000 / E	29,100 / B	32,800 / F	39,050 / C
SR 120 - Boles to Peachtree Industrial	25,850 / E	28,600 / E	30,850 / B	34,750 / F	41,400 / C

Existing peak hour levels of service at the Medlock Bridge Road and Peachtree Industrial Boulevard intersections are LOS E and F, respectively. In the design year, LOS at the Medlock Bridge Road and Peachtree Industrial Boulevard intersections is LOS F under both the build and no build scenarios. Existing peak hour levels of service at the Northview High School, Parsons Road, and Boles Road intersections are LOS F. In the design year, intersection LOS during peak hours at these three intersections ranges from LOS A to C under the build scenario, compared to LOS F under the no build scenario.

Existing, no build, and build levels of service for intersections within the proposed termini are summarized in Table 2.

Table 2: Existing, No Build, and Build Condition LOS for Intersections within the Proposed Termini⁶

Intersection	Existing Year		Build Year				Design Year			
	No Build		No Build		Build		No Build		Build	
	AM LOS	PM LOS	AM LOS	PM LOS	AM LOS	PM LOS	AM LOS	PM LOS	AM LOS	PM LOS
SR 120 at Medlock Bridge	E (67.7)	E (68.2)	F (96.4)	F (111.2)	E (74.5)	F (84.2)	F (139.9)	F (172.0)	F (157.6)	F (189.9)
SR 120 at Northview HS	F (97.8)	F (91.7)	F (147.9)	F (124.1)	C (20.2)	A (6.7)	F (279.3)	F (265.9)	C (25.4)	A (8.8)
SR 120 at Parsons	F (258.3)	F (158.0)	F (310.8)	F (304.6)	B (17.8)	B (13.2)	F (448.5)	F (487.9)	C (20.4)	B (14.3)
SR 120 at Boles	F (207.3)	F (288.4)	F (289.9)	F (355.1)	C (22.0)	B (15.3)	F (419.3)	F (505.7)	C (28.1)	C (21.7)
SR 120 at Peachtree Ind.	F (101.1)	F (92.4)	F (130.3)	F (118.8)	F (102.1)	F (104.6)	F (186.0)	F (189.4)	F (205.3)	F (221.0)

⁵ Wilburn Engineering, Traffic Study - SR 120 (Abbotts Bridge Road) Widening - PI 72100, April 2014.

⁶ Ibid.

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Current (2014) traffic on the roadway segments just beyond the proposed termini on SR 120 operate at Level of Service (LOS) D. In the design year (2042), no build and build traffic volumes west and east of the proposed termini decrease by approximately 35 percent and 48 percent, respectively. Design year traffic beyond the proposed termini on SR 120 is anticipated to operate at LOS E under both the no build and build scenarios.

Existing, no build, and build traffic volumes and levels of service for roadway segments just outside the proposed termini are summarized in Table 3.

Table 3: Existing, No Build, and Build AADT and LOS for Segments Outside the Proposed Termini⁷

Roadway Segment	Annual Average Daily Traffic (AADT)/Level of Service (LOS)		
	Existing (2014)	Design Year (2042)	
		No Build	Build
SR 120 west of Medlock Bridge	13,200 / D	17,000 / E	19,750 / E
SR 120 east of Peachtree Industrial	13,400 / D	18,200 / E	21,750 / E

Crash Data

Crash data for the study area was obtained for the most recent four-year period (2010-2013). Data was collected for SR 120 from Peachtree Industrial Boulevard to Parsons Road and from Parsons Road to SR 141/Medlock Bridge Road. Crash rates were calculated for each of the three sections and compared to the statewide averages for similar facilities during the same four-year period (see Tables 4 and 5).

Table 4: SR 120 Crash History (Peachtree Industrial Boulevard to Parsons Road)⁸

Year	Crashes			Injuries			Fatalities		
	No.	Corridor Rate	Statewide Average	No.	Corridor Rate	Statewide Average	No.	Corridor Rate	Statewide Average
2010	26	217	464	9	75	114	0	0	1.19
2011	54	446	482	15	124	110	0	0	1.10
2012	61	498	476	12	98	118	0	0	1.13
2013	49	396	474*	15	121	114*	0	0	1.14*

- *Derived by averaging the 2010, 2011, and 2012 data, as statewide average for 2013 was unavailable.

Table 5: SR 120 Crash History (Parsons Road to SR 141)⁹

Year	Crashes			Injuries			Fatalities		
	No.	Corridor Rate	Statewide Average	No.	Corridor Rate	Statewide Average	No.	Corridor Rate	Statewide Average
2010	8	135	464	0	0	114	0	0	1.19
2011	7	117	482	1	17	110	0	0	1.10
2012	6	99	476	2	33	118	0	0	1.13
2013	13	213	474*	7	115	114*	0	0	1.14*

- *Derived by averaging the 2010, 2011, and 2012 data, as statewide average for 2013 was unavailable.

⁷ Ibid.

⁸ Ibid.

⁹ Ibid.

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Between 2010 and 2013, a total of 224 crashes with 61 injuries occurred along the SR 120 corridor from Peachtree Industrial Boulevard to SR 141/Medlock Bridge Road. The crash rate for the project corridor is below the statewide average, with one the exception; the crash rate on SR 120 from Peachtree Industrial Boulevard to Parsons Road exceeded the statewide average in 2012. The injury rate from Peachtree Industrial Boulevard to Parsons Road exceeded the statewide average in 2011 and 2013, and the injury rate from Parsons Road to SR 141/Medlock Bridge Road exceeded the statewide average in 2013. There were no fatalities in the project corridor during the four-year period for which data was collected. For the four-year period of available data, rear-end collisions accounted for more than 75 percent of all crashes along SR 120 from Peachtree Industrial Road to SR 141/ Medlock Bridge Road.¹⁰

Multimodal Connectivity

There are no existing bicycle facilities in the project corridor. Existing sidewalks in the corridor are located between Medlock Bridge Road and Parsons Road, and near the Peachtree Industrial Boulevard intersection. There is a gap in the middle of the corridor where no sidewalks exist, creating a lack of pedestrian access and connectivity throughout the corridor. The Abbotts Bridge unit of the Chattahoochee River National Recreation Area (CRNRA) is located south of the SR 120/Chattahoochee River Bridge, including a boat launch. Pedestrian and bicycle access to the park are not available in the project corridor.

Bridge Typical Section

The existing bridge on SR 120 over the Chattahoochee River lacks shoulders, built in 1959. The lack of shoulder width on the bridge makes it difficult to avoid a crash or object on the roadway ahead. In addition, the lack of shoulders provides inadequate space for storage of disabled vehicles, emergency response, or maintenance activities. In addition, the bridge does not accommodate pedestrians or bicyclists.

Project Justification

There are capacity and operational deficiencies along the SR 120 corridor from Peachtree Industrial Boulevard to SR 141/Medlock Bridge Road where LOS is anticipated to be F in the future no build conditions (2042), while accommodating up to 34,750 vehicles per day. This section of the SR 120 corridor should be considered for capacity improvements to address the anticipated capacity deficiency of LOS F, as well as to address the need to reduce the frequency of crashes along this segment.

For the most part, the crash rate for the project corridor is below the statewide average for similar facilities during the same time period. However, the majority of crashes are rear-end collisions, which are common in areas with traffic congestion. These types of crashes can often be attributed to the lack of left and right turn lanes, where turning vehicles must slow down and wait in the travel lane for an opportunity to turn. The addition of raised medians and turning lanes can help reduce the opportunity for rear-end collisions by removing turning vehicles from the through travel lanes. Additional capacity can also help reduce rear-end collisions by decreasing the lengths of queues in terms of time and size.

There is also a need for improved pedestrian and bicycle access and connectivity throughout the corridor, as well as for shoulder width on the bridge over the Chattahoochee River. Both the City of Johns Creek and Gwinnett County have multi-use paths and/or bike lanes planned along the SR 120 corridor. The corridor also contains two schools; Woodward North Academy on Boles Road and Northview High School on Abbotts Bridge Road. The inclusion of shared-use

¹⁰ Ibid.

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paths will provide connectivity for pedestrian and bike users between Johns Creek, Gwinnett County, and the CRNRA.

Proposed Project Limits

SR 141/Medlock Bridge Road is proposed as the northern/western project limit and Peachtree Industrial Boulevard is proposed as the southern/eastern project limit for Project ID No. 721000 in order to address the anticipated capacity deficiencies along the roadway and the need to reduce the frequency of rear-end crashes. The existing two-lane section is projected to operate at LOS F along the project corridor by the design year 2042.

Traffic volumes decrease and LOS improves beyond the project limits. At the proposed limits, no build and build traffic along SR 120 west of Medlock Bridge Road and east of Peachtree Industrial Boulevard are anticipated to decrease by approximately 35 percent and 48 percent less per day in the design year, respectively. No build LOS beyond the proposed termini in the design year improves from F to E. Design year traffic beyond the proposed termini on SR 120 is anticipated to operate at LOS E under both the no build and build scenarios.

The proposed termini would not restrict the consideration of alternatives for other reasonably foreseeable projects in the area network. The proposed improvements are on an existing alignment between termini that are logical in terms of existing and forecasted travel demand, and that would leave future adjoining projects with sufficient flexibility to avoid or minimize impacts to environmental resources if needed. As discussed previously, there is a programmed project on SR 120 west of the proposed project (PI 0012788), and these projects have been coordinated as part of the adopted regional transportation plan. SR 120 at the intersection of the proposed eastern terminus at Peachtree Industrial Boulevard is currently a four-lane section through the intersection. The proposed project would not hinder the function of SR 120 east and west of the proposed termini, nor would it force traffic or improvements beyond the project limits. Design year traffic beyond the proposed termini on SR 120 is anticipated to operate at LOS E under both the no build and build scenarios (i.e., with or without the proposed project).

Final determination of logical termini is dependent on ~~OES coordination with~~ FHWA *APPROVAL*.

Existing conditions: SR 120, from Medlock Bridge Road to Peachtree Industrial Boulevard is a mostly 2-lane undivided facility, varying from urban and rural sections along its length. Additional through lanes are located on each end of the project to receive double left turning movements from SR 141 SB traffic and PIB NB Traffic. There are also varying auxiliary left and right turn lanes for turning movements into side roads and commercial developments. Sidewalks are located along the roadway between Medlock Bridge Road and Parsons Road, and from Ansley Mill Way to Peachtree Industrial Blvd. Major signalized intersections include SR 141 / Medlock Bridge Road, Northview High School entrance, Parsons Road, Boles Road, and Peachtree Industrial Blvd. The road crosses over the Chattahoochee River on an existing bridge structure (detailed in the Structures section). Most major utilities serving this area are located within the project limits (see Utilities section).

Other projects in the area:

- Design of SR 120 operational and pedestrian improvements from Jones Bridge Road to Parsons Road (PI 0007310, City of Johns Creek)
- Design of SR 120 operational and pedestrian improvements from Parsons Road to SR 141 / Medlock Bridge Road (PI 0012788, City of Johns Creek)
- Design of SR 120 widening from Kimball Bridge Road to Jones Bridge Road (PI 0010418, City of Johns Creek)
- SR 120 / McGinnis Ferry Road / State Bridge Road ITS Expansion (PI 0012626, GDOT)

County: Fulton and Gwinnett Counties

- Western Gwinnett Bikeway Extension, from Rogers Bridge to McGinnis Ferry Road (PI 0012883, Gwinnett County)

MPO: Atlanta Regional Commission (ARC)

TIP #: FN-264

TIA Regional Commission: Atlanta Regional Commission

Congressional District(s): 7, 6

Federal Oversight: PoDI Exempt State Funded Other

Projected Traffic: AADT 24 HR T: 3.0 %

Current Year (2013): 25850 Open Year (2022): 28600 Design Year (2042): 34750

Traffic Projections Performed by: Wilburn Engineering, LLC

Functional Classification (Mainline): Urban Minor Arterial Street

Complete Streets - Bicycle, Pedestrian, and/or Transit Standard Warrants:Warrants met: None Bicycle Pedestrian Transit

The project will match feedback received from the Cities of Johns Creek and Duluth, meeting pedestrian and bicycle warrants due to residential neighborhoods and schools within the project corridor. The project includes a shared-use path on the north side of SR 120, and a 5' sidewalk on the south side within the City of Duluth, and will include a shared-use path on both sides of SR 120 in Johns Creek, per their **Future Trail and Sidewalk Network Plan**. For transit, the Xpress Route 408 runs north/south along the SR 141 corridor. Bus stops are located just north of the intersection of SR 141 and Skyway Drive, and are not within the project limits.

Is this a 3R (Resurfacing, Restoration, & Rehabilitation) Project? No Yes**Pavement Evaluation and Recommendations**Preliminary Pavement Evaluation Summary Report Required? No YesPreliminary Pavement Type Selection Report Required? No YesFeasible Pavement Alternatives: HMA PCC HMA & PCC

A preliminary PES was submitted to GDOT on 8/1/14. Additional core samples were taken in January 2015. It has been determined, based on these cores, that the existing pavement can be overlaid. See attached Pavement Designs.

County: Fulton and Gwinnett Counties

DESIGN AND STRUCTURAL

Major Structures: See Bridge Type Study in Attachments.

Structure	Existing	Proposed
Structure ID # 121-0079-0: Bridge over Chattahoochee River	304'-6" long, with 4 spans of 79' maximum length; , 2-12' lanes, 2' gutters, and 3'-1-1/2" parapets, for a total of 34'-3" width: bridge constructed in 1960, sufficiency rating of 53.	304'-6" long, with 4 through lanes, 20' raised median, and 1 auxiliary lane, a 13' wide sidewalk on both sides, for a total of 116'-5"; The structure would have 3-span arrangement with a 158' center span.
Retaining walls	None	Parapet walls to minimize impacts to adjacent properties and environmentally sensitive areas (approximate location shown on concept layout).

Mainline Design Features: SR 120 – Urban Minor Arterial

Feature	Existing	Standard*	Proposed
Typical Section			
- Number of Lanes	2	4	4
- Lane Width(s)	12	11'-12'	12'
- Median Width & Type	Flush Median – varies 0-12' for auxiliary lanes	Raised 20'	Raise median varies 20' – 32'
- Outside Shoulder or Border Area Width	Mixed Curb and Gutter and 2' paved shoulder	N/A	16-18' urban shoulders with 30" Curb
- Outside Shoulder Slope	Varies	4:1 typ, 2:1 max	4:1 typ, 2:1 max
- Inside Shoulder Width	N/A	N/A	N/A
- Sidewalks	Varies, 5' typical, between Parsons Road and SR 141, PIB west 1000'	5' sidewalks	10' shared-use path on north side, 5' sidewalk on south side (Gwinnett), 10' shared-use path on both sides (Fulton)
- Auxiliary Lanes	LT and RT turn lanes	LT and RT turn lanes	LT and RT turn lanes
- Bike Lanes	None	None	Incl. in 10' shared use path
Posted Speed	45 mph		45 mph
Design Speed	45 mph	45 mph	45 mph
Min Horizontal Curve Radius	925'	711'	1100'
Maximum Superelevation Rate	6%	4%	3.4%
Maximum Grade	6%	6%	6%
Access Control	Permit	Permit	Permit
Design Vehicle	N/A	WB-67	WB-67
Pavement Type	Flexible / Asphalt	Flexible / Asphalt	Flexible / Asphalt

*According to current GDOT design policy if applicable

County: Fulton and Gwinnett Counties

Sideroad Design Features: SR 141 (Urban Minor Arterial)

Feature	Existing	Standard*	Proposed
Typical Section			
- Number of Lanes	4	4	4
- Lane Width(s)	12'	12'	12'
- Median Width & Type	Raised 20' median	Raised 20' median	Match existing
- Outside Shoulder or Border Area Width	12'-16' urban shoulders with curb	N/A	16' urban shoulders with 30" Curb, tie to existing.
- Outside Shoulder Slope	Varies	4:1 typ, 2:1 max	4:1 typ, 2:1 max
- Inside Shoulder Width	N/A	N/A	N/A
- Sidewalks	Varies, 5' to 8' sidewalks	5' sidewalks	Tie to existing sidewalk width
- Auxiliary Lanes	LT and RT turn lanes	LT and RT turn lanes	LT and RT turn lanes
- Bike Lanes	4'	4'	Match existing
Posted Speed	55 mph		55 mph
Design Speed	55 mph	55 mph	55 mph
Min Horizontal Curve Radius	7012.5	1060'	Match existing
Maximum Superelevation Rate	6%	6%	Match existing
Maximum Grade	6%	6%	Match existing
Access Control	Permit	Permit	Permit
Design Vehicle	N/A	WB-67	WB-67
Pavement Type	Flexible / Asphalt	Flexible / Asphalt	Flexible / Asphalt

*According to current GDOT design policy if applicable

County: Fulton and Gwinnett Counties

Sideroad Design Features: Peachtree Industrial Blvd. (Urban Principal Arterial)

Feature	Existing	Standard*	Proposed
Typical Section			
- Number of Lanes	4	4	4
- Lane Width(s)	12	12'	12'
- Median Width & Type	Raised 32' median	20' raised or 32-44' depressed median	Match existing
- Outside Shoulder or Border Area Width	12'-16' urban shoulders with curb	N/A	16' urban shoulders with 30" Curb
- Outside Shoulder Slope	Varies	4:1 typ, 2:1 max	4:1 typ, 2:1 max
- Inside Shoulder Width	N/A	N/A	N/A
- Sidewalks	Varies, 5' sidewalk to – 10' shared-use path	5' sidewalks	Tie to existing condition
- Auxiliary Lanes	LT and RT turn lanes	LT and RT turn lanes	LT and RT turn lanes
- Bike Lanes	None	None	Incl. in shared-use path
Posted Speed	45 mph		45 mph
Design Speed	45 mph	45 mph	45 mph
Min Horizontal Curve Radius	1400'	711'	Match existing
Maximum Superelevation Rate	4%	4%	Match existing
Maximum Grade	6%	6%	Match existing
Access Control	Permit	Permit	Permit
Design Vehicle	N/A	WB-67	WB-67
Pavement Type	Flexible / Asphalt	Flexible / Asphalt	Flexible / Asphalt

*According to current GDOT design policy if applicable

County: Fulton and Gwinnett Counties

Sideroad Design Features: Parsons Rd – Urban Minor Collector

Feature	Existing	Standard*	Proposed
Typical Section			
- Number of Lanes	2	2	2
- Lane Width(s)	11'-12'	11'-12'	11'-12'
- Median Width & Type	Flush Median – varies 0-12' for auxiliary lanes	Varies, 12' Flush (min) for turn lanes	Flush Median – 12' for turn lanes
- Outside Shoulder or Border Area Width	Mixed Curb and Gutter and 2' paved shoulder	N/A	12'-16' urban shoulders with 30" Curb
- Outside Shoulder Slope	Varies	4:1 typ, 2:1 max	4:1 typ, 2:1 max
- Inside Shoulder Width	N/A	N/A	N/A
- Sidewalks	Varies, 5' typical, on Parsons Road	5' sidewalks	5' sidewalks
- Auxiliary Lanes	LT and RT turn lanes	LT and RT turn lanes	LT and RT turn lanes
- Bike Lanes	None	None	None
Posted Speed	35 mph		35 mph
Design Speed	35 mph	35 mph	35 mph
Min Horizontal Curve Radius	165'	371'	395'
Maximum Superelevation Rate	4%	4%	4%
Maximum Grade	5%	5%	5%
Access Control	Permit	Permit	Permit
Design Vehicle	N/A	SU	SU
Pavement Type	Flexible / Asphalt	Flexible / Asphalt	Flexible / Asphalt

*According to current GDOT design policy if applicable

County: Fulton and Gwinnett Counties

Sideroad Design Features: Boles Road – Urban Minor Collector

Feature	Existing	Standard*	Proposed
Typical Section			
- Number of Lanes	2	2	2
- Lane Width(s)	12'	12'	12'
- Median Width & Type	Flush Median – varies 0'-12' for auxiliary lanes	Varies, 12' Flush (min) for turn lanes	Flush Median-12'- for turn lane
- Outside Shoulder or Border Area Width	Mixed Curb and Gutter and 2' paved shoulder	N/A	12'-16' urban shoulders with 30" Curb
- Outside Shoulder Slope	Varies	4:1 typ, 2:1 max	4:1 typ, 2:1 max
- Inside Shoulder Width	N/A	N/A	N/A
- Sidewalks	None	5' sidewalks	5' sidewalks
- Auxiliary Lanes	LT and RT turn lanes	LT and RT turn lanes	LT and RT turn lanes
- Bike Lanes	None	None	None
Posted Speed	45 mph		45 mph
Design Speed	45 mph	45 mph	45 mph
Min Horizontal Curve Radius	None	711'	711'
Maximum Superelevation Rate	4%	4%	4%
Maximum Grade	5%	5%	5%
Access Control	Permit	Permit	Permit
Design Vehicle	N/A	SU	SU
Pavement Type	Flexible / Asphalt	Flexible / Asphalt	Flexible / Asphalt

*According to current GDOT design policy if applicable

Major Interchanges/Intersections: Signalized intersection at SR 141 / Medlock Bridge Road and SR 120, Signalized intersection at Peachtree Industrial and SR 120, Signalized intersection at Boles Road and SR 120, Signalized intersection at Parsons Road / Sweet Creek Road and SR 120.

Lighting required: No Yes

Lighting required at the proposed roundabout.

Off-site Detours Anticipated: No Yes Undetermined

Transportation Management Plan [TMP] Required: No Yes

If Yes: Project classified as: Non-Significant Significant
 TMP Components Anticipated: TTC TO PI

County: Fulton and Gwinnett Counties

Design Exceptions to FHWA/AASHTO controlling criteria anticipated:

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

Design Variances to GDOT Standard Criteria anticipated:

GDOT Standard Criteria	Reviewi ng Office	No	Undeter- -mined	Yes	Appvl Date (if applicable)
1. Access Control/Median Openings	DP&S	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2. Intersection Sight Distance	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3. Intersection Skew Angle	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4. Lateral Offset to Obstruction	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5. 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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"/>	
13. GDOT Bridge & Structural Manual	Bridges	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Median Openings – the distance between median openings east of SR 141 is 530', which is less than 660'; a flush median will be added in this area to provide both openings.

VE Study anticipated: No Yes Completed – Date:

County: Fulton and Gwinnett Counties

UTILITY AND PROPERTY

Temporary State Route needed: No Yes Undetermined

Temporary state route status will be needed for all non-state routes within the project limits, including Parsons Road, Boles Road, and Peachtree Industrial Blvd.

Railroad Involvement: None.

Utility Involvements:

- AT&T: Telecommunications
- AGL: Gas
- Georgia Power: Electric / Power
- Georgia Transmission: Power Transmission
- Zayo: Fiber / Communications
- Charter: Cable TV / Communications
- Time Warner: Cable TV / Communications
- Verizon Business / MCI: Communications
- Fulton County Water Resources: Water and Sewer (Fulton side)
- Gwinnett Dept. of Water Resources: Water (Gwinnett side)
- Sawnee EMC: Electric / Power
- Comcast: Cable TV / Communications

SUE Required: No Yes Undetermined

Public Interest Determination Policy and Procedure recommended? No Yes

It was determined that the project carries a medium risk. It was decided at the Concept Team Meeting that this project is not recommended to follow PID at this time.

Right-of-Way (ROW): Existing width: 60-190 ft. Proposed width: 120-140 ft.

Required Right-of-Way anticipated: None Yes Undetermined

Easements anticipated: None Temporary Permanent Utility Other

Anticipated total number of impacted parcels:	97
Displacements anticipated:	Businesses: <u>1</u>
	Residences: <u>0</u>
	Other: <u>0</u>
Total Displacements:	1

Location and Design approval: Not Required Required

Impacts to USACE property anticipated? No Yes Undetermined

County: Fulton and Gwinnett Counties

ROUNDBABOUTS

Roundabout Lighting Agreement/Commitment Letter received: No Yes

Roundabout Planning Level Assessment: A roundabout is proposed at the intersection of Parsons Road and Wilson Road. A roundabout analysis was performed for the intersection using 2042 peak hour traffic. The roundabout was found to provide sufficient operational capacity for the design peak traffic flows.

Roundabout Feasibility Study: Not required during concept for linear projects where roundabout(s) are proposed.

Roundabout Peer Review Required: No Yes Completed – Date:
Peer review will be completed during preliminary design.

CONTEXT SENSITIVE SOLUTIONS

Issues of Concern:

- Impacts to existing neighborhoods, schools, and commercial developments
- Impacts to Chattahoochee National Recreation Area and Chattahoochee River
- Impacts to schools and churches.

Context Sensitive Solutions Proposed:

- Mast Arms will be installed for the signals on Boles Road and Parsons Road intersections.
- Retaining walls will have aesthetic form liners and/or aesthetic rock facing
- Walls will be used to minimize impacts to adjacent properties.
- Handrails will meet City preferences while still meeting GDOT standard.
- Medians will be grassed where possible, to allow for future landscaping by local municipalities.
- Future coordination with National Park Service to discuss proposed bridge layout and design in order to obtain approvals.
- Sidewalks and shared-use paths will be constructed in order to facilitate pedestrian movements to/from schools along or near the project corridor.

ENVIRONMENTAL & PERMITS

Anticipated Environmental Document:

GEPA: **NEPA:** CE EA/FONSI EIS

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

See attached MS4 Memo. Due to the project's proximity to the Chattahoochee River, special care will be taken to capture any runoff and treat for water quality. For outfalls not directly flowing into the River, additional flows will be analyzed to determine water quality and detention requirements.

County: Fulton and Gwinnett Counties

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 type="checkbox"/>	<input checked="" type="checkbox"/>	National Park Service
3. CWA Section 404 Permit	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Nationwide or Regional Permit
4. Tennessee Valley Authority Permit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5. Buffer Variance	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
6. Coastal Zone Management Coordination	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
7. NPDES	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
8. FEMA	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
9. Cemetery Permit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
10. Other Permits	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
11. Other Commitments	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
12. Other Coordination	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Is a PAR required? No Yes Completed – Date:

Environmental Comments and Information:

NEPA/GEPA: The proposed NEPA document for this project is an Environment Assessment (EA)/Finding of No Significant Impact (FONSI). To date field surveys have been conducted for historical resources and ecology.

Ecology: Field surveys will be conducted to identify wetlands, open waters and streams. In addition bat surveys were conducted in July 2014. Aquatics survey will be required for this project. Informal Section with US Fish and Wildlife Service and Coordination under the Fish and Wildlife Coordination Act (FWCA) is anticipated.

History: A Historic Survey Resource Survey will be prepared and submitted to OES and SHPO for concurrence. Field surveys, early coordination, and data research has been conducted. Approximately 4 resources have been identified as potentially eligible. It is anticipated that an Assessment of Effect will be required for this project.

Archeology: An archaeological field survey will be conducted to determine if any cemeteries or other publicly documented archeological resources present, and the possible effects to archeological resources. It is anticipated that a Short Form will be required.

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

The proposed project is located in an ozone non-attainment area. It is in the currently approved conforming Transportation Improvement Program (TIP), identified as TIP number FN-264 (GDOT PI No. 721000). . Because the project is listed in a conforming TIP no further analysis for ozone would be required.

The project is also located in a PM2.5 non-attainment area. A Letter of Determination would be required to discuss impacts from the project and determine if a hot-spot analysis would be required

County: Fulton and Gwinnett Counties

for the project. It is anticipated the project would be considered Not a Project of Concern, therefore not requiring a hot spot analysis.

A CO hotspot analysis would be required for the project.

In accordance with the FHWA guidance “Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA Documents” dated December 6, 2012 this project is anticipated to be a project with low potential MSAT effects.

Noise Effects: Modeling of noise impacts will be conducted using TNM and as needed an analysis of the reasonable and feasibility of noise walls (mitigation) will be conducted pending the results of the noise study.

Public Involvement: Public Information Open House meeting, Public Hearing Open House, and stakeholder outreach will be conducted.

Major stakeholders:

Planning/Government Agencies	Local Governments
Atlanta Regional Commission (ARC) Federal Highway Administration (FHWA) Georgia Department of Transportation (GDOT) Georgia Environmental Protection Division (EPD)/Historic Preservation Division (HPD) Gwinnett County Transit (GCT) Native American Tribes National Park Service (NPS)/Chattahoochee River National Recreation Area U.S. Army Corps of Engineers (USACE) U.S. Environmental Protection Agency (EPA)	Fulton County Gwinnett County City of Duluth City of Johns Creek
Civic Groups/Neighborhoods	Schools
St. Ives Country Club The Standard Club (private golf club) Johns Creek Walk (mixed use development) Abbotts Pointe subdivision Sugar Mill subdivision Foxdale subdivisions Abbotts Bridge Place subdivision Abbotts Hill subdivision Montclair subdivision River North subdivision	Abbotts Hill Elementary School Northview High School River Trail Middle School Wilson Creek Elementary Woodward Academy – North Campus
Churches/Places of Worship	Employers/Business Interests
Johns Creek United Methodist Church Johns Creek Presbyterian Church Divino Nino Jesus – Catholic Mission	Johns Creek Business Association Johns Creek Technology Park Medlock Promenade Shopping Center Medlock Village Shopping Center River Green Business Park Abbotts Bridge Station Shopping Center Johns Creek Walk Development
Special Interest	
Atlanta Bicycle Coalition Chattahoochee Riverkeeper Georgia Conservancy Sierra Club	

County: Fulton and Gwinnett Counties

CONSTRUCTION

Issues potentially affecting constructability/construction schedule: The existing corridor and sideroads have high traffic volumes during peak hours. There are two public and one private school along or near the project corridor. Restricted work hours are recommended during construction; night working hours, if any, will need to be addressed at the constructability meetings. Traffic through the corridor will need to be maintained at all times. Special care must be taken for the construction of the bridge and its approaches within the National Park Service. The outflows from the dam change the overall water surface level, on a daily basis. This will need to be addressed when reviewing what kinds of construction pads / barges will be feasible to construct the proposed bridge. Utility relocations / schedules are a priority in order to avoid delays in the overall construction schedule.

Early Completion Incentives recommended for consideration: No Yes

COORDINATION, ACTIVITIES, RESPONSIBILITIES, AND COSTS

Initial Concept Meeting: Initial Concept Meeting was held on April 16, 2014. Minutes are attached.

Concept Meeting: The Concept Meeting was held on March 5, 2015.

Other coordination to date: Stakeholder meeting minutes attached.

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

Project Cost Estimate Summary and Funding Responsibilities:

	Breakdown of PE	**ROW	Reimbursable Utility	CST*	Environmental Mitigation	Total Cost
Funded By	GDOT	GDOT	GDOT	GDOT	GDOT	
\$ Amount	\$3,250,616.56	\$8,696,448.99	\$270,000.00	\$24,863,945.58	\$356,177.95	\$37,437,189.08
Date of Estimate	3/14/2011	2/12/2015	5/14/2015	6/17/2015	2/10/2015	

*CST Cost includes: Construction, Engineering and Inspection, Contingencies and Liquid AC Cost Adjustment. **ROW includes the Advanced RW Acquisition of \$2,263,448.99 in the year 1991.

County: Fulton and Gwinnett Counties

ALTERNATIVES DISCUSSION

Alternative selection: The alternatives analysis focused on the intersections of SR 120 at SR 141 / Medlock Bridge Road and SR 120 at Peachtree Industrial Blvd. Due to the high volumes of traffic on the sideroads, Failing LOS was encountered in the existing and future traffic years. See attached Benefit / Cost Memo for additional details.

Preferred Alternative: Base intersection improvements, including dual turn lanes, and four through lanes on SR 120. This includes a roundabout at the intersection of Parsons and Wilson Roads.			
Estimated Property Impacts:	97	Estimated Total Cost:	\$37,437,189.08
Estimated ROW Cost:	\$8,696,448.99	Estimated CST Time:	36 months
Rationale: This alternative was chosen due to its conformance with the ARC model, the overall need and purpose to improve the corridor, and fits within the funding programmed for the project. This alternative also fits within the surrounding environment as a Complete Street, and minimizes property impacts, and area of disturbance.			

No-Build Alternative:			
Estimated Property Impacts:	0	Estimated Total Cost:	\$0
Estimated ROW Cost:	\$0	Estimated CST Time:	N/A
Rationale: The existing corridor is operating at a failing level of service, resulting in significant delays. This impacts the schools along the corridor, as well as businesses and neighborhoods. With only one lane in each direction on the bridge, there is no option for emergency vehicles to avoid delays in service during peak hours.			

Alternative 1: Construct SPU (single point urban interchanges) grade-separated intersections at SR 141 and PIB.			
Estimated Property Impacts:	120	Estimated Total Cost:	\$90,779,329.99
Estimated ROW Cost:	\$17,373,448.99	Estimated CST Time:	48 months
Rationale: This alternate was the only one that provided sufficient capacity in the design year to avoid a failing level of service at the intersections. However, these intersections resulted in \$56 million in additional construction and ROW costs, additional impacts to businesses and their access, and expanded project area, and a much longer construction time. This alternative was not agreeable to the Cities of Johns Creek and Duluth, and would not garner enough public support.			

Alternative 2: Construct CFI's(Continuous Flow Intersections) at SR 141 and PIB.			
Estimated Property Impacts:	102	Estimated Total Cost:	\$50,982,330.99
Estimated ROW Cost:	\$23,121,448.99	Estimated CST Time:	42 months
Rationale: The CFI alternatives provided capacity to provide a passing level of service through 2031. However, these intersections resulted in \$16 million in additional construction and ROW costs, additional impacts to businesses and their access, an expanded project area, and a longer construction time. This alternative was not agreeable to the Cities of Johns Creek and Duluth; due to its non-standard configuration, there would be resistance from the public to accept.			

Alternative 3: Construct Quadrant Intersection at SR 141.			
Estimated Property Impacts:	101	Estimated Total Cost:	\$40,936,070.99
Estimated ROW Cost:	\$14,448,448.99	Estimated CST Time:	42 months

County: Fulton and Gwinnett Counties

Rationale: The Quadrant alternative provided capacity to provide a passing level of service through 2038. However, these intersection resulted in \$7 million in additional construction and ROW costs, additional impacts to businesses and their access, an expanded project area, and a longer construction time. This configuration would involve major impact to the Abbots Bridge Station Shopping Center. This alternative was not agreeable to the Cities of Johns Creek and Duluth; due to its non-standard configuration, there would be resistance from the public to accept.

Comments:

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 (Draft – D7 Utilities approval is pending, request date 5/14/15)
 - e. Environmental Mitigation
4. Summary of TE Study, including Roundabout Operational Analysis, Crash summaries, Traffic diagrams, and Capacity analysis summary (tabular format)
5. Benefit / Cost Memo for Alternatives Analysis
6. Bridge Type Study, including S I & A Report(s)
7. Concept Level Hydrology Memo for MS4 Permit
8. Pavement studies (*PES Report and Preliminary Pavement Designs*)
9. Utility Risk Management Plan
10. Conforming plan's network schematics showing thru lanes.
11. Minutes of Concept meetings/Sign in Sheet
12. Johns Creek Letter of Request for Lighting

APPROVALS

Concur: 
 Director of Engineering

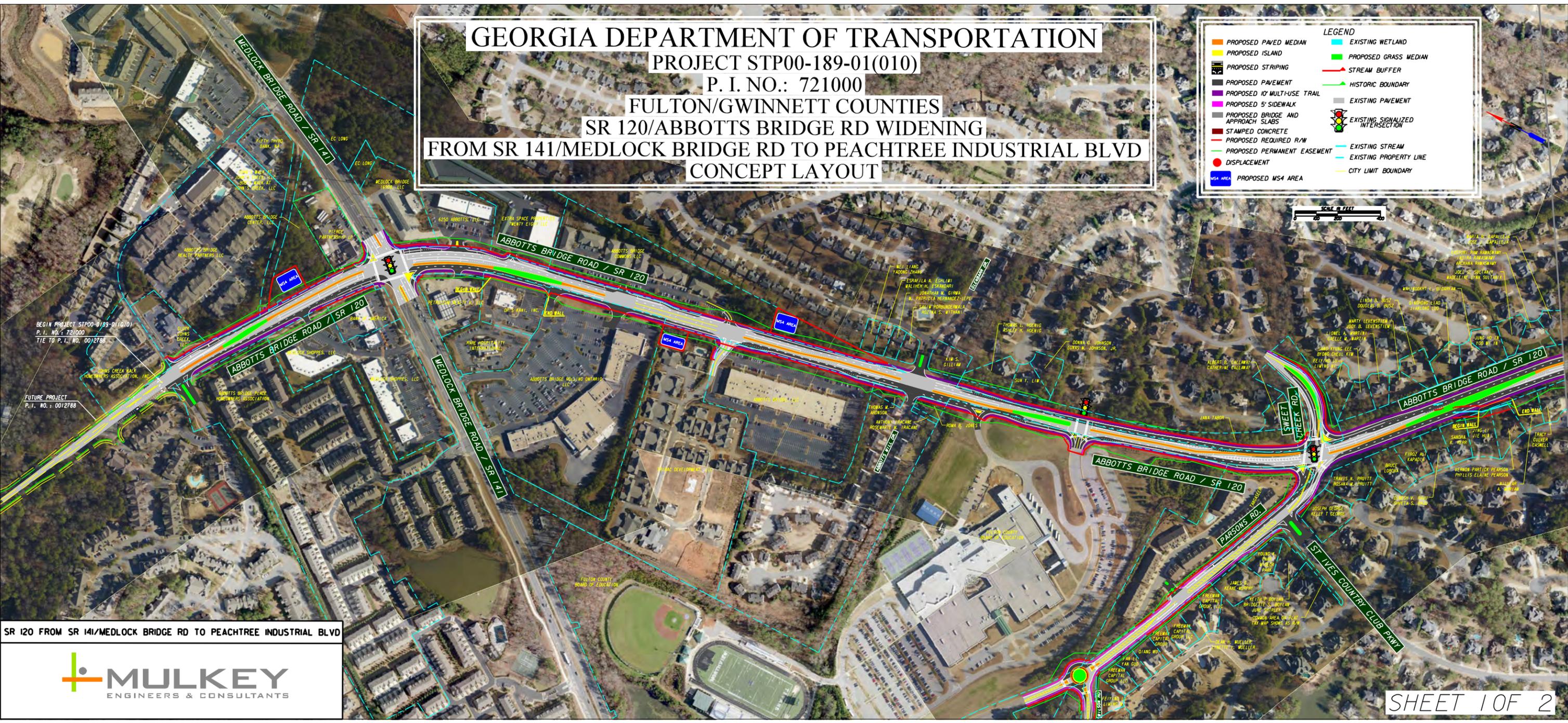
Approve: 
 Chief Engineer

7/14/15
 Date

GEORGIA DEPARTMENT OF TRANSPORTATION
PROJECT STP00-189-01(010)
P. I. NO.: 721000
FULTON/GWINNETT COUNTIES
SR 120/ABBOTTS BRIDGE RD WIDENING
FROM SR 141/MEDLOCK BRIDGE RD TO PEACHTREE INDUSTRIAL BLVD
CONCEPT LAYOUT

LEGEND

PROPOSED PAVED MEDIAN	EXISTING WETLAND
PROPOSED ISLAND	PROPOSED GRASS MEDIAN
PROPOSED STRIPING	STREAM BUFFER
PROPOSED PAVEMENT	HISTORIC BOUNDARY
PROPOSED 10' MULTI-USE TRAIL	EXISTING PAVEMENT
PROPOSED 5' SIDEWALK	EXISTING SIGNALIZED INTERSECTION
PROPOSED BRIDGE AND APPROACH SLABS	EXISTING STREAM
STAMPED CONCRETE	EXISTING PROPERTY LINE
PROPOSED REQUIRED R/W	CITY LIMIT BOUNDARY
PROPOSED PERMANENT EASEMENT	
DISPLACEMENT	
MSA AREA	



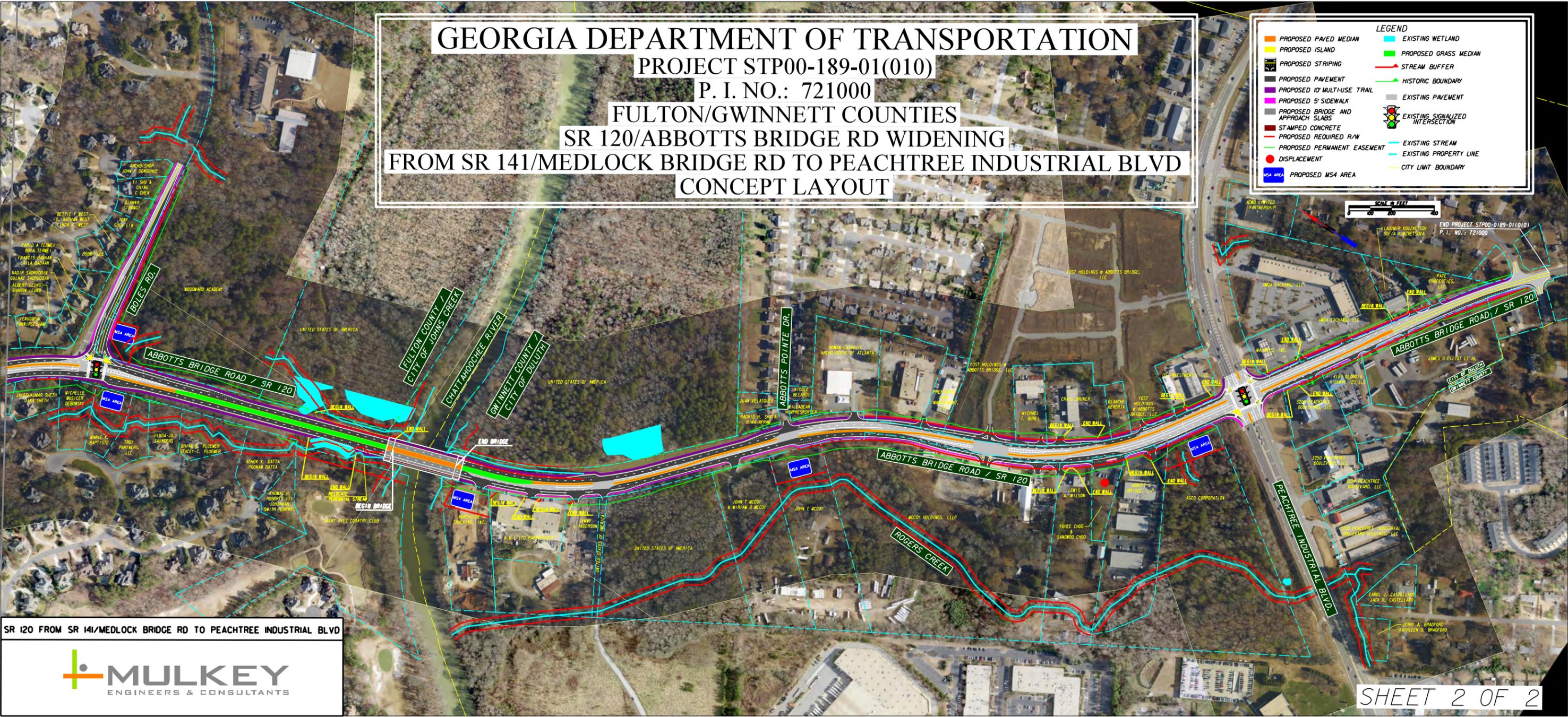
SR 120 FROM SR 141/MEDLOCK BRIDGE RD TO PEACHTREE INDUSTRIAL BLVD



GEORGIA DEPARTMENT OF TRANSPORTATION
PROJECT STP00-189-01(010)
P. I. NO.: 721000
FULTON/GWINNETT COUNTIES
SR 120/ABBOTTS BRIDGE RD WIDENING
FROM SR 141/MEDLOCK BRIDGE RD TO PEACHTREE INDUSTRIAL BLVD
CONCEPT LAYOUT

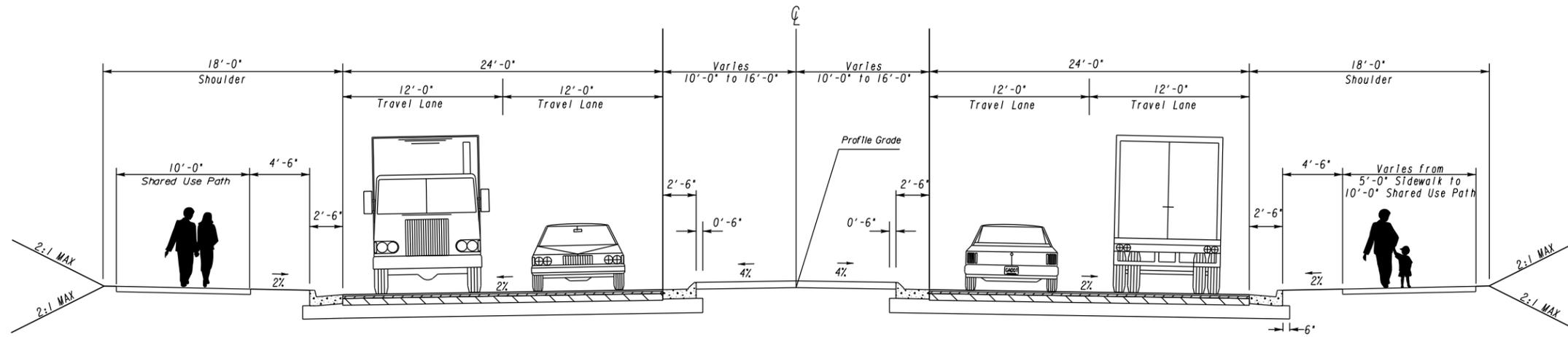
LEGEND

PROPOSED PAVED MEDIAN	EXISTING WETLAND
PROPOSED ISLAND	PROPOSED GRASS MEDIAN
PROPOSED STRIPING	STREAM BUFFER
PROPOSED PAVEMENT	HISTORIC BOUNDARY
PROPOSED 10' MULTI-USE TRAIL	EXISTING PAVEMENT
PROPOSED 5' SIDEWALK	EXISTING SIGNALIZED INTERSECTION
PROPOSED BRIDGE AND APPROACH SLABS	EXISTING STREAM
STAMPED CONCRETE	EXISTING PROPERTY LINE
PROPOSED REQUIRED R/W	CITY LIMIT BOUNDARY
PROPOSED PERMANENT EASEMENT	
DISPLACEMENT	
PROPOSED MSA AREA	

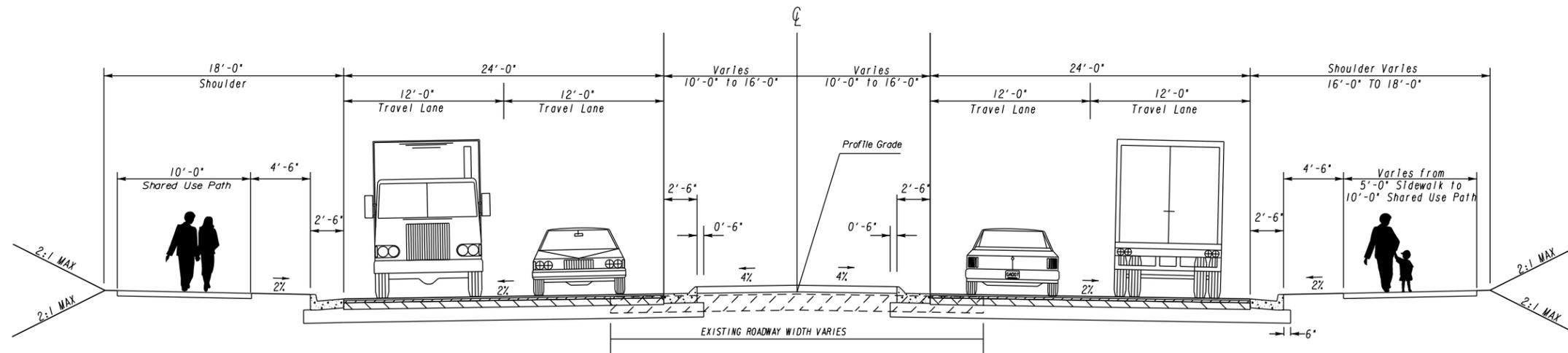


SR 120 FROM SR 141/MEDLOCK BRIDGE RD TO PEACHTREE INDUSTRIAL BLVD





TS-01: S. R. 120 TANGENT SECTION FULL DEPTH



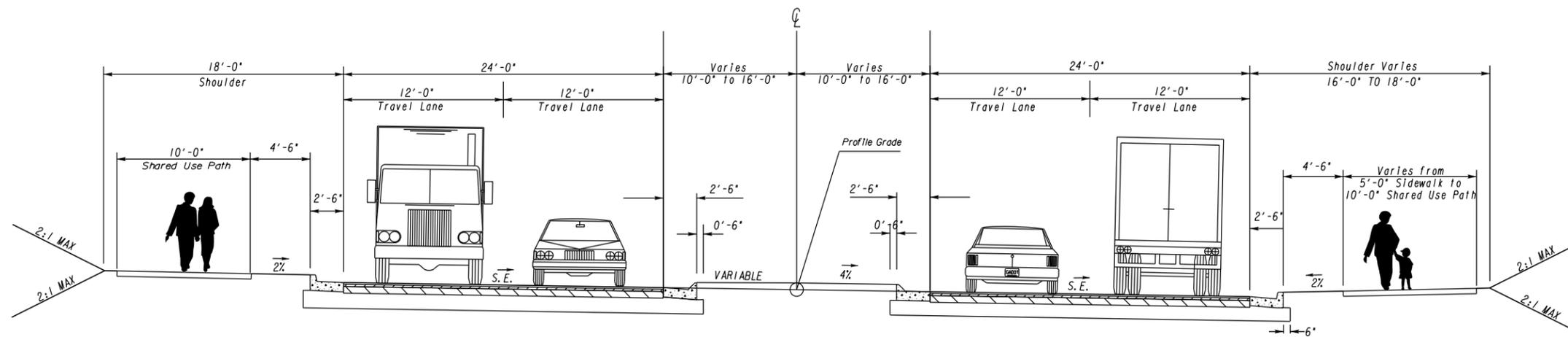
TS-02: S. R. 120 TANGENT SECTION OVERLAY/FULL DEPTH

MULKEY
ENGINEERS & CONSULTANTS
1255 CANTON STREET, SUITE G
ROSWELL, GEORGIA 30075
(678) 461-3511

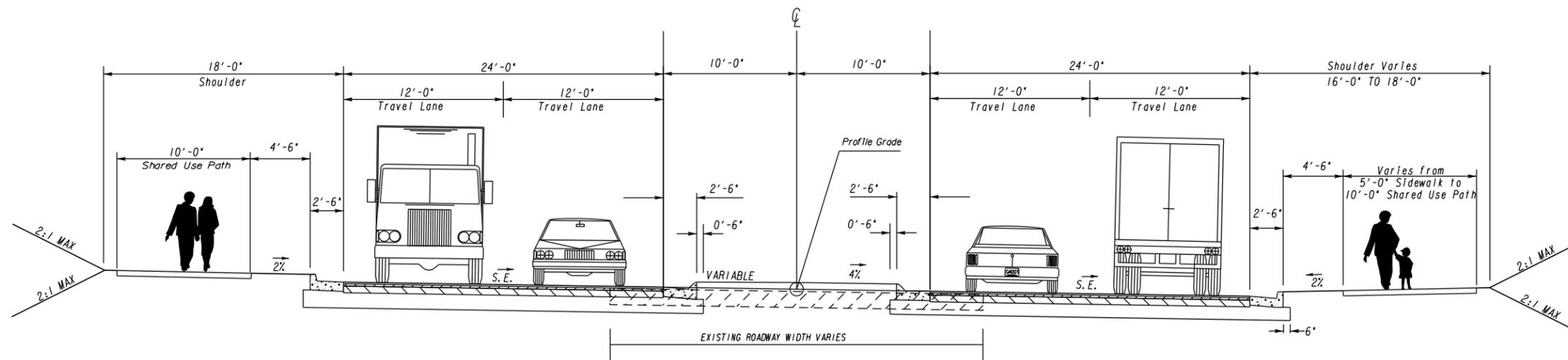
NOT TO SCALE

REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE:
TYPICAL SECTIONS
STP00-0189-01(010)
FULTON/GWINNETT COUNTIES
P. I. NO.: 72100
S. R. 120 FROM S. R. 141/MEDLOCK BRIDGE RD
TO PEACHTREE INDUSTRIAL BLVD



TS-03: S. R. 120 SUPERELEVATED SECTION FULL DEPTH



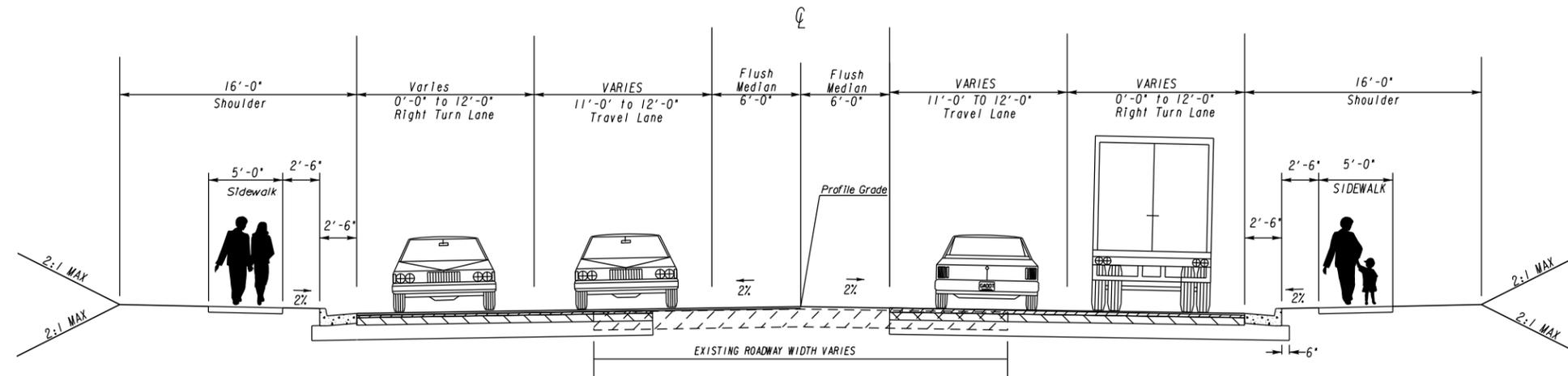
TS-04: S. R. 120 SUPERELEVATED SECTION OVERLAY/FULL DEPTH

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ROSWELL, GEORGIA 30075
(678) 461-3511

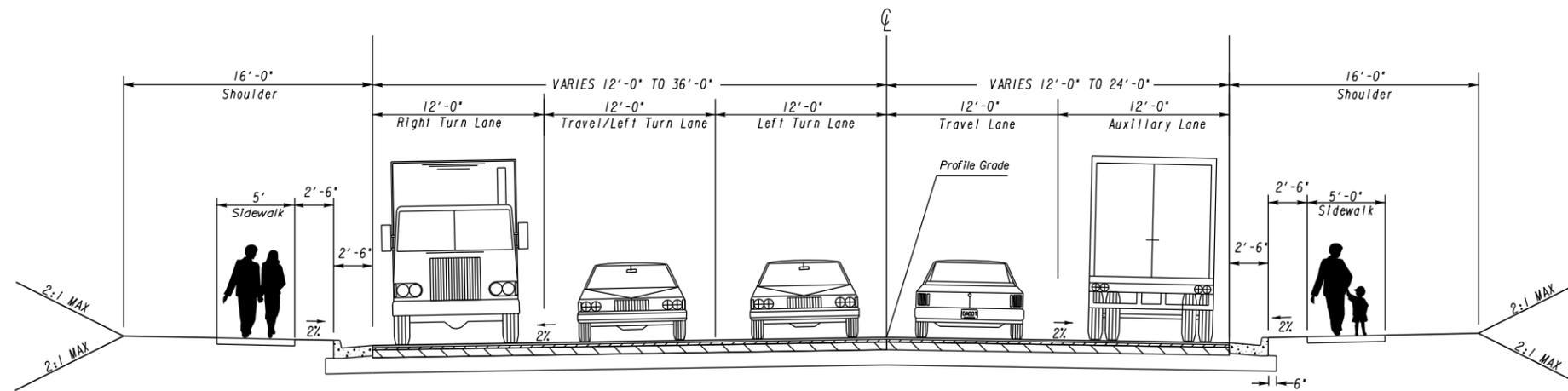
NOT TO SCALE

REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE:
TYPICAL SECTIONS
STP00-0189-01(010)
FULTON/GWINNETT COUNTIES
P. I. NO. : 72100
S. R. 120 FROM S. R. 141/MEDLOCK BRIDGE RD
TO PEACHTREE INDUSTRIAL BLVD



TS-05: PARSONS RD



TS-06 BOLES ROAD

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(678) 461-3511

NOT TO SCALE

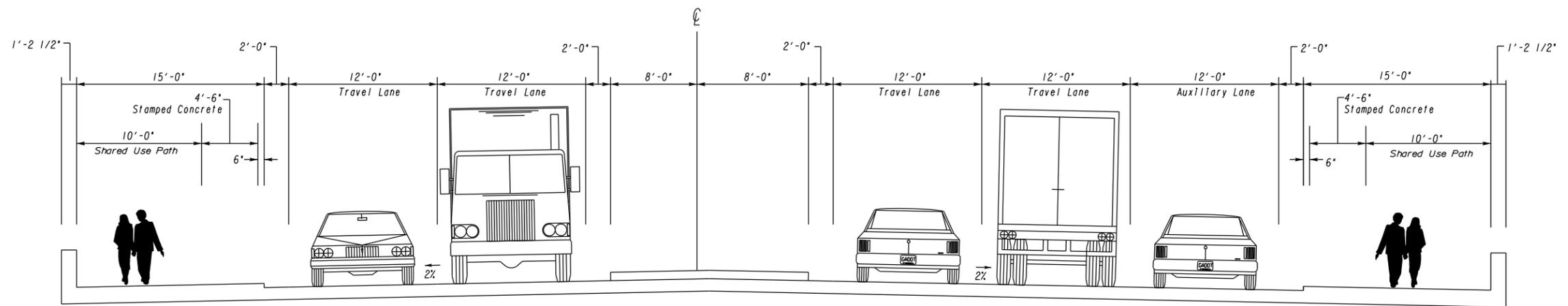
REVISION DATES

NO.	DATE	DESCRIPTION

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

OFFICE:

TYPICAL SECTIONS
STP00-0189-01(010)
FULTON/GWINNETT COUNTIES
P. I. NO. : 72100
S. R. 120 FROM S. R. 141/MEDLOCK BRIDGE RD
TO PEACHTREE INDUSTRIAL BLVD



TS-07: S. R. 120 BRIDGE OVER CHATTAHOOCHEE RIVER

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ENGINEERS & CONSULTANTS
1255 CANTON STREET, SUITE G
ROSWELL, GEORGIA 30075
(678) 461-3511

NOT TO SCALE

REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE:
TYPICAL SECTIONS
STP00-0189-01(010)
FULTON/GWINNETT COUNTIES
P. I. NO. : 72100
S. R. 120 FROM S. R. 141/MEDLOCK BRIDGE RD
TO PEACHTREE INDUSTRIAL BLVD

DRAWING No.
4/4

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

INTERDEPARTMENT CORRESPONDENCE

FILE P.I. No. 721000

OFFICE Program Delivery

PROJECT DESCRIPTION

SR 120 / Abbotts Bridge Road Widening from SR 141 / Medlock Bridge Road to Peachtree Industrial Blvd.

DATE June 18, 2015

From: Alexander R. Stone, Mulkey, Inc.

To: Lisa L. Myers, State Project Review Engineer

Subject: REVISIONS TO PROGRAMMED COSTS

PROJECT MANAGER Peter Emmanuel

MGMT LET DATE 4/15/19

MGMT ROW DATE 4/15/17

PROGRAMMED COSTS (TPro W/OUT INFLATION)

LAST ESTIMATE UPDATE

CONSTRUCTION \$ 22,500,024.21

DATE 10/1/2014

RIGHT OF WAY \$ 9,188,448.99

DATE 10/1/2014

UTILITIES \$

DATE

REVISED COST ESTIMATES

CONSTRUCTION* \$ 24,863,945.58

RIGHT OF WAY \$ **8,696,448.99

UTILITIES \$ 270,000.00

*Cost Contains 10 % Contingency

REASONS FOR COST INCREASE AND CONTINGENCY JUSTIFICATION:

Widening / Rehabilitation Project at Concept Report submittal. Also, 10% contingency is used based on risk level.
**The ROW cost estimates is \$6,433,000.00 plus \$2,263,448.99 of advanced RW Acquisition in year 1991 for a total of \$8,696,448.99

CONTINGENCY SUMMARY

A. CONSTRUCTION COST ESTIMATE:	\$	20,584,069.59	Base Estimate From CES	
B. ENGINEERING AND INSPECTION (E & I):	\$	1,029,203.48	Base Estimate (A) x	5 %
C. CONTINGENCY:	\$	2,161,327.31	Base Estimate (A) + E & I (B) x	10 %
			See % Table in "Risk Based Cost Estimation" Memo	
D. TOTAL LIQUID AC ADJUSTMENT:	\$	1,089,345.21	Total From Liquid AC Spreadsheet	
E. CONSTRUCTION TOTAL:	\$	24,863,945.58	(A + B + C + D = E)	

REIMBURSABLE UTILITY COSTS

UTILITY OWNER	REIMBURSABLE COST
Georgia Power Distribution	\$225,000
Sawnee EMC	\$ 45,000.00
TOTAL	\$ 270,000.00

ATTACHMENTS:

Detailed Cost Estimate Printout From CES
Liquid AC Adjustment Spreadsheet

CES 6-17-15
STATE HIGHWAY AGENCY

DATE : 06/17/2015
PAGE : 1

JOB DETAIL ESTIMATE

JOB NUMBER : 2013026.00 SPEC YEAR: 01
DESCRIPTION: SR 120 - FROM PEACHTREE INDUSTRIAL BLVD TO MEDLOCK BR RD

COST GROUPS FOR JOB 2013026.00

COST GROUP	DESCRIPTION	QUANTITY	PRICE	AMOUNT	ACTIVE?
UDEF	BRIDGE (LUMP SUM)	1.000	5400000.00000	5400000.00	Y
UDEF	SIGNS / STRIPING (LUMP SUM)	1.000	136793.42000	136793.42	Y
UDEF	EROSION CONTROL (LUMP SUM)	1.000	341983.55000	341983.55	Y
UDEF	TRAFFIC CONTROL (LUMP SUM)	1.000	1025950.65000	1025950.65	Y
ACTIVE COST GROUP TOTAL				6904727.62	
INFLATED COST GROUP TOTAL				6904727.62	

ITEMS FOR JOB 2013026.00

LINE	ITEM	ALT	UNITS	DESCRIPTION	QUANTITY	PRICE	AMOUNT
0009	153-1300		EA	FIELD ENGINEERS OFFICE TP 3	1.000	88588.14	88588.14
0010	207-0203		CY	FOUND BK FILL MATL, TP 11	200.000	44.79	8959.60
0015	210-0100		LS	GRADING COMPLETE - CONCEPT	1.000	1875000.00	1875000.00
0020	310-1101		TN	GR AGGR BASE CRS, INCL MATL	72017.000	17.36	1250791.98
0025	318-3000		TN	AGGR SURF CRS	2000.000	18.15	36301.64
0030	402-1812		TN	RECYL AC LEVELING, INC BM&HL	10890.000	75.06	817500.97
0035	402-3121		TN	RECYL AC 25MM SP, GP1/2, BM&HL	29537.000	62.55	1847547.92
0040	402-3130		TN	RECYL AC 12.5MM SP, GP2, BM&HL	12246.000	69.64	852903.16
0045	402-3190		TN	RECYL AC 19 MM SP, GP 1 OR 2, INC BM&HL	23757.000	64.09	1522625.80
0050	413-1000		GL	BITUM TACK COAT	17365.000	2.26	39259.66
0055	432-5010		SY	MILL ASPH CONC PVMT, VARB DEPTH	5000.000	5.52	27629.05
0060	433-1000		SY	REINF CONC APPROACH SLAB	733.000	159.07	116605.21
0065	441-0018		SY	DRIVEWAY CONCRETE, 8 IN TK	636.000	47.61	30280.99
0070	441-0104		SY	CONC SIDEWALK, 4 IN	32585.000	20.51	668427.84
0075	441-0301		EA	CONC SPILLWAY, TP 1	1.000	1708.37	1708.37
0080	441-0740		SY	CONC MEDIUM, 4 IN	3150.000	26.50	83494.37
0085	441-0748		SY	CONC MEDIUM, 6 IN	700.000	47.00	32902.52
0090	441-6222		LF	CONC CURB & GUTTER/ 8"X30" TP2	37300.000	12.26	457347.24
0095	441-6740		LF	CONC CURB & GUTTER/ 8"X30" TP7	32100.000	12.52	402124.40
0100	446-1100		LF	PVMT REF FAB STRIPS, TP2, 18 INCH WIDTH	30692.000	3.48	107069.35
0105	500-3110		LF	CLASS A CONCRETE, TYPE P1, RETAINING WAL	174.000	385.00	66990.00
0110	500-3115		LF	CLASS A CONCRETE, TYPE P2, RETAINING WAL	556.000	456.00	253536.00
0115	500-3120		LF	CLASS A CONCRETE, TYPE P3, RETAINING WAL	863.000	588.02	507461.26
0124	500-3201		CY	CL B CONC, RET WALL	230.000	593.94	136606.43
0125	500-9999		CY	CL B CONC, BASE OR PVMT WIDEN	261.000	189.71	49514.98

STATE HIGHWAY AGENCY

DATE : 06/17/2015
PAGE : 2

CES 6-17-15
JOB DETAIL ESTIMATE

0130	550-1180	LF	STM DR PIPE 18", H 1-10	16700.000	33.16	553781.02
0135	550-1240	LF	STM DR PIPE 24", H 1-10	6670.000	42.74	285084.14
0140	550-1300	LF	STM DR PIPE 30", H 1-10	300.000	58.67	17602.10
0145	550-1360	LF	STM DR PIPE 36", H 1-10	100.000	80.27	8027.78
0150	550-2180	LF	SIDE DR PIPE 18", H 1-10	200.000	34.64	6929.21
0155	550-3418	EA	SAFETY END SECTION 18", SD, 4: 1	2.000	456.96	913.94
0160	550-4218	EA	FLARED END SECT 18 IN, ST DR	20.000	574.66	11493.22
0165	550-4224	EA	FLARED END SECT 24 IN, ST DR	4.000	686.47	2745.92
0170	550-4230	EA	FLARED END SECT 30 IN, ST DR	2.000	832.92	1665.85
0175	550-4236	EA	FLARED END SECT 36 IN, ST DR	1.000	1142.41	1142.41
0180	573-2006	LF	UNDDR PIPE INCL DRAIN AGGR 6"	1000.000	20.40	20408.67
0185	603-2182	SY	STN DUMPED RIP RAP, TP 3, 24"	600.000	45.04	27024.52
0190	603-7000	SY	PLASTIC FILTER FABRIC	600.000	4.17	2507.23
0195	620-0100	LF	TEMP BARRIER, METHOD NO. 1	2000.000	28.06	56138.58
0200	620-0200	LF	TEMP BARRIER, METHOD NO. 2	305.000	56.61	17268.17
0205	632-0003	EA	CHANGEABLE MESS SIGN, PORT, TP 3	2.000	7792.76	15585.53
0210	634-1200	EA	RIGHT OF WAY MARKERS	210.000	107.27	22528.68
0215	639-2002	LF	STEEL WIRE STRAND CABLE, 3/8"	1850.000	3.19	5919.09
0220	639-3004	EA	STEEL STRAIN POLE, TP IV	20.000	12499.79	249995.96
0225	639-4003	EA	STRAIN POLE, TP III	14.000	6779.70	94915.87
0230	641-1100	LF	GUARDRAIL, TP T	300.000	51.00	15301.66
0235	641-1200	LF	GUARDRAIL, TP W	3100.000	17.45	54109.48
0240	641-5001	EA	GUARDRAIL ANCHORAGE, TP 1	9.000	800.46	7204.15
0245	641-5012	EA	GUARDRAIL ANCHORAGE, TP 12	9.000	1908.67	17178.10
0250	643-8200	LF	BARRIER FENCE (ORANGE), 4 FT	1000.000	1.34	1349.28
0255	647-1000	LS	TRAF SIGNAL INSTALLATION NO - CONCEPT	1.000	550000.00	550000.00
0260	668-1100	EA	CATCH BASIN, GP 1	128.000	2319.98	296957.71
0265	668-1110	LF	CATCH BASIN, GP 1, ADDL DEPTH	80.000	203.45	16276.46
0270	668-2100	EA	DROP INLET, GP 1	14.000	1786.76	25014.65
0275	668-4300	EA	STORM SEW MANHOLE, TP 1	6.000	1856.13	11136.78
0280	668-4311	LF	ST SEW MANHOLE, TP 1, A DEP, CL 1	10.000	195.89	1958.93

ITEM TOTAL 13679341.99
INFLATED ITEM TOTAL 13679341.99

TOTALS FOR JOB 2013026.00

ESTIMATED COST: 20584069.59
CONTINGENCY PERCENT (0.0): 0.00
ESTIMATED TOTAL: 20584069.59

PROJ. NO. STP00-0189-01(010)
P.I. NO. 721000
DATE 6/15/2015

CALL NO. 9/29/2009

INDEX (TYPE)	DATE	INDEX
REG. UNLEADED	Jun-15	\$ 2.681
DIESEL		\$ 2.867
LIQUID AC		\$ 466.00

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)				1068491.4	\$	1,068,491.40
Monthly Asphalt Cement Price month placed (APM)	Max. Cap	60%	\$	745.60		
Monthly Asphalt Cement Price month project let (APL)			\$	466.00		
Total Monthly Tonnage of asphalt cement (TMT)				3821.5		

ASPHALT	Tons	%AC	AC ton
Leveling	10890	5.0%	544.5
12.5 OGFC	0	5.0%	0
12.5 mm	12246	5.0%	612.3
9.5 mm SP	0	5.0%	0
25 mm SP	29537	5.0%	1476.85
19 mm SP	23757	5.0%	1187.85
	76430		3821.5

BITUMINOUS TACK COAT

Price Adjustment (PA)				\$	20,853.81	\$	20,853.81
Monthly Asphalt Cement Price month placed (APM)	Max. Cap	60%	\$	745.60			
Monthly Asphalt Cement Price month project let (APL)			\$	466.00			
Total Monthly Tonnage of asphalt cement (TMT)				74.58442751			

Bitum Tack

Gals	gals/ton	tons
17365	232.8234	74.5844275

BITUMINOUS TACK COAT (surface treatment)

Price Adjustment (PA)					\$	0	\$	-
Monthly Asphalt Cement Price month placed (APM)	Max. Cap	60%	\$	745.60				
Monthly Asphalt Cement Price month project let (APL)			\$	466.00				
Total Monthly Tonnage of asphalt cement (TMT)				0				

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

TOTAL LIQUID AC ADJUSTMENT \$ **1,089,345.21**

GEORGIA DEPARTMENT OF TRANSPORTATION
PRELIMINARY ROW COST ESTIMATE SUMMARY

Date: 2/12/2015 Project: STP00-0189-01(010)
 Revised: County: Fulton
 PI: 721000 Main Alt 1

Description: SR 120 Improvements from SR 141/Medlock Bridge Road to Peachtree Indust
 Project Termini: SR 120 Improvements from SR 141/Medlock Bridge Road to Peachtree Indust

Existing ROW: Varies
 Required ROW: Varies
 Parcels: 81

Land and Improvements _____ \$4,610,212.50

Proximity Damage	\$350,000.00
Consequential Damage	\$205,000.00
Cost to Cures	\$300,000.00
Trade Fixtures	\$125,000.00
Improvements	\$600,000.00

Valuation Services _____ \$433,750.00

Legal Services _____ \$542,175.00

Relocation _____ \$162,000.00

Demolition _____ \$0.00

Administrative _____ \$684,500.00

TOTAL ESTIMATED COSTS _____ \$6,432,637.50

TOTAL ESTIMATED COSTS (ROUNDED) _____ \$6,433,000.00

Preparation Credits	Hours	Signature

Prepared By: Deshone Alexander CG#: 286999 02/12/2015 (DATE)
 Approved By: Deshone Alexander CG#: 286999 02/12/2015 (DATE)

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



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File: Fulton & Gwinnett County, PI # 721000
SR 120 from Parsons Road to Peachtree Ind. Boulevard.

From: Glenn A. Williams, Title: Utility Coordination Manager **Date 5/14/2015**

To: Alex Stone, Title: Design Project Manager

Subject: Preliminary Utility Cost Estimate

As requested by your office, we are furnishing you with a preliminary estimate for Utility Cost for each company with facilities located within the project limits.

Facility Owner	Reimbursable	Non-Reimbursable
Atlanta Gas Light (AGL)	\$0.00	\$1,235,000.00
AT&T	\$0.00	\$755,000.00
Comcast of Georgia	\$0.00	\$114,400.00
Charter Communications	\$0.00	\$55,000.00
Fulton County Public Works	\$0.00	\$2,000,000.00
GPC Distribution	\$225,000.00	\$2,500,000.00
Georgia Transmission	\$0.00	\$0.00
Gwinnett Water Resources	\$0.00	\$104,000.00
Sawnee EMC	\$45,000.00	\$100,000.00
Time Warner	\$0.00	\$55,000.00
Verizon	\$0.00	\$55,000.00
Zayo Fiber Solutions	\$0.00	\$250,000.00
TOTALS	\$270,000.00	\$7,223,400.00

Total Preliminary Estimated Utility Cost **\$7,493,400.00**

If you have any questions, please contact **Glenn A. Williams** at **(470)-865-0397**

Alex Stone

From: Glenn Williams <gwilliams@sodeep.com>
Sent: Thursday, May 14, 2015 10:09 AM
To: Alex Stone; ccunningham@dot.ga.gov
Cc: Ken McDuff; Randy Jones; John Taylor
Subject: 721000 - Ballpark Estimate - SR 120
Attachments: Prelim Utility Estimate - 721000 - 5-14-15.pdf

Morning Alex & Clyde, attached is the revised ballpark estimate that includes a few more owners that were discovered during a review of approved permits for the project. We did not include the ITS facilities in with the utility cost, we recommend that City of Johns Creek and Gwinnett DOT be removed from the utility list.

Clyde, we took the liberty of adding some reimbursable cost for both GPC distribution and Sawnee EMC just as a worst case scenario with both companies having some poles outside the R/W. Let us know if we need to make any modifications. I left you a message this morning, this is the subject matter in which I was calling.

Thanks.

Glenn A. Williams

Utility Coordination Manager
161 Gateway Drive, Suite A
Macon, GA 31210
O. 478-254-3200
C. 470-865-0397
gwilliams@sodeep.com
www.sodeep.com



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 Please consider the environment before printing this email, thank you.

ENVIRONMENTAL MITIGATION CREDITS

PI 721000
Gwinnett/Fulton Counties
February 10, 2015

Wetlands

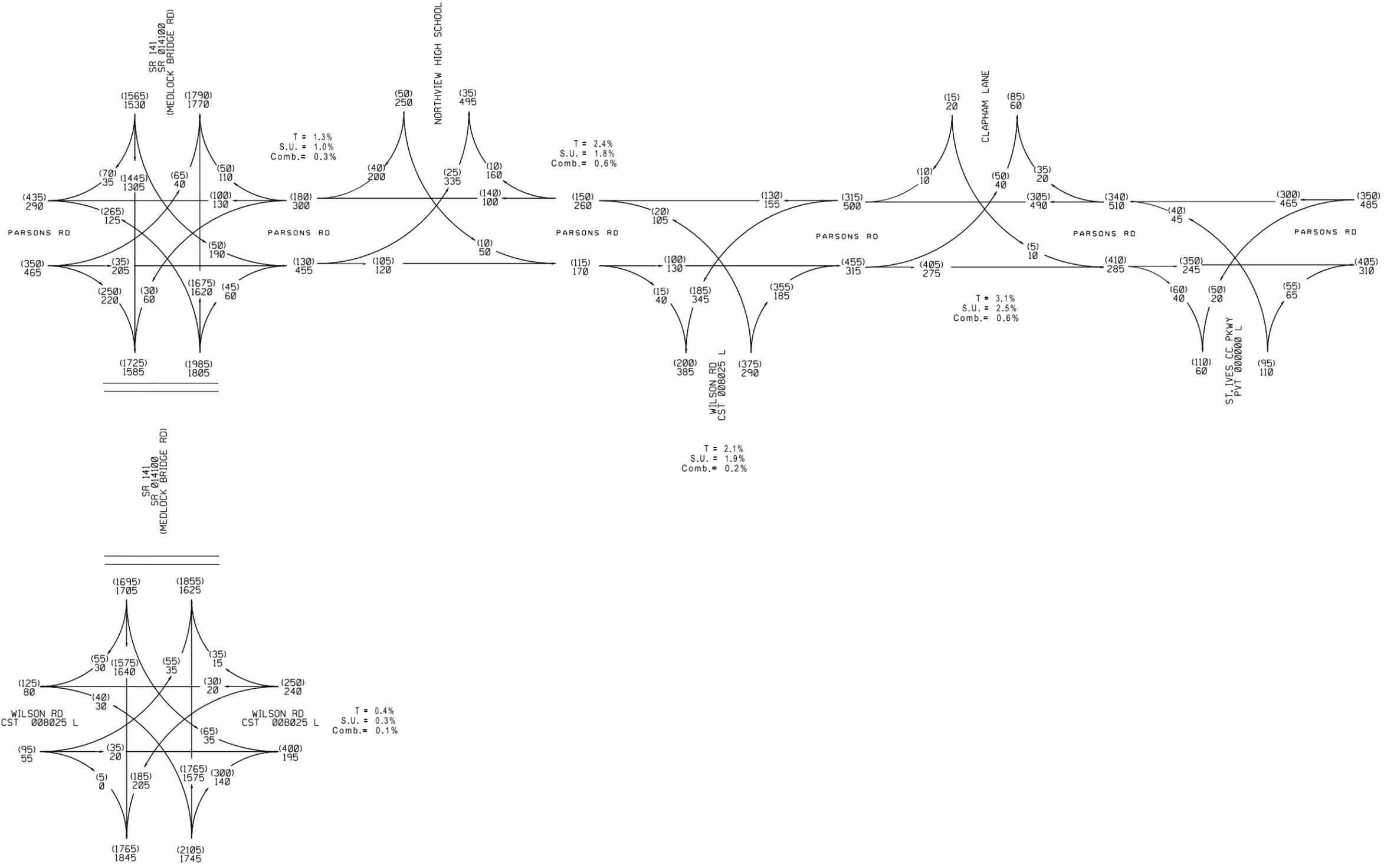
Acres		0.32	
Muliplier		5.7	
Cost/Credit	\$	10,023.00	
Subtotal:			\$ 18,281.95

Streams

Linear Feet		1710	
Multiplier		5.2	
Cost/Credit	\$	38.00	
Subtotal:			\$ 337,896.00

Total Mitigaiton Cost:			\$ 356,177.95
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Traffic Diagrams - Existing

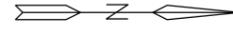


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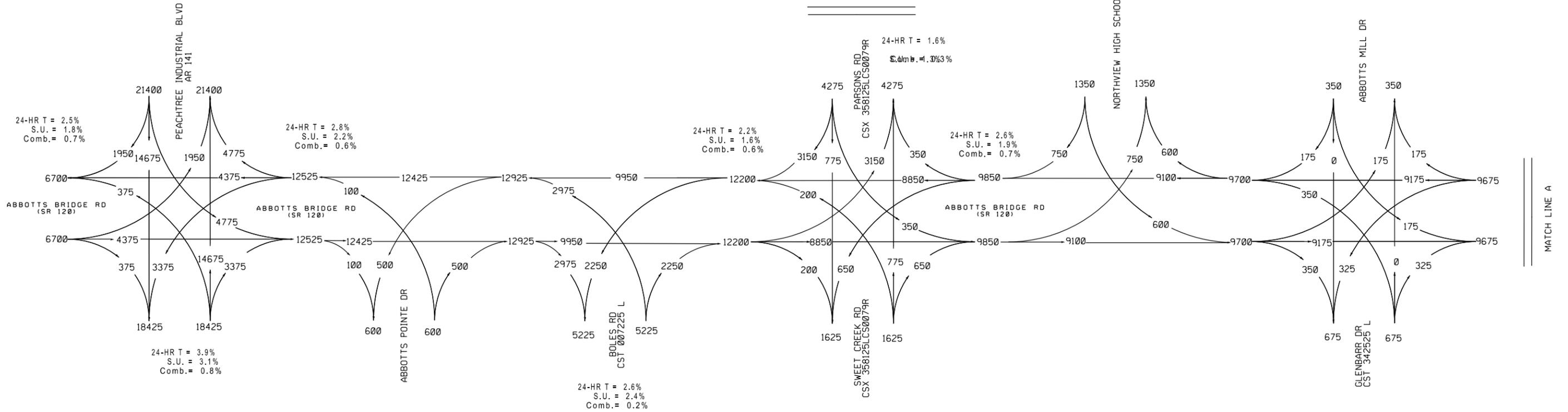
P.I. # 721000
Fulton/Gwinnett Counties
SR 120/Parsons/Wilson Rd
From PIB/Gwinnett
To Parsons Rd / Fulton
2013 EXISTING AM DHV = 000
2013 EXISTING PM DHV = (000)

T = 2.3%
S.U. = 1.8%
Comb. = 0.5%

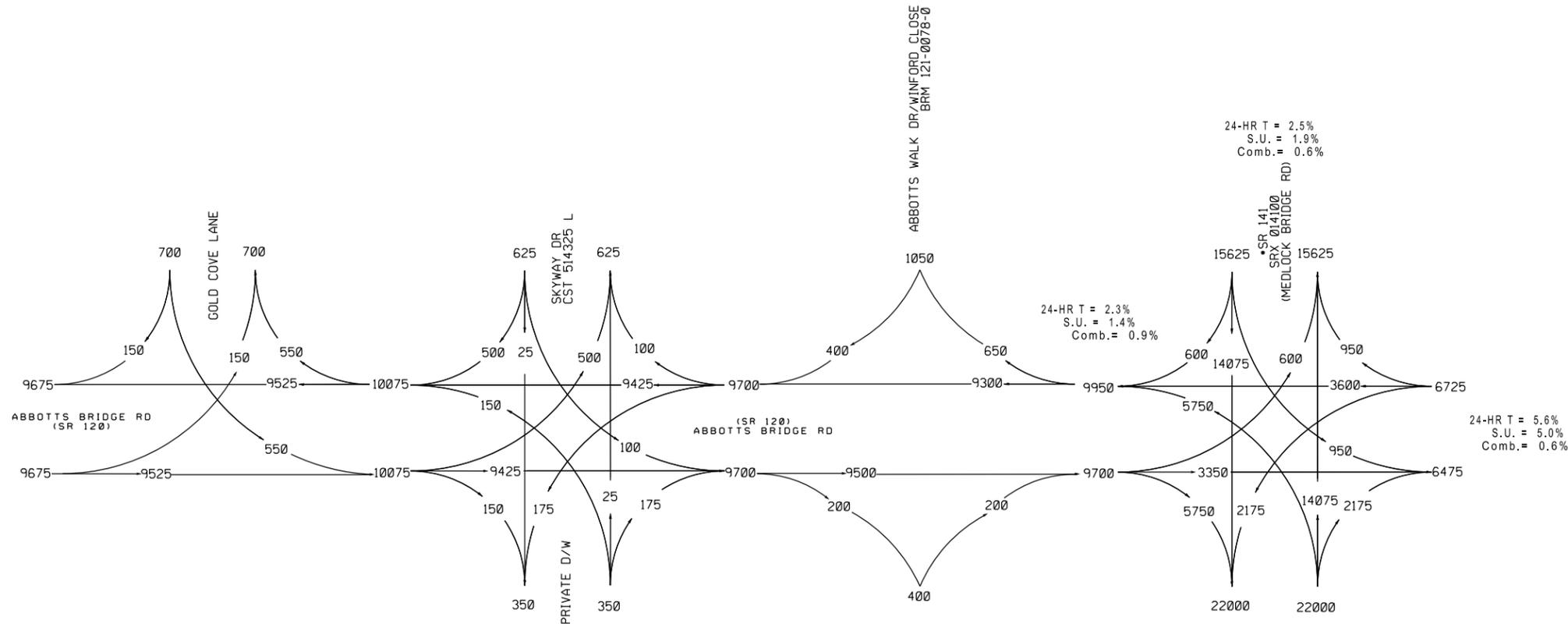
24-HR T = 4.1%
 S.U. = 3.5%
 Comb. = 0.6%



MATCH LINE B (SHEET 2)



MATCH LINE A

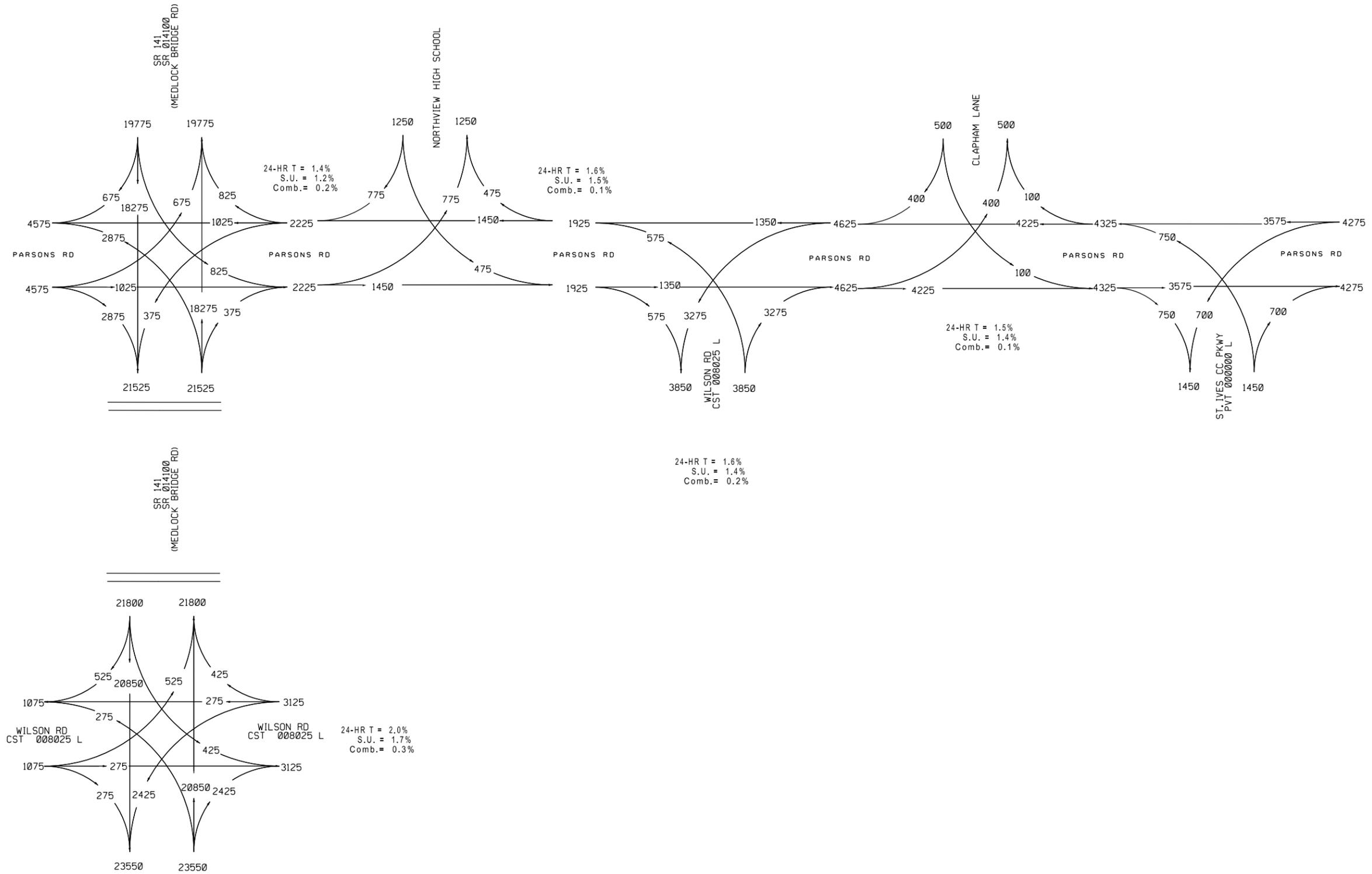
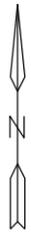


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P.I. # 721000
 Fulton/Gwinnett Counties
 SR 120/Parsons/Wilson Rd
 From PIB/Gwinnett
 To Parsons Rd / Fulton

2013 EXISTING DAILY VOLUMES

*NOTE: COUNTS FOR MEDLOCK BRIDGE ROAD AND PIB WERE DONE IN JANUARY 2014



MATCHLINE B
SHEET 1

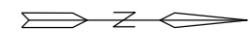
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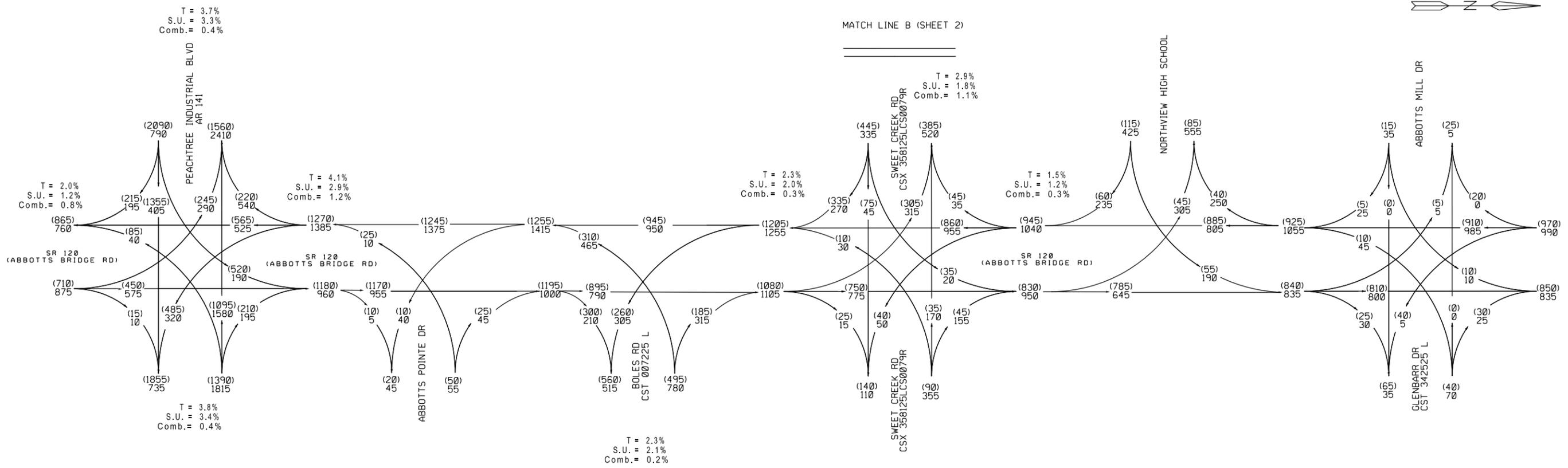
2013 EXISTING DAILY VOLUMES

24-HR T = 1.5%
S.U. = 1.4%
Comb. = 0.1%

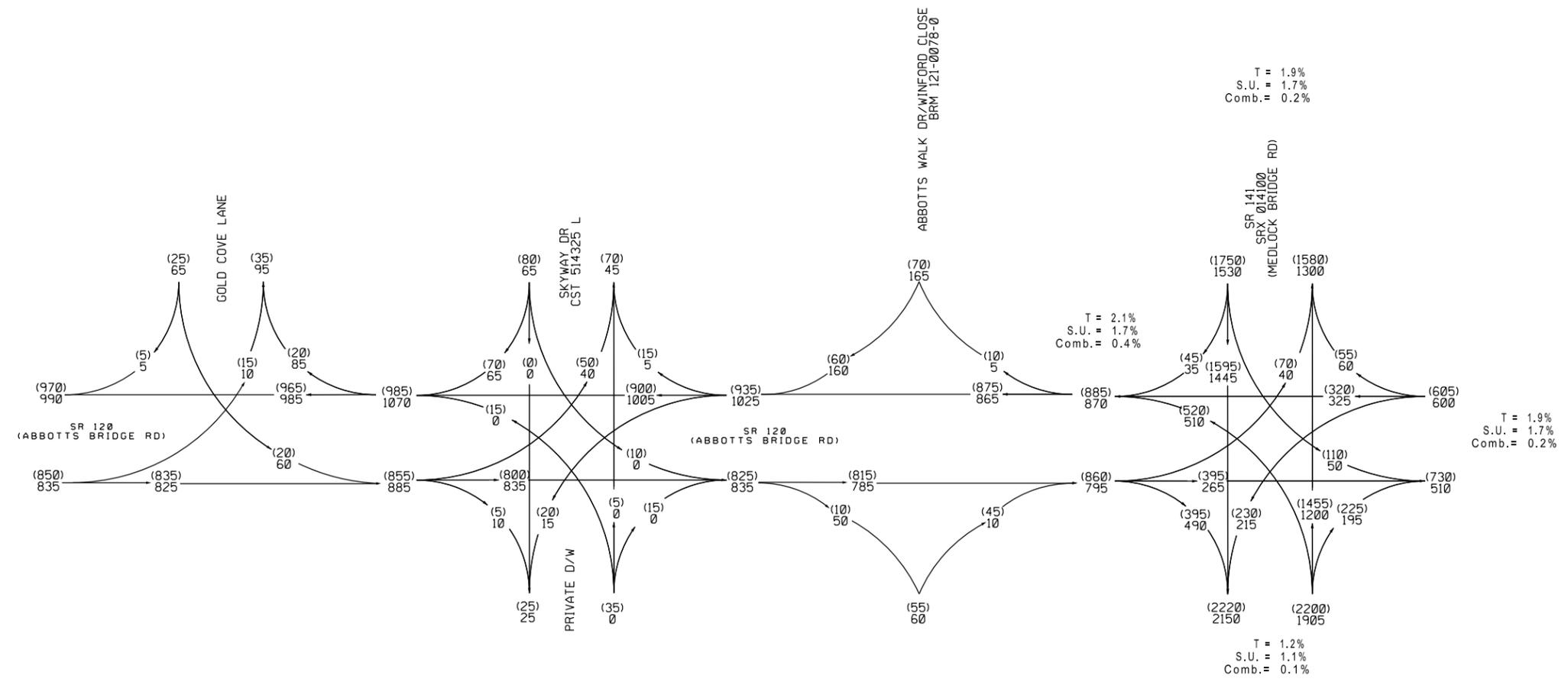
Traffic Diagrams - 2022 No-Build



MATCH LINE B (SHEET 2)



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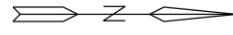


MATCH LINE A

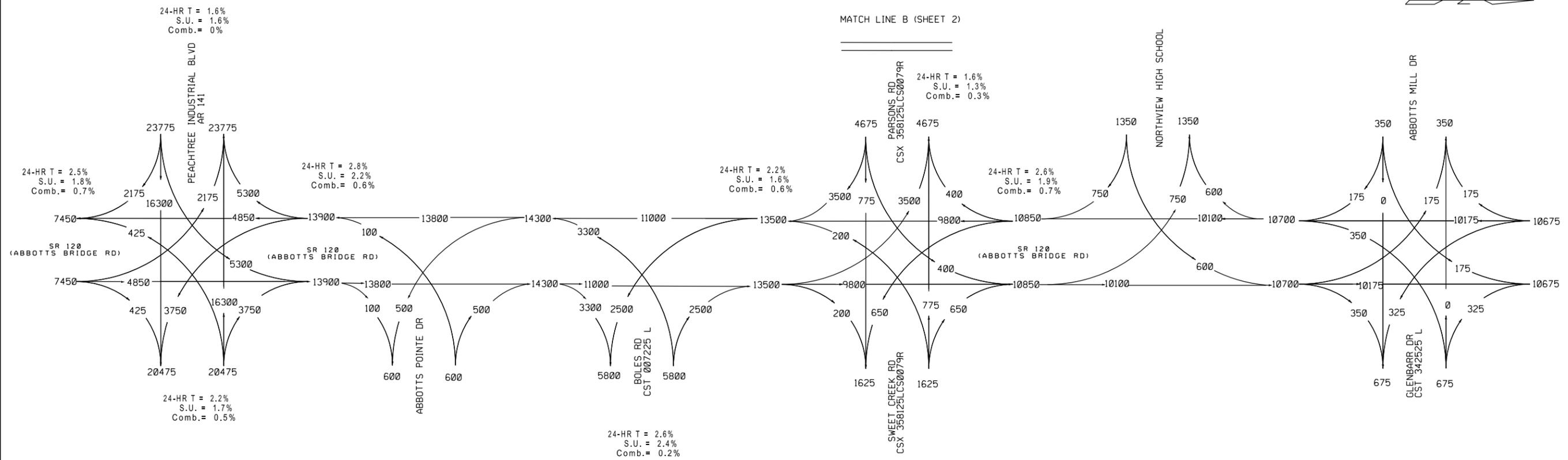
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P.I. # 721000
 Fulton/Gwinnett Counties
 SR 120/Parsons/Wilson Rd
 From PIB/Gwinnett
 To Parsons Rd / Fulton
 2022 NO-BUILD DHV
 AM DHV = 000
 PM DHV = (000)

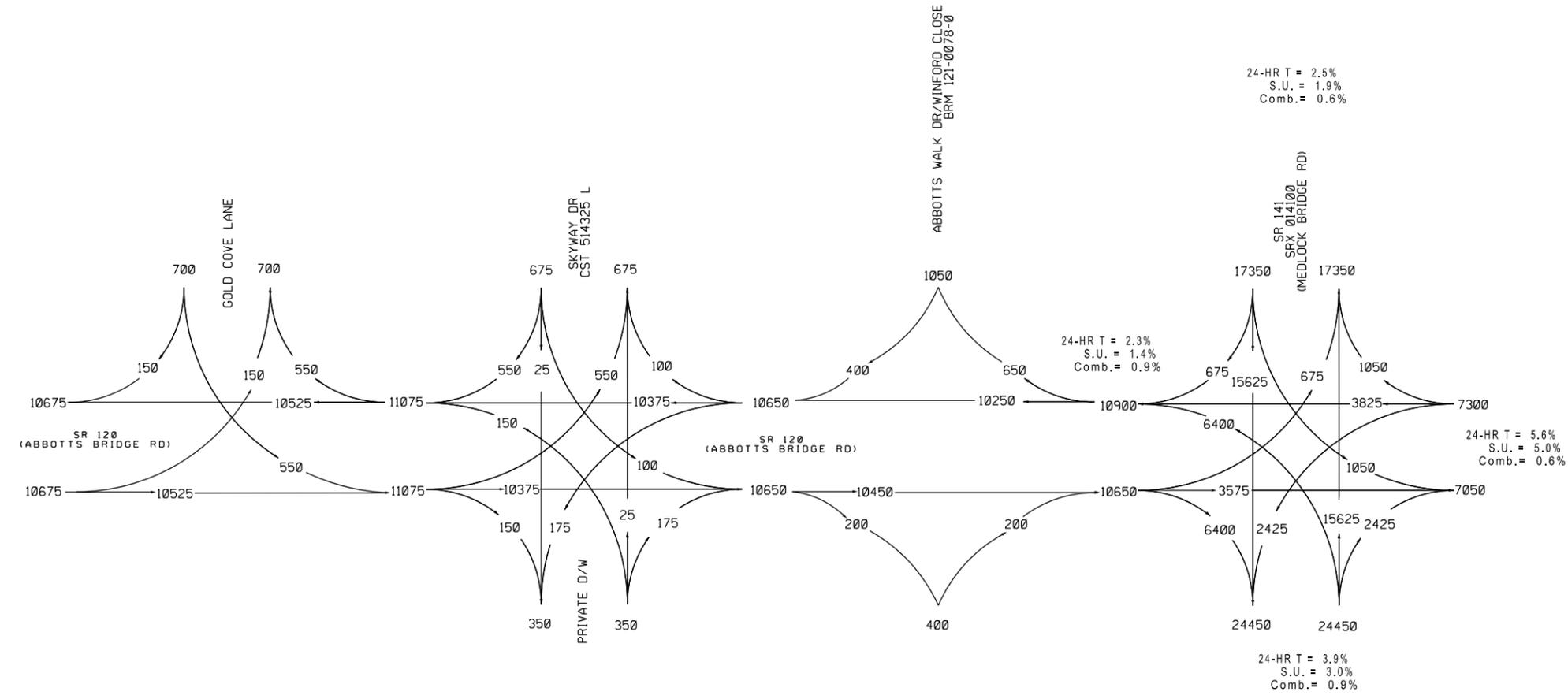
T = 2.4%
 S.U. = 1.8%
 Comb. = 0.6%



MATCH LINE B (SHEET 2)



MATCH LINE A



MATCH LINE A

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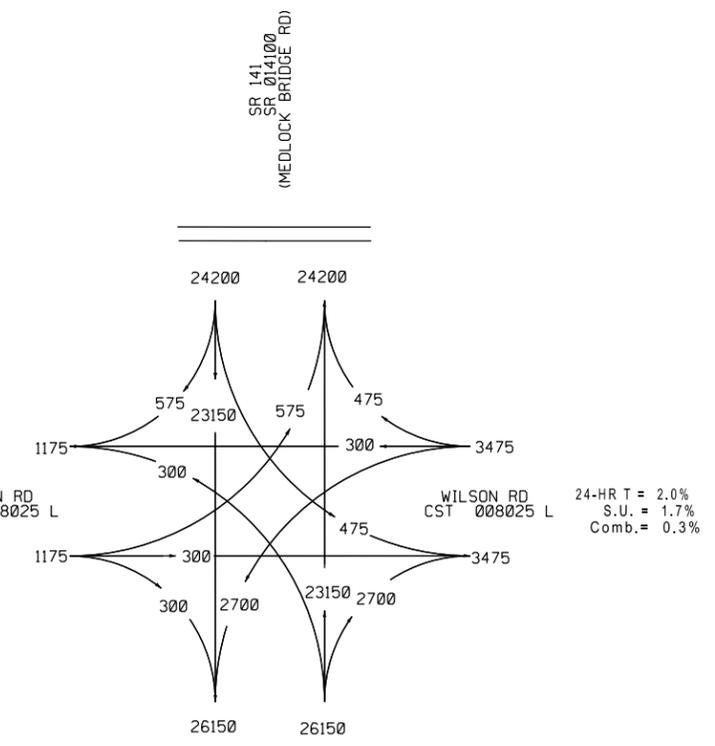
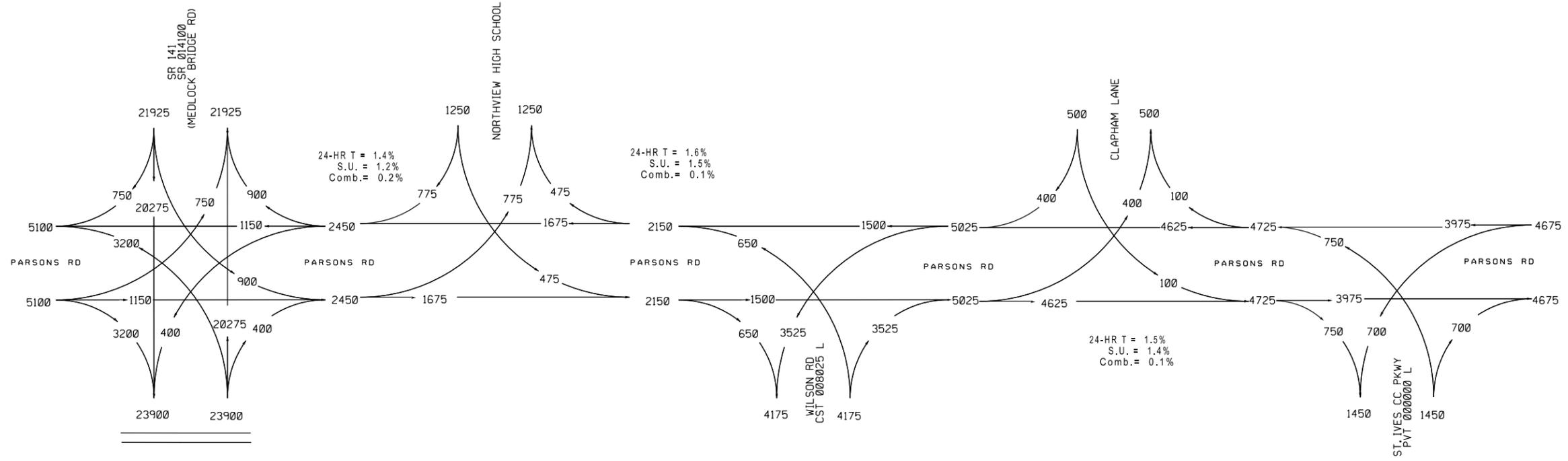
P.I. # 721000
Fulton/Gwinnett Counties
SR 120/Parsons/Wilson Rd
From PIB/Gwinnett
To Parsons Rd / Fulton

2022 NO-BUILD
DAILY VOLUMES

24-HR T = 3.0%
S.U. = 2.3%
Comb. = 0.7%



MATCH LINE B
SHEET 1

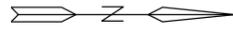


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2022 NO-BUILD
DAILY VOLUMES
24-HR T = 1.5%
S.U. = 1.4%
Comb. = 0.1%

Traffic Diagrams - 2042 No-Build



MATCH LINE B (SHEET 2)

T = 3.7%
S.U. = 3.3%
Comb. = 0.4%

T = 4.1%
S.U. = 2.9%
Comb. = 1.2%

T = 2.3%
S.U. = 2.0%
Comb. = 0.3%

T = 2.9%
S.U. = 1.8%
Comb. = 1.1%

T = 1.5%
S.U. = 1.2%
Comb. = 0.3%

T = 3.8%
S.U. = 3.4%
Comb. = 0.4%

T = 2.3%
S.U. = 2.1%
Comb. = 0.2%

T = 1.9%
S.U. = 1.7%
Comb. = 0.2%

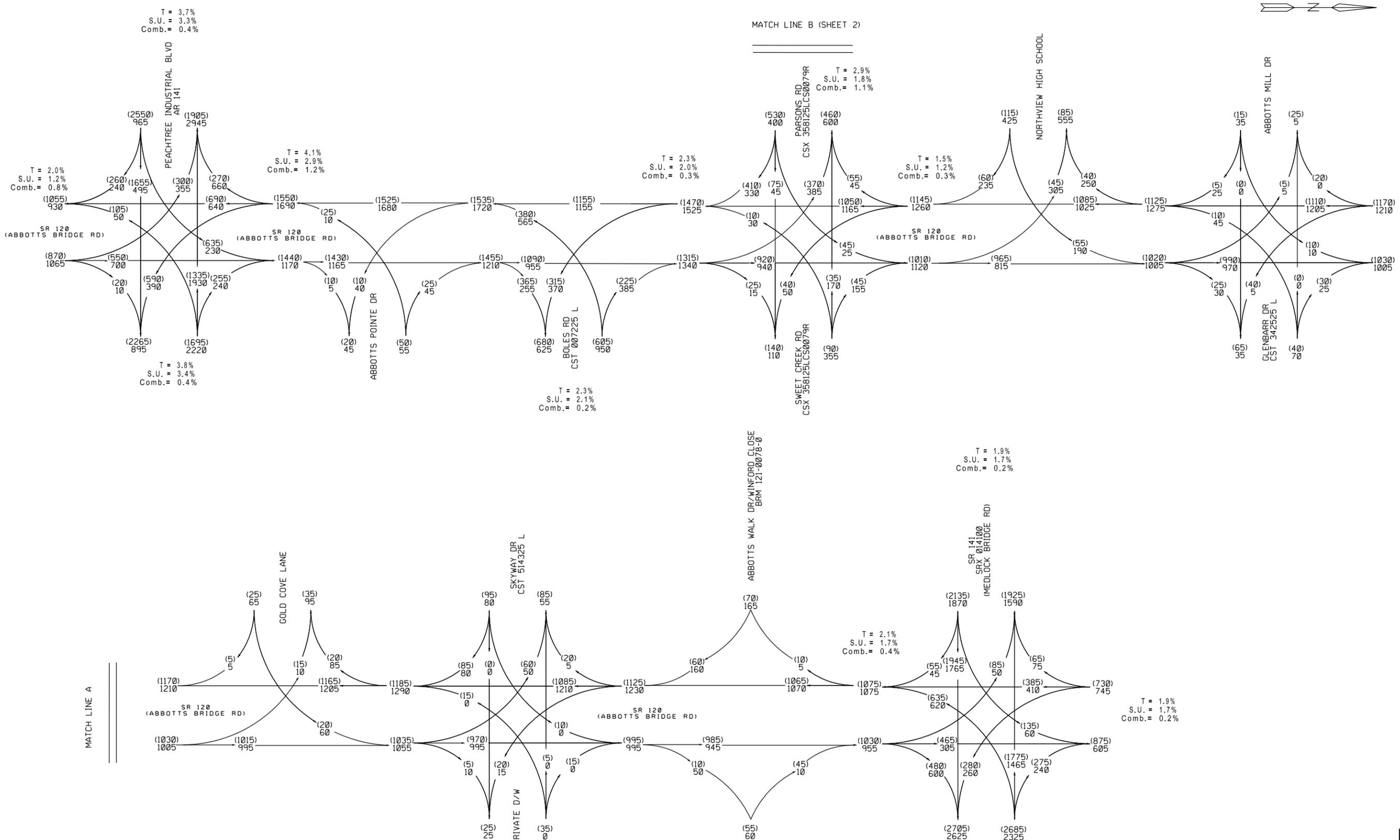
T = 2.1%
S.U. = 1.7%
Comb. = 0.4%

T = 1.9%
S.U. = 1.7%
Comb. = 0.2%

T = 1.2%
S.U. = 1.1%
Comb. = 0.1%

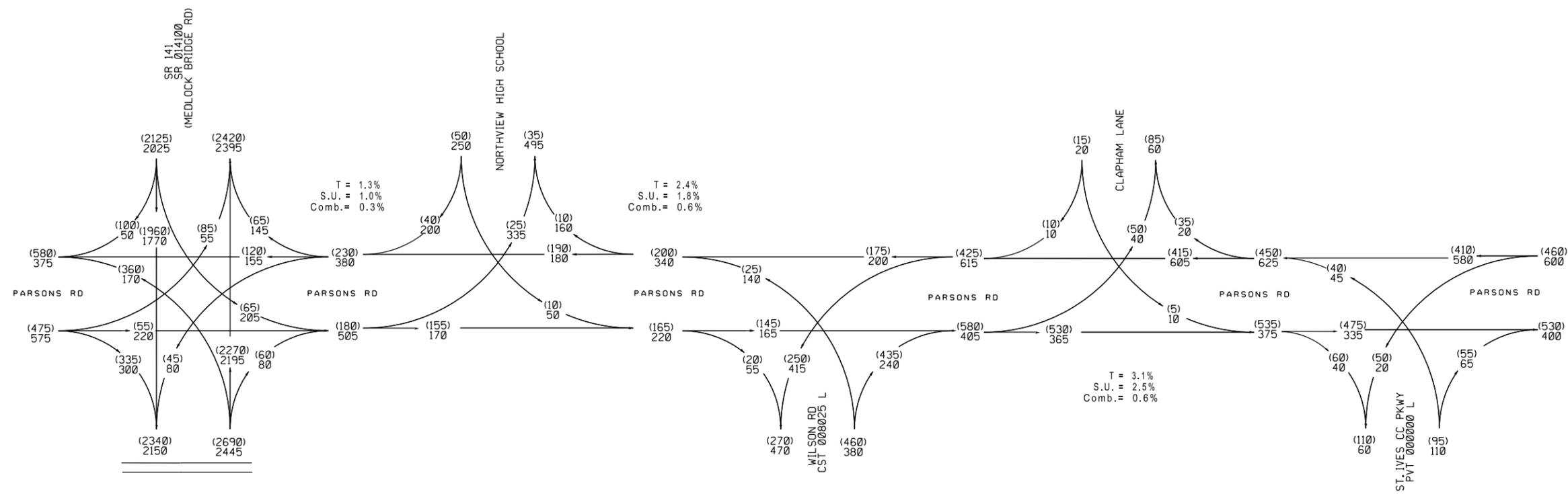
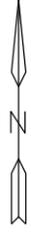
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P.I. # 721000
Fulton/Gwinnett Counties
SR 120/Parsons/Wilson Rd
From PIB/Gwinnett
To Parsons Rd / Fulton
2042 NO-BUILD DHV
AM DHV = 000
PM DHV = (000)
T = 2.4%
S.U. = 1.8%
Comb. = 0.6%

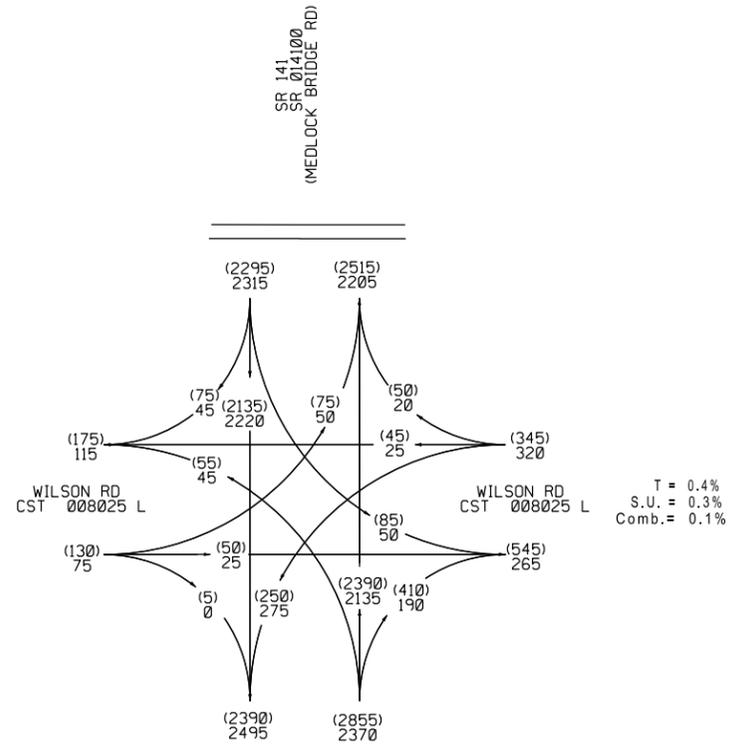


MATCH LINE A

MATCH LINE A



MATCHLINE B
SHEET 1

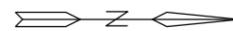


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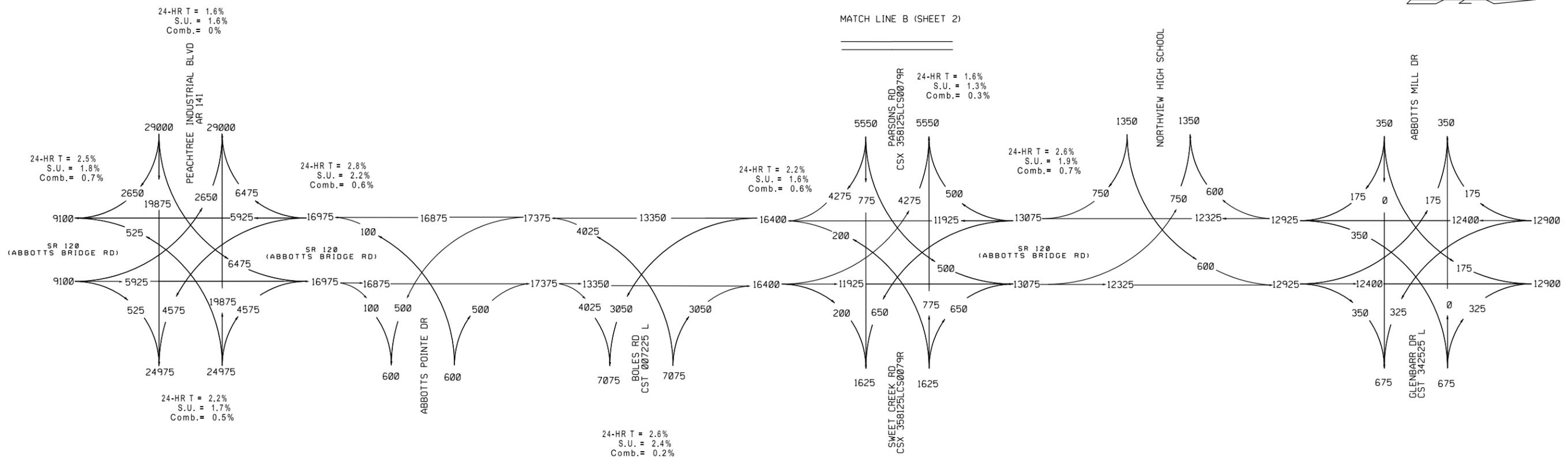
P.I. # 721000
Fulton/Gwinnett Counties
SR 120/Parsons/Wilson Rd
From PIB/Gwinnett
To Parsons Rd / Fulton

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

T = 2.3%
S.U. = 1.8%
Comb. = 0.5%

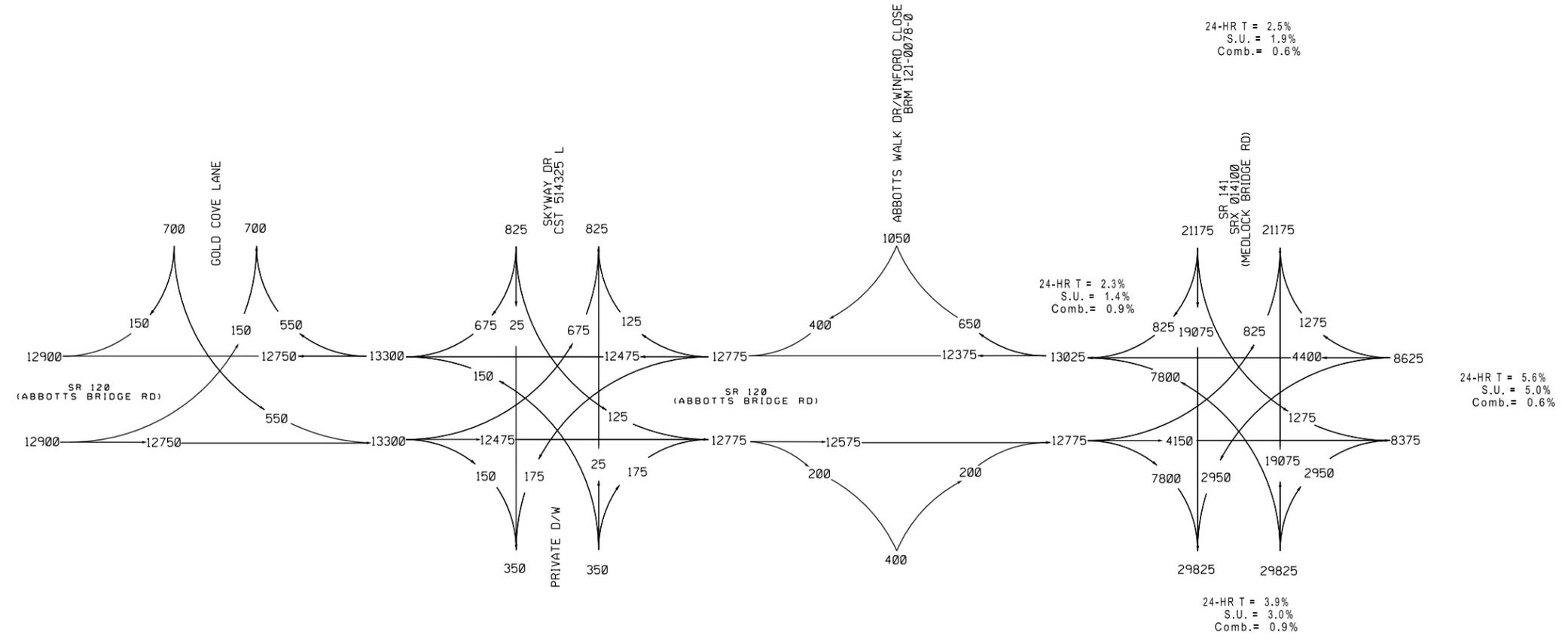


MATCH LINE B (SHEET 2)



MATCH LINE A

MATCH LINE A

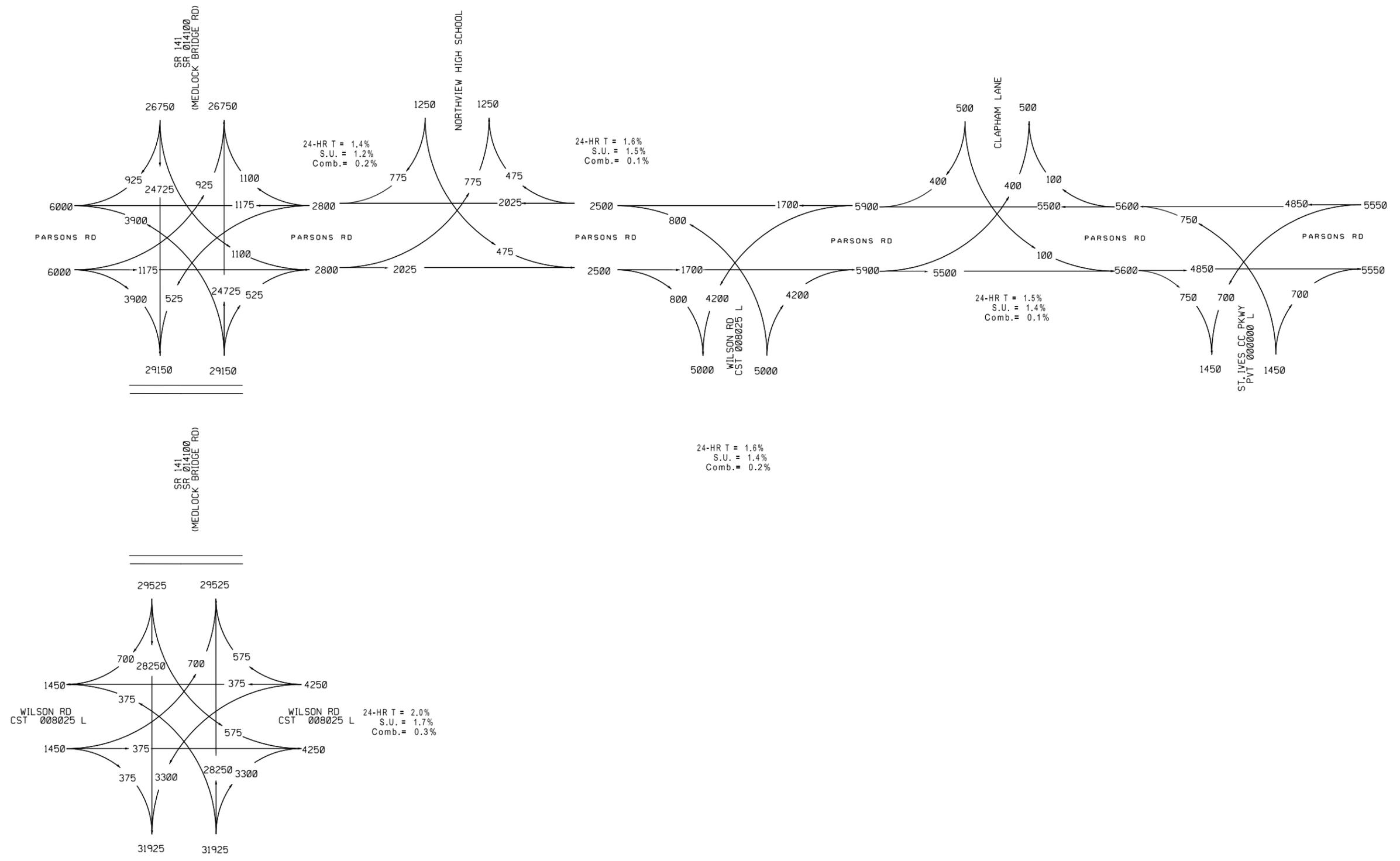
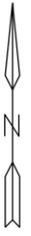


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2042 NO-BUILD
DAILY VOLUMES

24-HR T = 3.0%
S.U. = 2.3%
Comb. = 0.7%



MATCH LINE B
SHEET 1

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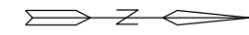
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2042 NO-BUILD
DAILY VOLUMES

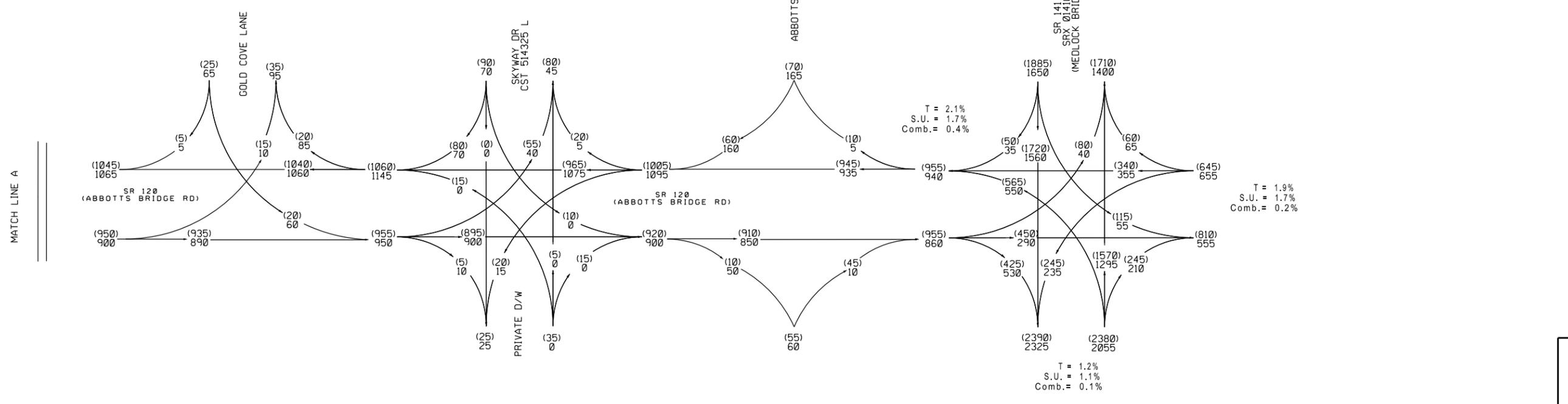
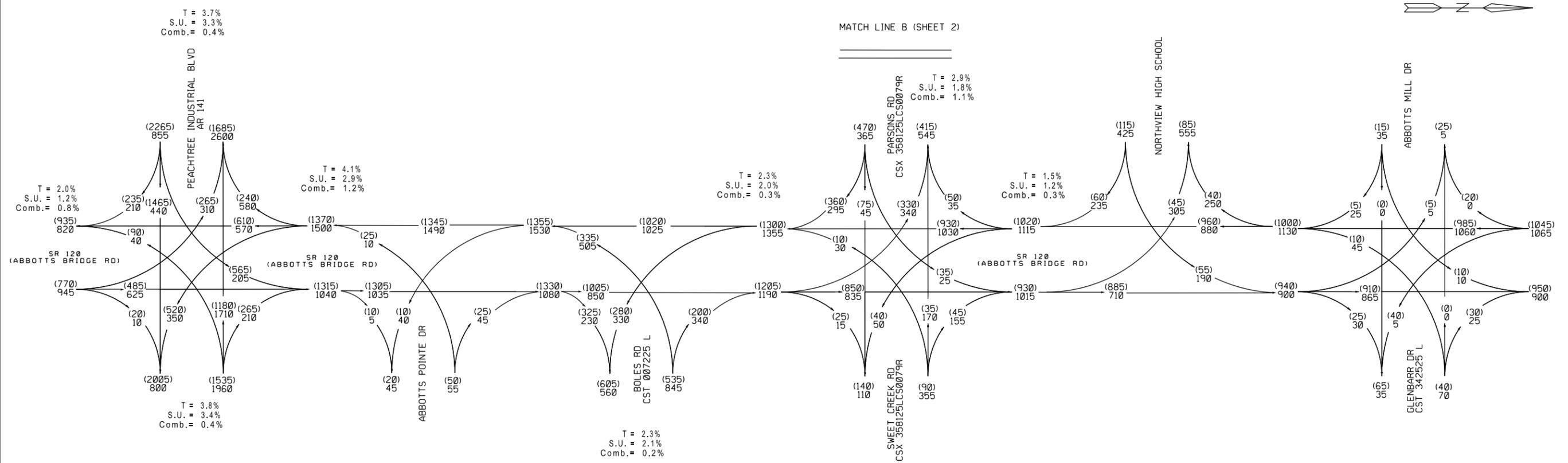
24-HR T = 1.5%
S.U. = 1.4%
Comb. = 0.1%

Sheet 2 of 2 SB 08/20/14

Traffic Diagrams - 2022 Build



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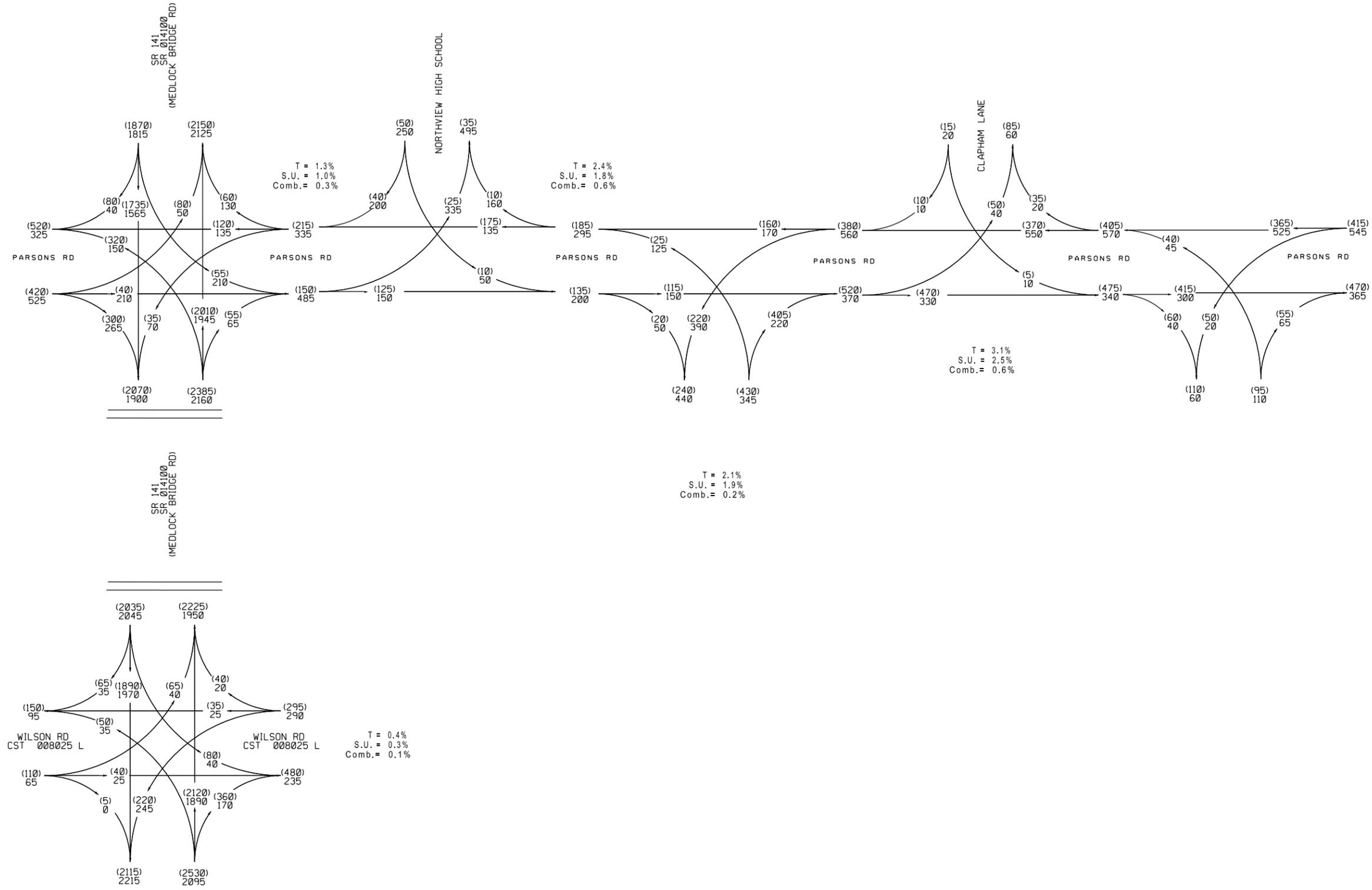
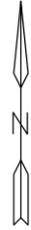


MATCH LINE A

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P.I. # 721000
 Fulton/Gwinnett Counties
 SR 120/Parsons/Wilson Rd
 From PIB/Gwinnett
 To Parsons Rd / Fulton
 2022 BUILD DHV
 AM DHV = 000
 PM DHV = (000)

T = 2.4%
 S.U. = 1.8%
 Comb. = 0.6%



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SHEET 1

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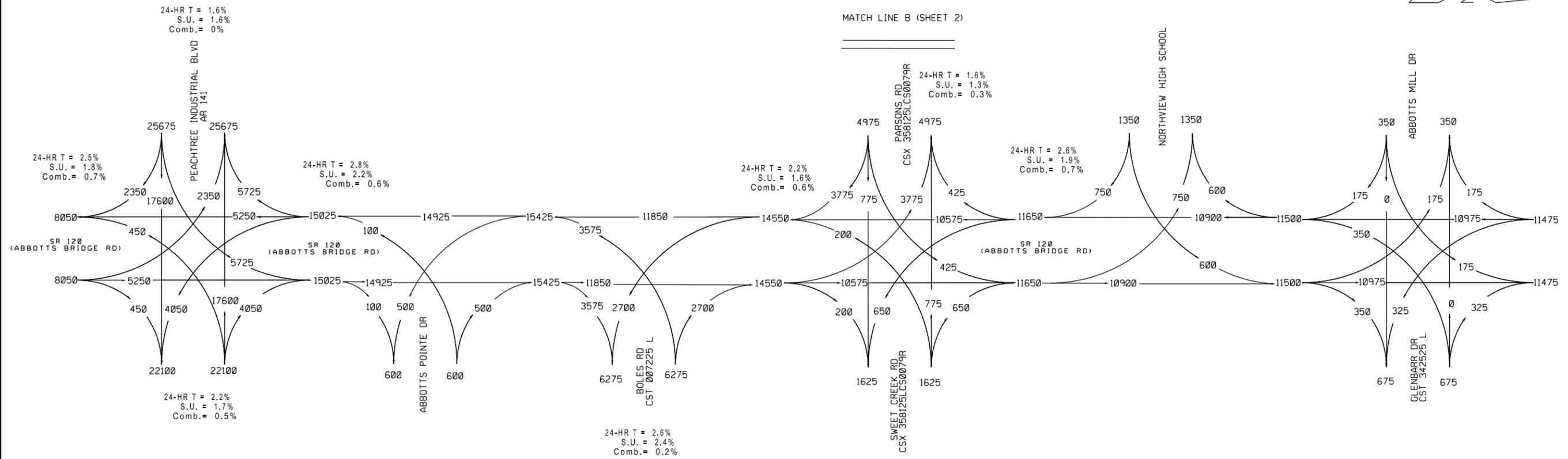
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Comb. = 0.5%

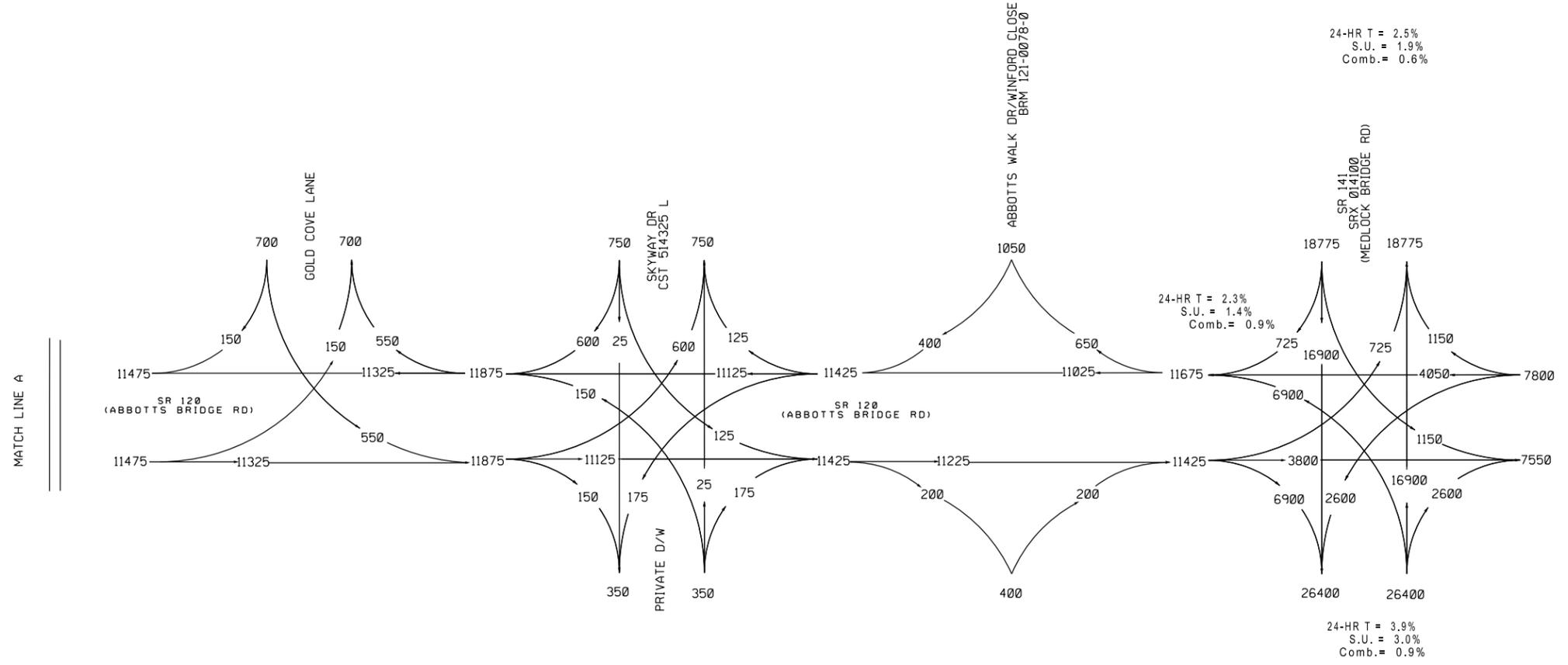
Sheet 2 of 2 SB 08/2014



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MATCH LINE A



MATCH LINE A

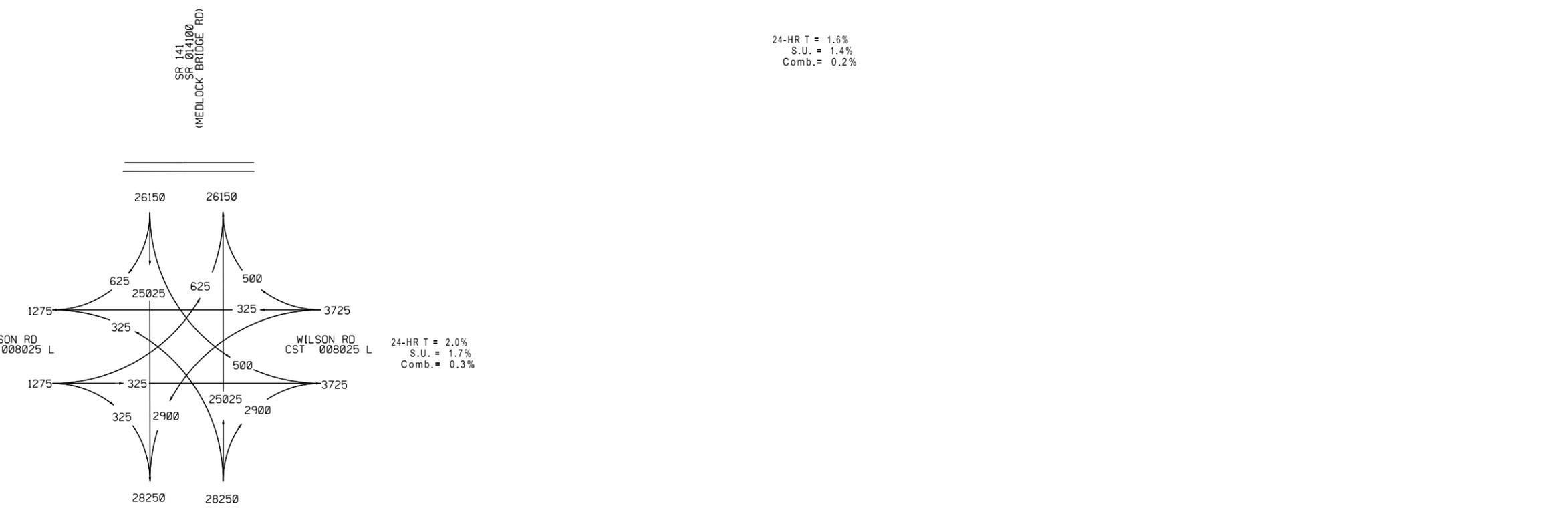
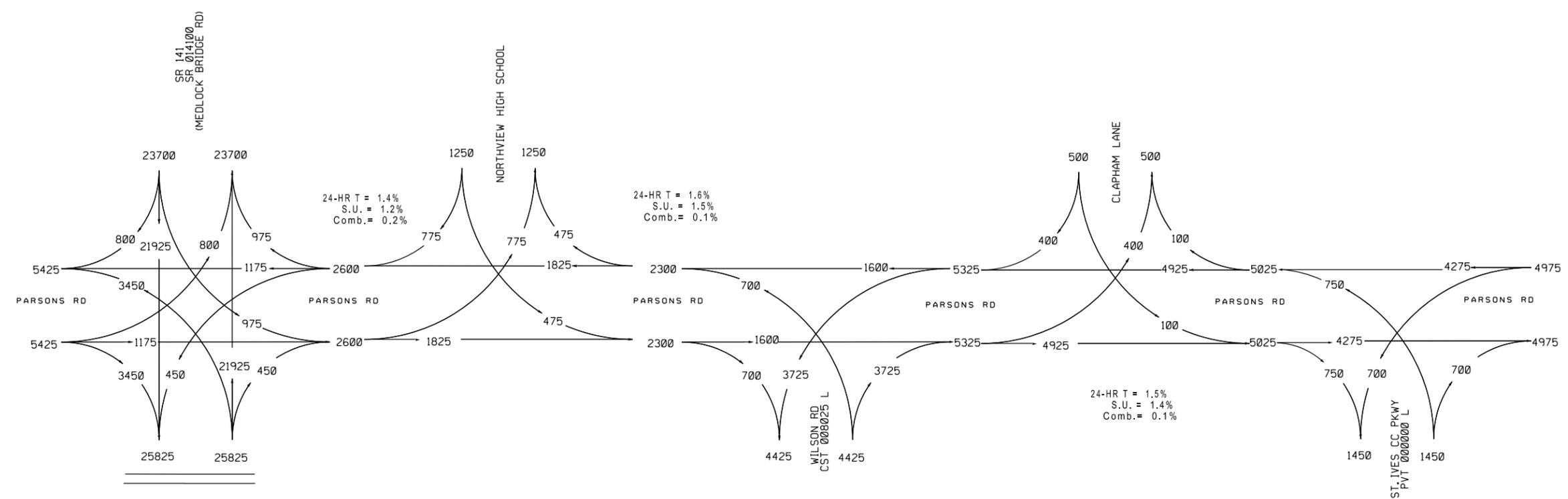
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2022 BUILD
DAILY VOLUMES
24-HR T = 3.0%
S.U. = 2.3%
Comb. = 0.7%



MATCH LINE B
SHEET 1



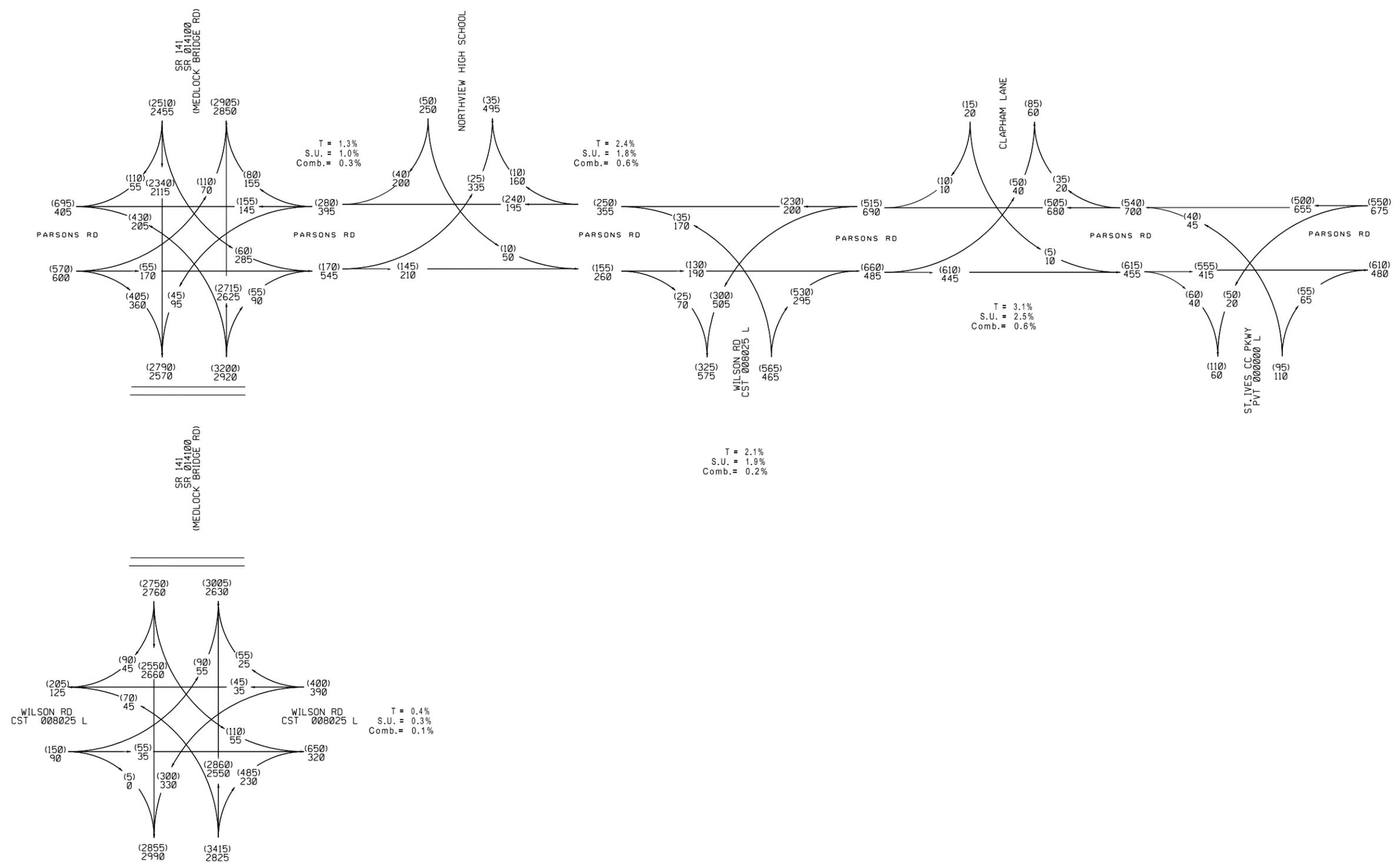
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2022 BUILD
DAILY VOLUMES

T = 1.5%
S.U. = 1.4%
Comb. = 0.1%

Traffic Diagrams - 2042 Build



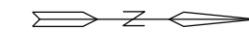
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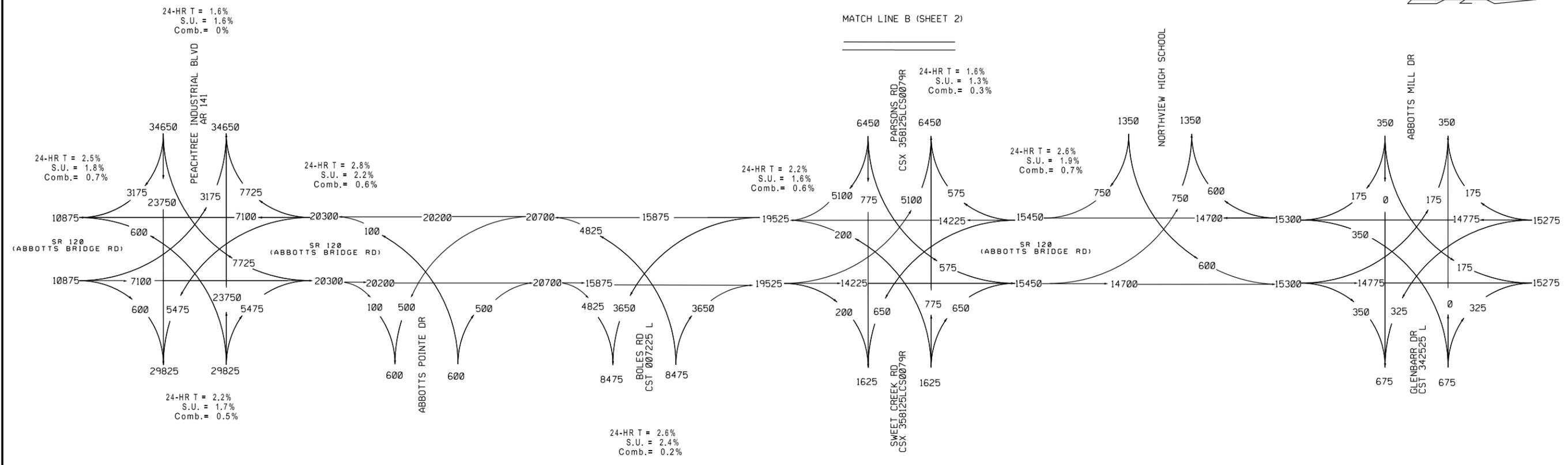
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Fulton/Gwinnett Counties
SR 120/Parsons/Wilson Rd
From PIB/Gwinnett
To Parsons Rd / Fulton

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AM DHV = 000
PM DHV = (000)

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Comb. = 0.5%

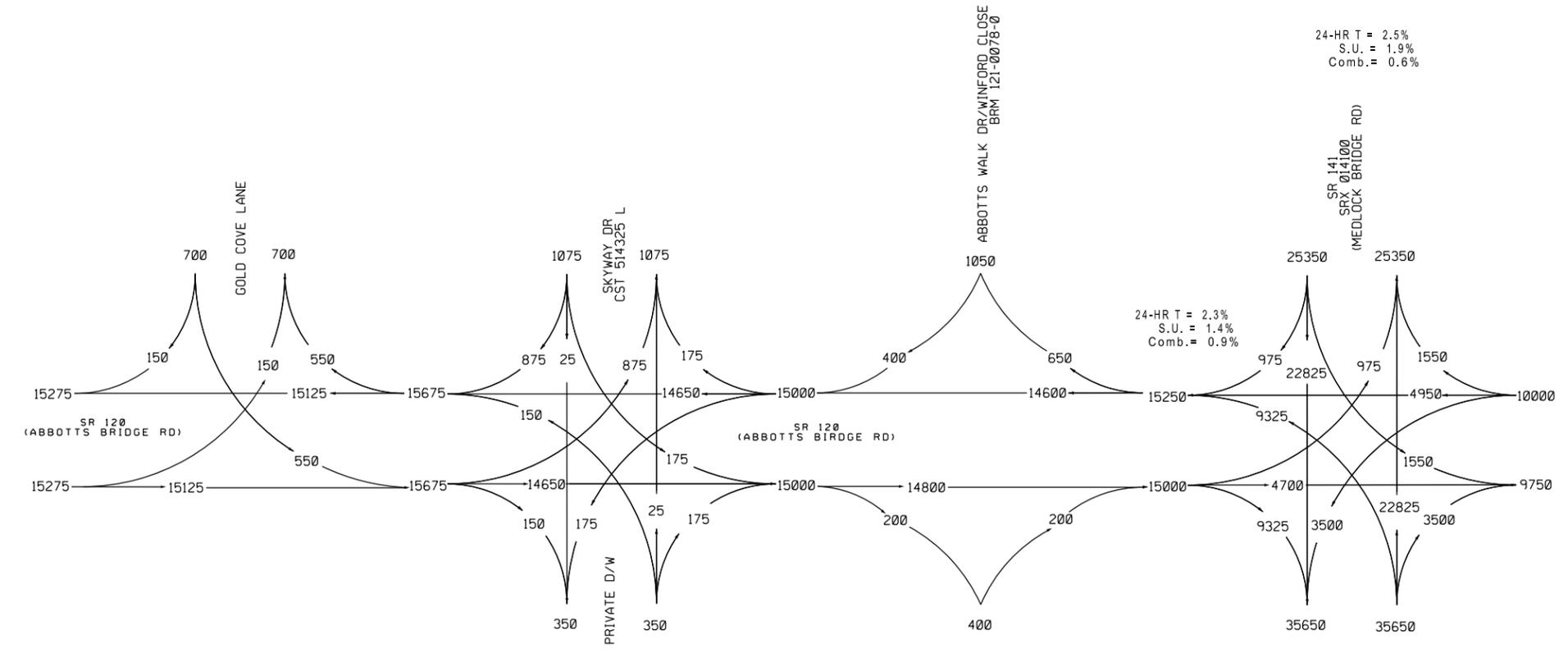


MATCH LINE B (SHEET 2)



MATCH LINE A

MATCH LINE A



24-HR T = 5.6%
S.U. = 5.0%
Comb. = 0.6%

24-HR T = 3.9%
S.U. = 3.0%
Comb. = 0.9%

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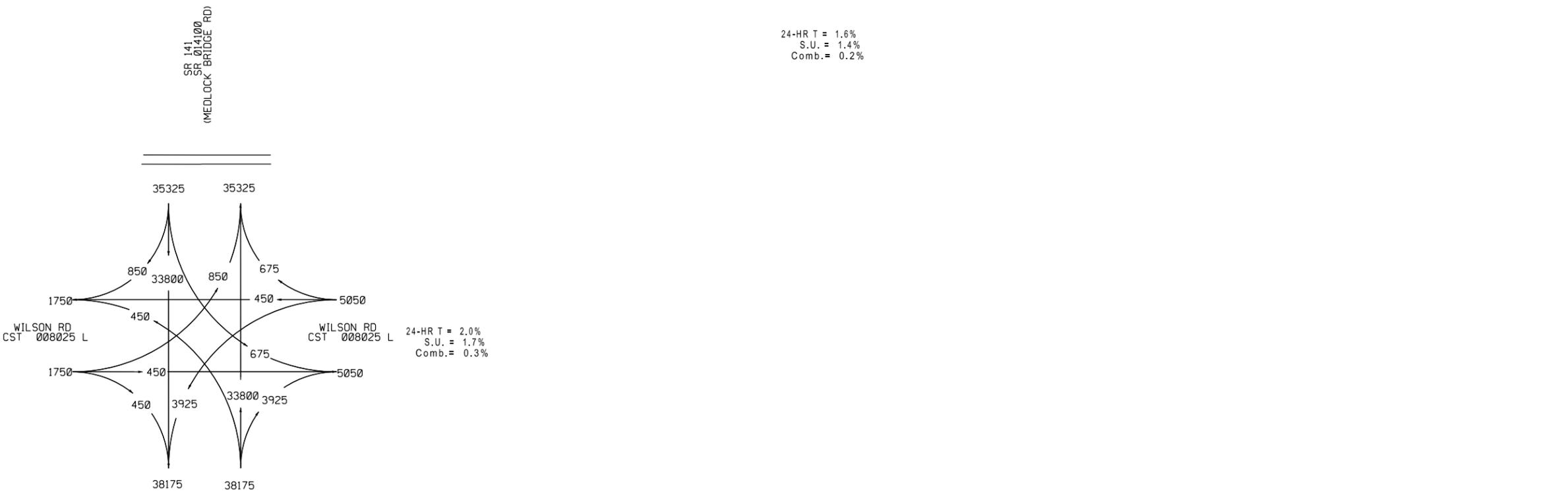
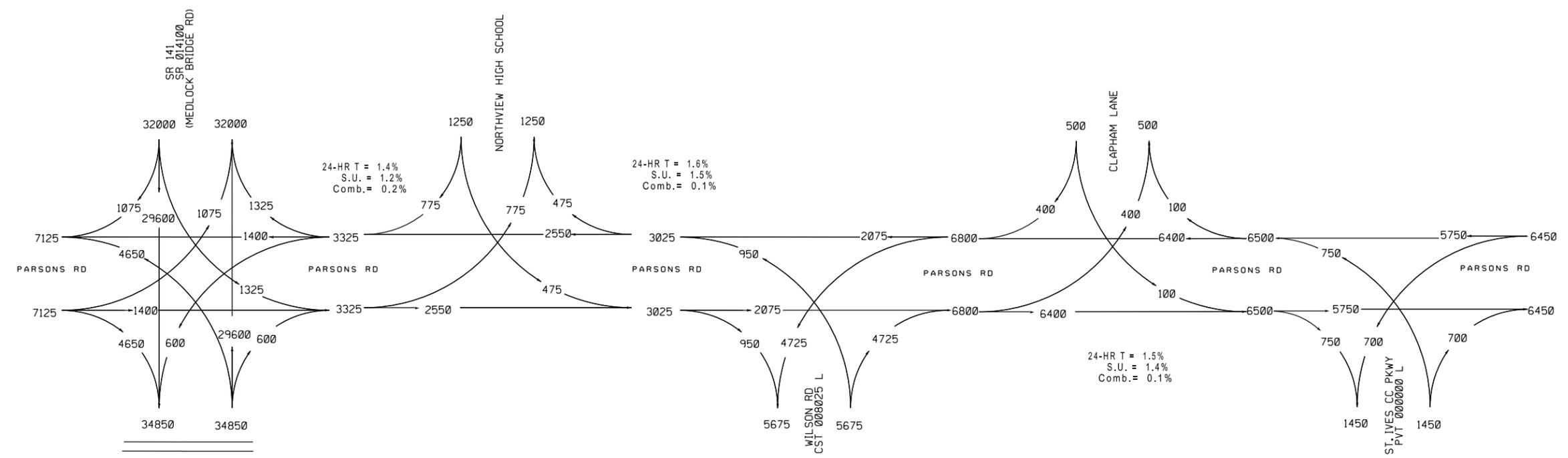
P.I. # 721000
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SR 120/Parsons/Wilson Rd
From PIB/Gwinnett
To Parsons Rd / Fulton

2042 BUILD
DAILY VOLUMES

24-HR T = 3.0%
S.U. = 2.3%
Comb. = 0.7%



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To Parsons Rd / Fulton

2042 BUILD
DAILY VOLUMES

24-HR T = 1.5%
S.U. = 1.4%
Comb. = 0.1%

Sheet 2 of 2 SB 08/2014

Traffic Engineering Study

SR 120

From PIB to Medlock Bridge Rd

P.I. # 721000

Fulton & Gwinnett Counties

January 2015



<p><i>Title</i></p> <p>Traffic Study SR 120 (Abbotts Bridge Road) Widening PI 721000 Fulton/Gwinnett Counties, GA</p>	
<p><i>Prepared For</i> Georgia Department of Transportation</p> <p><i>On Behalf of:</i> Mulkey Engineers & Consultants 1255 Canton Street Roswell, GA 30075 Mr. Alex Stone, P.E. 678.795.3600</p>	<p><i>Date</i></p> <p>January 30, 2015</p>
<p><i>Prepared By</i></p> <p>Wilburn Engineering, LLC 931 Lower Fayetteville Road, Suite I Newnan, Georgia 30263</p> <p>678.423.0050</p>	<p><i>Principal Investigator</i></p> <p>Donald “Speedy” Boutwell, PE, PTOE</p> <p><i>Additional Investigator</i></p> <p>Vern Wilburn, PE, PTOE Drew Ritter</p>
<p><i>Summary</i></p>	
<p>This study evaluates the Existing, Construction Year (2022), and Design Year (2042) traffic to identify the necessary improvements and operational needs for the future widening of SR 120.</p> <p>The focus of this study was to evaluate the section of SR 120 from Peachtree Industrial Boulevard (PIB) to SR 141/Medlock Bridge Road.</p> <p>The following statements summarize the findings of this study:</p> <p>The SR 120 widening project will provide a four-lane divided section with a raised median and enhanced sidewalks on one or both sides.</p> <p>SR 120 & PEACHTREE INDUSTRIAL BOULEVARD</p> <ol style="list-style-type: none"> 1. The intersection of PIB and SR 120 currently operates at level of service (LOS) F and will operate at LOS F through the Design Year (2042) with the SR 120 widening project. 2. The SR 120 widening project will provide dual left turn lanes on the northbound and southbound approaches of SR 120. 3. Alternative intersection configurations (e.g. Continuous Flow Intersection and Urban Single Point, the widening of PIB) were evaluated but were not pursued due to prohibitive costs. 	

SR 120 & BOLES ROAD

1. The intersection of SR 120 and Boles Road currently operates at LOS F and will operate at LOS C through the Design Year (2042) with the SR 120 widening project.
2. The SR 120 widening project will provide dual left turn lanes on the southbound and westbound approaches of SR 120 and Boles Road.

SR 120 & PARSONS ROAD/SWEET CREEK ROAD

1. The intersection of SR 120 and Parsons Road/Sweet Creek Road currently operates at LOS F and will operate at LOS B through the Design Year (2042) with the SR 120 widening project.
2. The SR 120 widening project will provide dual left turn lanes on the northbound approach, left and right turn lanes on the eastbound and westbound approaches, and a free flow or dual right turn lane on the eastbound approach.

SR 120 & SR 141/MEDLOCK BRIDGE ROAD

1. The intersection of SR 120 and SR 141/Medlock Bridge Road currently operates at LOS F and will operate at LOS F through the Design Year (2042) with the SR 120 widening project.
2. The SR 120 widening project will provide a right turn lane on the southbound approach.
3. Alternative intersection configurations (e.g. Continuous Flow Intersection and Urban Single Point, the widening of SR 141/Medlock Bridge Road) were evaluated but were not pursued due to prohibitive costs.

OTHER INTERSECTION IMPROVEMENTS

1. The intersection of Parsons Road and Wilson Road currently operates at LOS F. The intersection should be reconstructed to a single-lane roundabout which will provide a LOS C through the Design Year (2042).
2. The SR 120 widening project will provide a 32' median at unsignalized intersections to accommodate two-stage left turns.
3. The intersection of SR 141/Medlock Bridge Road and Wilson Road needs dual left turn lanes on the westbound approach.

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INTRODUCTION

The SR 120 (Abbotts Bridge Road) corridor widening project, PI-721000, STP-00-0189-01(010), proposes to widen SR 120 from two to four lanes. The project is scheduled to be LET for Construction in 2019 and anticipated to be open in 2022.

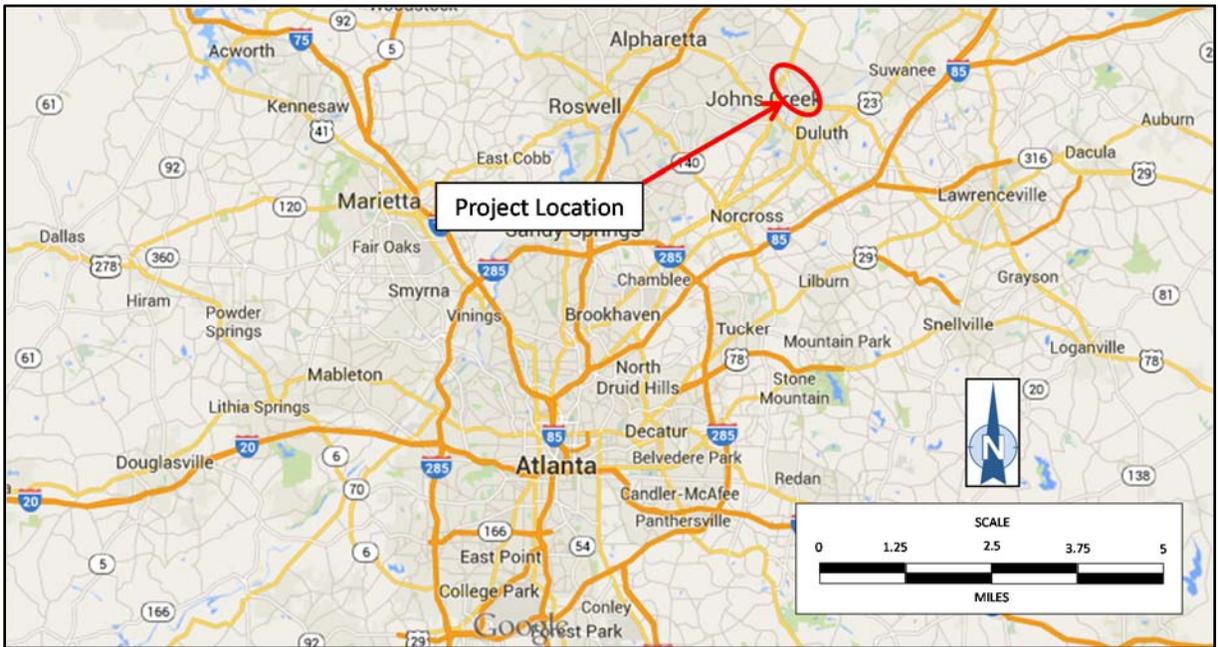
This study documents the development of traffic projections, crash analysis, capacity analysis, and recommend improvements necessary to improve the operational and safety conditions within the limits of the widening of SR 120.

Project Location

The project begins in west Duluth (Gwinnett County) at the intersection of Peachtree Industrial Boulevard (PIB), crosses the Chattahoochee River into east Johns Creek (Fulton County), and ends at the intersection of Parsons Road/Sweet Creek Road (approximately 1.34 miles).

The limits of the traffic study were extended to include SR 120 from Parsons Road to Medlock Bridge Road (0.85 miles), Parsons Road from SR 120 to Medlock Bridge Road (0.71 miles), and Wilson Road from Parsons Road to Medlock Bridge Road (0.57 miles). The project location is show on the following page.

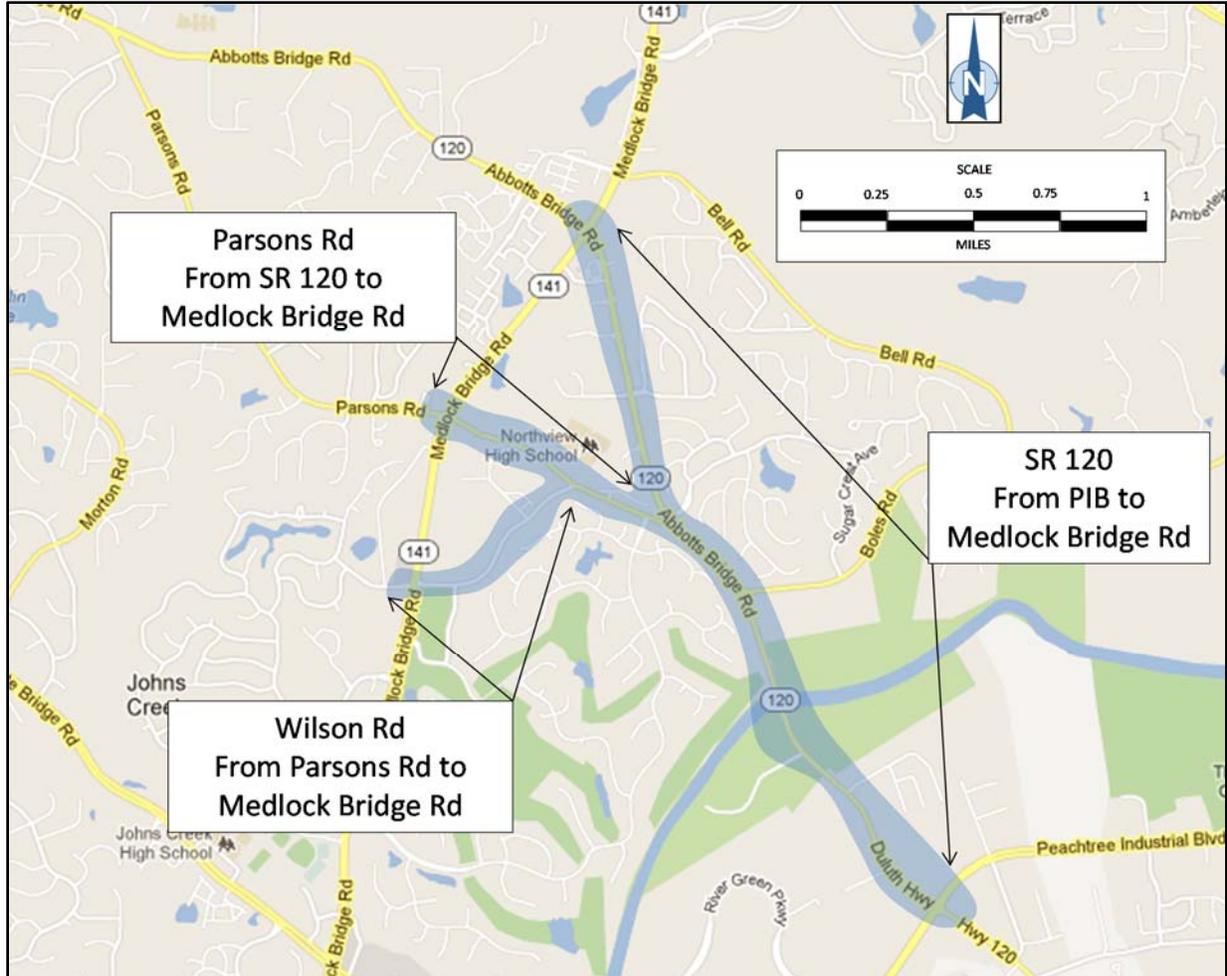
Figure 1: PROJECT LOCATION MAP



Study Area

Figure 2 shows the study area in detail.

Figure 2: STUDY AREA MAP



PLANNED IMPROVEMENTS

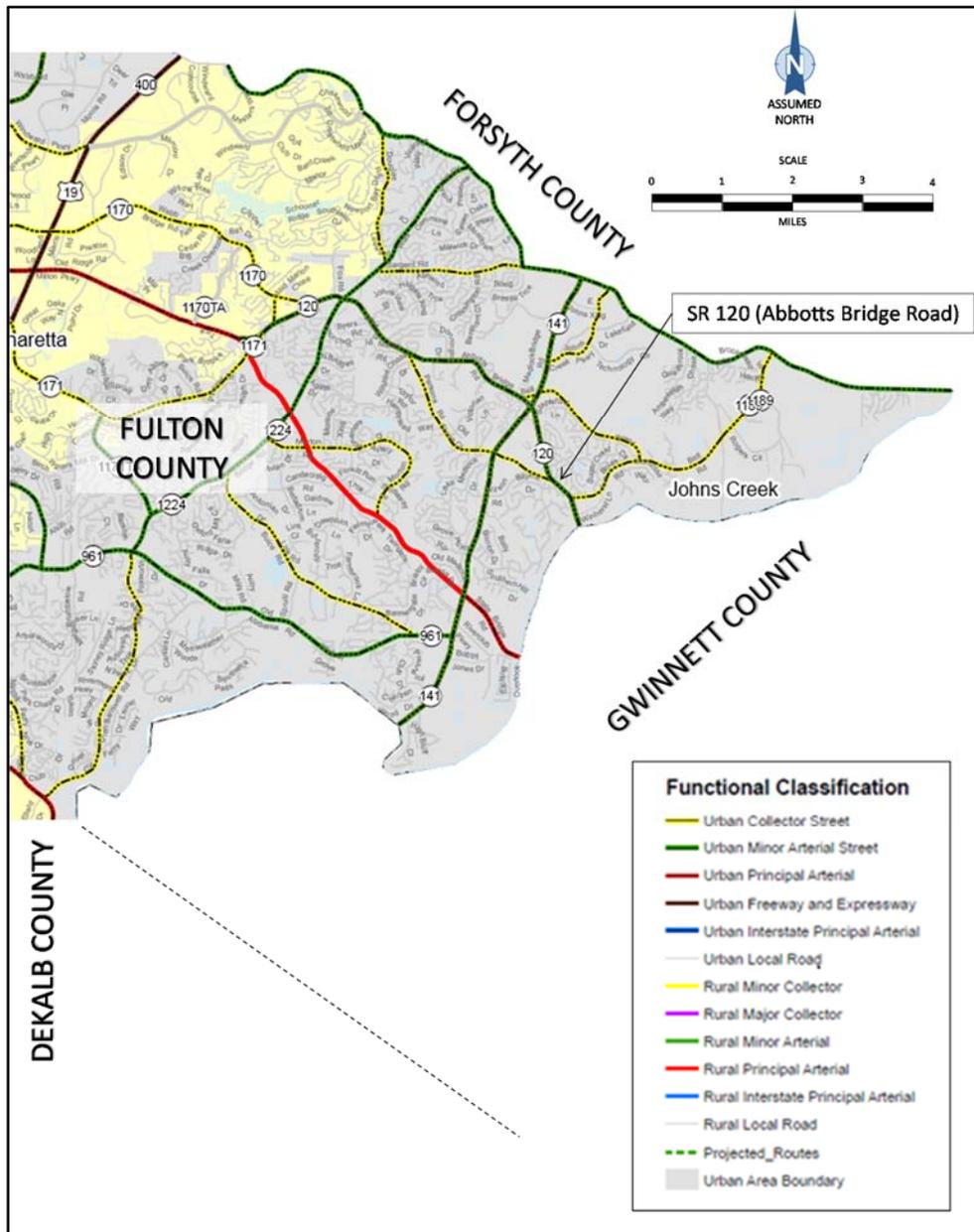
GDOT has three other projects programmed on the project corridor, M004640, M004691 and PI 0012626. Project M004640 is a resurfacing project and is currently under construction. Project M004691 is an auxiliary lane project. Project PI 0012626 is an ITS expansion project.

These projects will not impact the proposed project.

FUNCTIONAL CLASSIFICATION

GDOT’s Office of Transportation Data (OTD) provides mapping showing the functional classification of all facilities on the state highway system. The map shows that SR 120 (Abbotts Bridge Road) is classified as an Urban Minor Arterial from PIB in Gwinnett County to Medlock Bridge Road in Fulton County. Figure 3 shows the map provided by GDOT OTD.

Figure 3: FUNCTIONAL CLASSIFICATION



EXISTING CONDITIONS

This section describes the existing geometry, traffic control, weekday peak hour traffic, and daily volumes.

Roadway Infrastructure

SR 120 (Abbotts Bridge Road) is a two-lane roadway which has been widened at some intersections to accommodate left and right turning lanes. SR 120 connects Peachtree Industrial Boulevard in Gwinnett County to Medlock Bridge Road in Fulton County via a bridge crossing the Chattahoochee River. The nearest river crossing to the south is 1.6 miles via State Bridge Road and 4.5 miles to the north via McGinnis Ferry Road. The posted speed limit along SR 120 is 45 MPH. Figure 4, on the following page, illustrates the existing roadway infrastructure and traffic control along the SR 120 project corridor.

Parsons Road provides a connection between SR 120 and Medlock Bridge Road and has a posted speed limit of 35 mph.

Wilson Road provides a connection between Parsons Road and Medlock Bridge Road and has a posted speed limit of 35 mph.

Figure 5, two pages forward, shows the existing roadway infrastructure and traffic control along Parsons Road and Wilson Road.

Figure 4: EXISTING CONDITIONS – SR 120 (ABBOTTS BRIDGE ROAD)

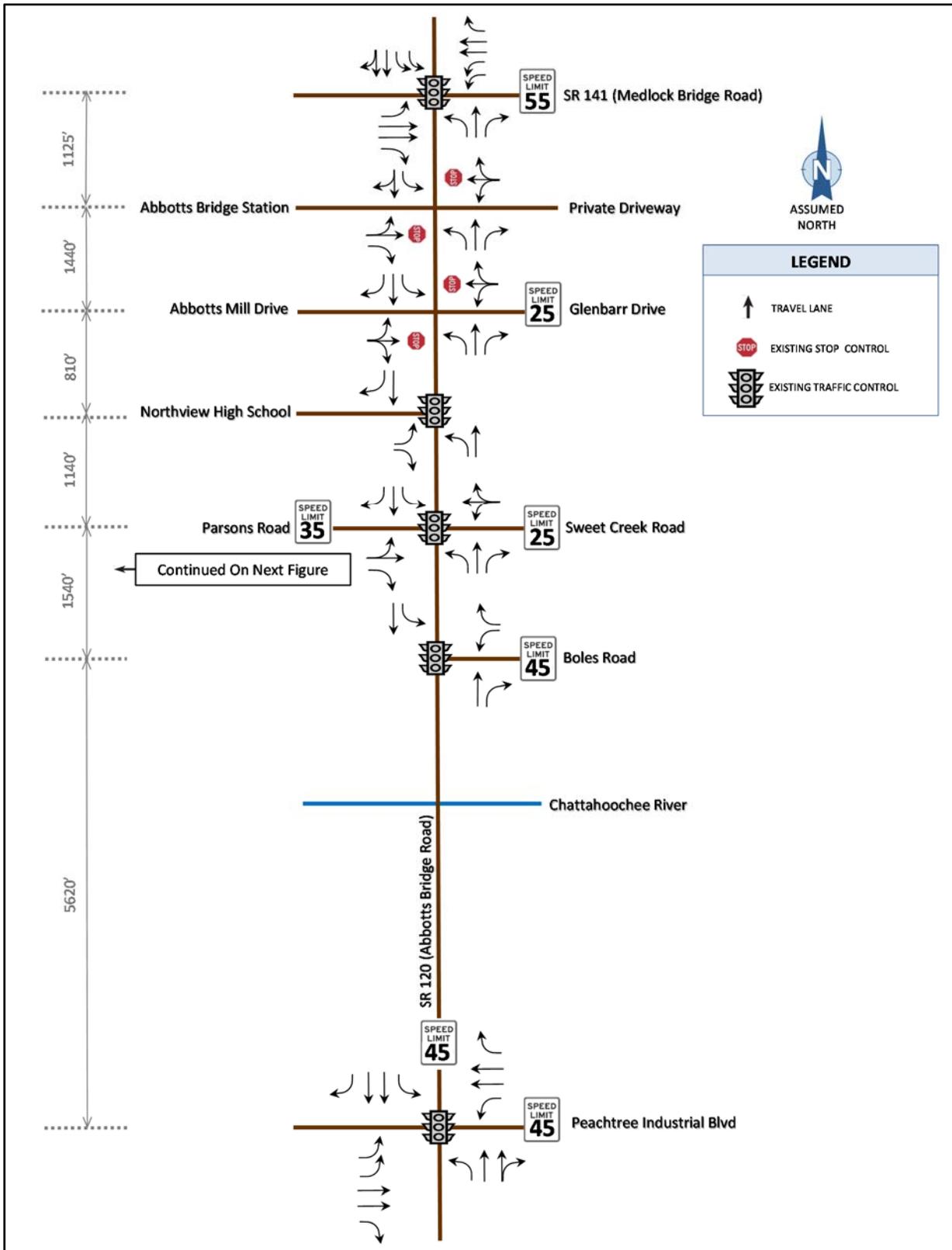
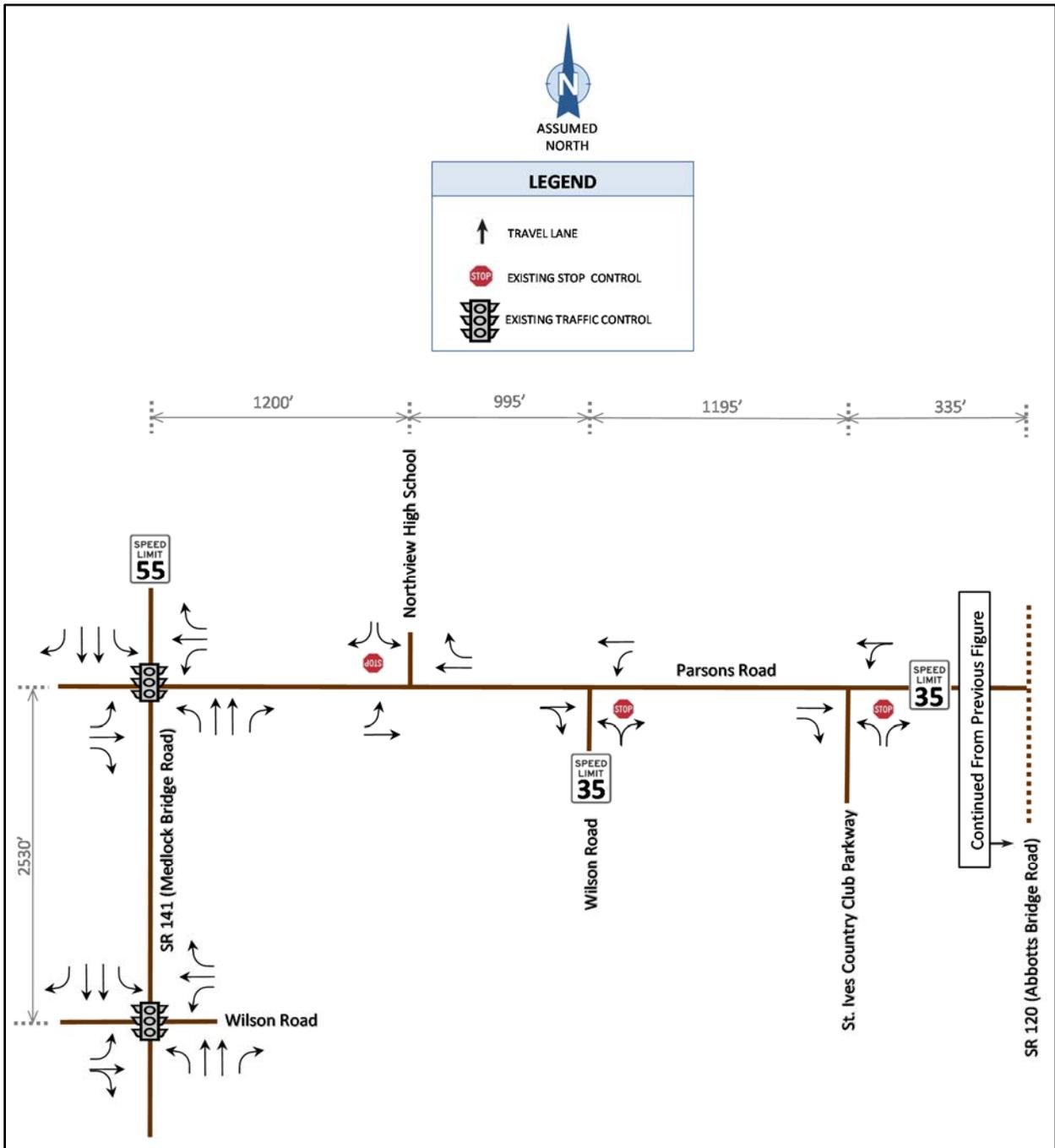


Figure 5: EXISTING CONDITIONS – PARSONS ROAD & WILSON ROAD

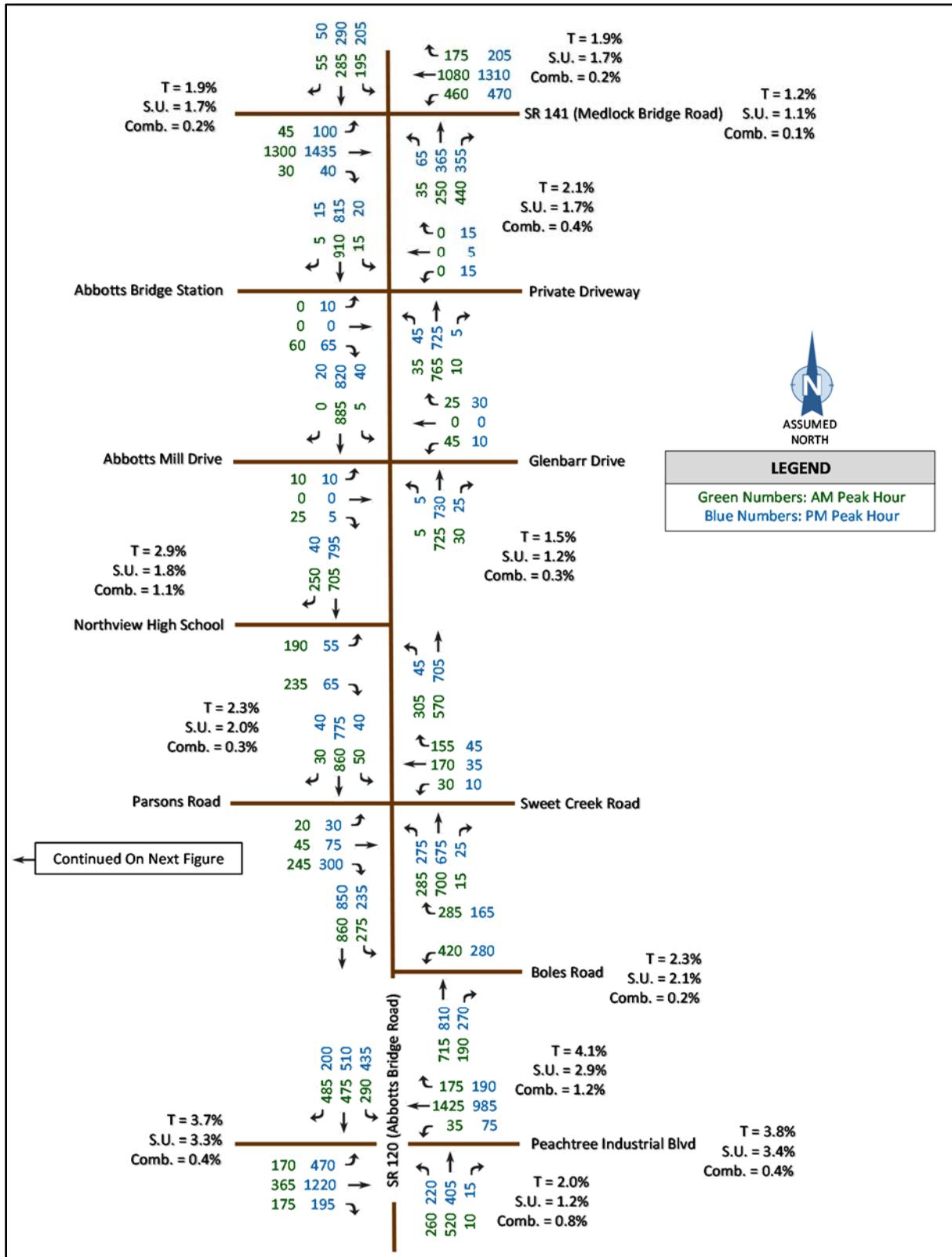


Existing Intersection Turning Movement Volumes

Turning movement counts were conducted on SR 120, Parsons Road and Wilson Road during October and November of 2013. Turning movement counts were conducted for the AM and PM Peak Periods.

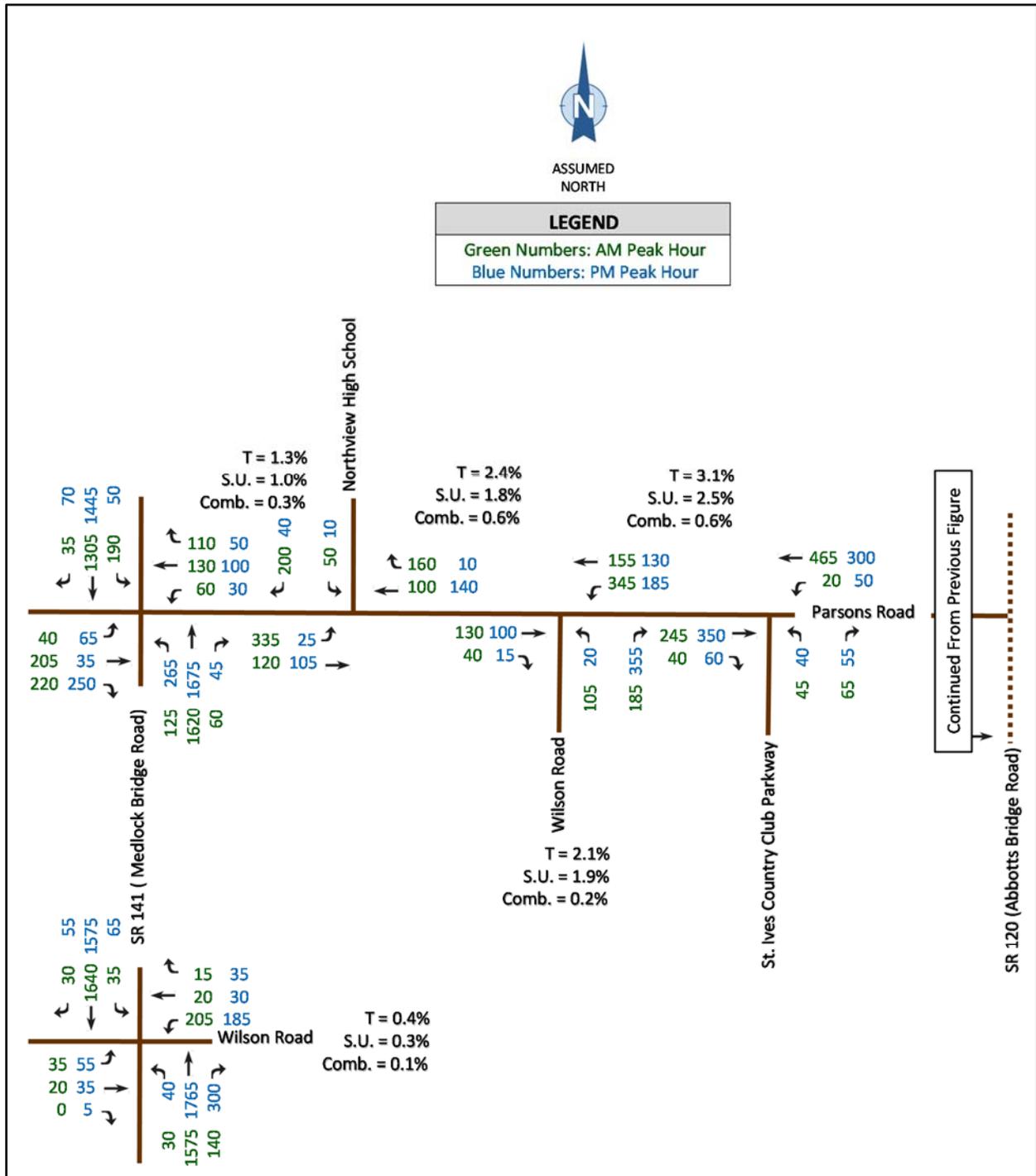
The existing turning movement volumes for SR 120 (rounded to the nearest 5) are summarized in Figure 6 on the following page. For each movement, the AM Peak Hour Volume is shown in green followed by the PM Peak Hour Volume shown in blue. The detailed turning movement data reports are provided in Appendix A.

Figure 6: EXISTING PEAK HOUR TRAFFIC VOLUMES – SR 120 (ABBOTTS BRIDGE ROAD)



The existing turning movement volumes for Parsons Road and Wilson Road (rounded to the nearest 5) are summarized in Figure 7. For each movement the AM Peak Hour Volume is shown in green followed by the PM Peak Hour Volume shown in blue. The detailed turning movement data is provided in Appendix A.

Figure 7: EXISTING PEAK HOUR TRAFFIC VOLUMES – PARSONS ROAD & WILSON ROAD

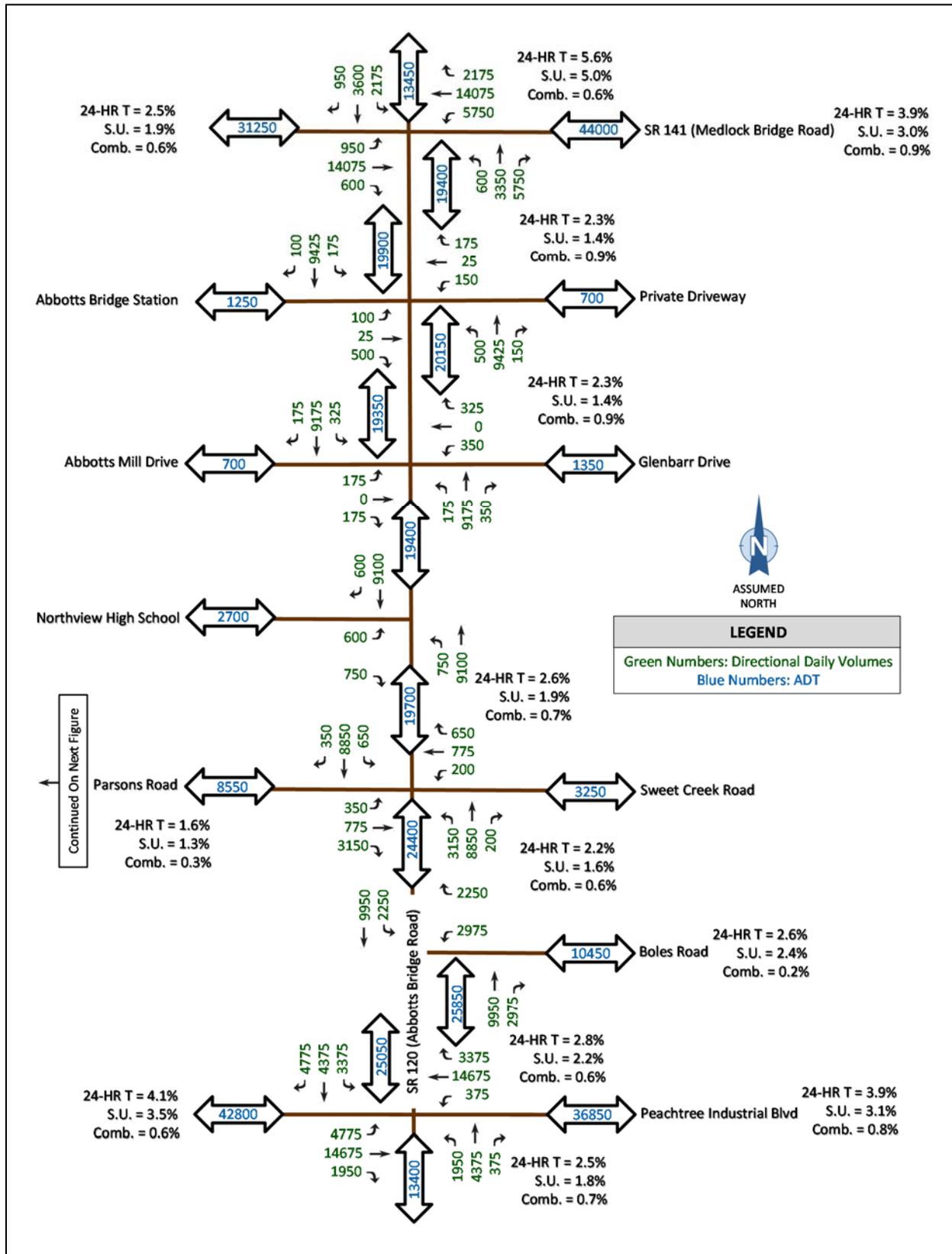


Existing Daily Traffic Volumes

Automatic Traffic Recorders (ATR) were set at each approach and departure at most intersections where turning movement data was collected. The ATR machine counts captured 24-hour volume and vehicle classification data. The daily volume data for SR 120 (rounded to the nearest 25) is summarized in Figure 8 on the following page. Detailed data reports are provided in Appendix B.

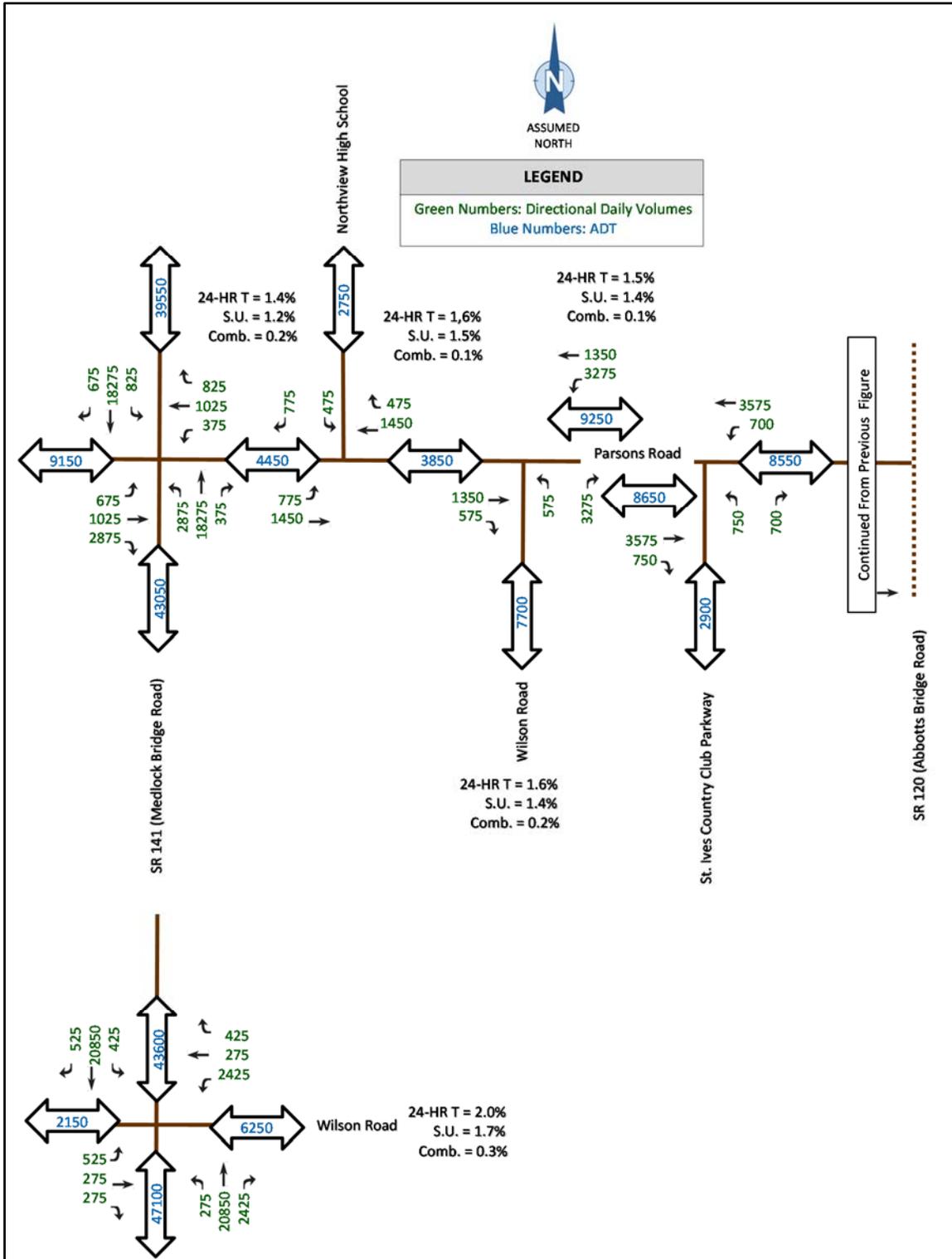
Some of the daily volumes between intersections are not the same due to multiple driveways between intersections.

Figure 8: EXISTING DAILY TRAFFIC VOLUMES – SR 120 (ABBOTTS BRIDGE ROAD)



The daily volume data for Parsons Road and Wilson Road (rounded to the nearest 25) is summarized in Figure 9.

Figure 9: EXISTING DAILY TRAFFIC VOLUMES – PARSONS ROAD & WILSON ROAD



CRASH HISTORY

Crash data for the study area was obtained from the Office of Traffic Operations. Table 1 summarizes the crash frequency along the corridor for the most recent four-year period of available data: 2010, 2011, 2012, and 2013. The raw data is provided in Appendix C.

Table 1 summarizes the crashes along SR 120 from PIB to Parsons Road. The data is summarized in four sections: SR 120 from PIB to Parsons Road, SR 120 from Parsons Road to Medlock Bridge Road, Parsons Road from SR 120 to Medlock Bridge Road, and Wilson Road from Parsons Road to Medlock Bridge Road.

Table 1: YEARLY CRASH FREQUENCY FOR SR 120 (ABBOTTS BRIDGE ROAD)
(PIB to Parsons Road/Sweet Creek Road)

YEAR	TOTAL CRASHES	INJURY CRASHES /INJURIES	FATALITIES	VEHICLE COLLISION With OTHER VEHICLE				VEHICLE COLLISION With ANIMAL/STRUCTURE
				RIGHT ANGLE	HEAD ON	REAR END	SIDESWIPE	
2010	26	6 / 9	0	3	2	19	1	1
2011	54	13 / 15	0	6	2	40	4	2
2012	61	11 / 12	0	7	1	48	2	3
2013	49	12 / 15	0	4	1	41	1	2

For the last four years of available data, rear end collisions accounted for approximately 78% of all crashes, right angle collisions approximately 11%, sideswipes approximately 4%, head-on collisions approximately 3%, and collisions with something other than another vehicle 4% (i.e. animal or structure).

Table 2 summarizes all crashes along SR 120 from Parsons Road to Medlock Bridge Road.

Table 2: YEARLY CRASH FREQUENCY FOR SR 120 (ABBOTTS BRIDGE ROAD)
(Parsons Road/Sweet Creek Road to Medlock Bridge Road)

YEAR	TOTAL CRASHES	INJURY CRASHES /INJURIES	FATALITIES	VEHICLE COLLISION With OTHER VEHICLE				VEHICLE COLLISION With ANIMAL/STRUCTURE
				RIGHT ANGLE	HEAD ON	REAR END	SIDESWIPE	
2010	8	0 / 0	0	1	0	5	2	0
2011	7	1 / 1	0	0	0	6	0	1
2012	6	1 / 2	0	1	0	4	0	1
2013	13	4 / 7	0	1	0	12	0	0

For the last four years of available data, rear end collisions accounted for approximately 79% of all crashes, right angle collisions approximately 9%, sideswipes approximately 6%, and collisions with something other than another vehicle 6% (i.e. animal or structure).

Table 3 summarizes all crashes along Parsons Road from SR 120 to Medlock Bridge Road.

**Table 3: YEARLY CRASH FREQUENCY FOR PARSONS ROAD
(SR 120 to Medlock Bridge Road)**

YEAR	TOTAL CRASHES	INJURY CRASHES /INJURIES	FATALITIES	VEHICLE COLLISION With OTHER VEHICLE				VEHICLE COLLISION With ANIMAL/STRUCTURE
				RIGHT ANGLE	HEAD ON	REAR END	SIDESWIPE	
2010	4	0 / 0	0	0	0	3	1	0
2011	2	0 / 0	0	0	0	2	0	0
2012	4	0 / 0	0	0	0	3	1	0
2013	7	3 / 5	0	3	0	4	0	0

For the last four years of available data, rear end collisions accounted for approximately 71% of all crashes, right angle collisions approximately 18%, and sideswipes approximately 11%.

Table 4 summarizes all crashes along Wilson Road from Parsons Road to Medlock Bridge Road.

**Table 4: YEARLY CRASH FREQUENCY FOR WILSON ROAD
(Parsons Road to Medlock Bridge Road)**

YEAR	TOTAL CRASHES	INJURY CRASHES /INJURIES	FATALITIES	VEHICLE COLLISION With OTHER VEHICLE				VEHICLE COLLISION With ANIMAL/STRUCTURE
				RIGHT ANGLE	HEAD ON	REAR END	SIDESWIPE	
2010	3	0 / 0	0	1	0	2	0	0
2011	0	0 / 0	0	0	0	0	0	0
2012	1	0 / 0	0	0	0	1	0	0
2013	0	0 / 0	0	0	0	0	0	0

For the last four years of available data, rear end collisions accounted for 75% of all crashes and right angle collisions 25%.

Crash Rate Calculations

Crash rates were calculated for each of the four sections using the following equation:

$$\text{Crash Rate} = \text{CRASHES} / \left(\frac{L * \text{ADT} * 365}{100,000,000} \right)$$

Where;

L = length of section in miles

ADT = Average daily volume for the section

365 days per year

100,000,000 = constant to convert value to a rate per 100 million vehicle miles traveled

Table 5, on the following page, summarizes the crash rates for the section of SR 120 from PIB to Parsons Road for: 2010, 2011, 2012, and 2013. This section of SR 120 is classified as an Urban Minor Arterial. The table shows the rates for all crashes, injuries, and fatalities and compares each to the statewide averages for like facilities. The statewide averages (SWA) were provided through 2013.

Appendix D provides the calculation for this section. The crash rates were also calculated for type of crash: “All Crashes”, “Injury Crashes”, and “Fatal Crashes”.

Historical daily traffic (ADT) volumes were not available for this section. However, as part of this study, daily traffic volumes were collected at two locations along this section. The 2010, 2011, and 2012 volumes were developed by first averaging the volumes from the two locations for 2013 and then reducing the 2013 average volume by the No-Build growth rate of 1% per year.

**Table 5: CRASH RATES FOR SR 120 (ABBOTTS BRIDGE ROAD)
(PIB to Parsons Road/Sweet Creek Road)**

YEAR	ADT	ALL CRASHES			INJURIES			FATALITIES		
		FREQ	PROJECT ¹	SWA	FREQ	PROJECT ¹	SWA	FREQ	PROJECT ¹	SWA
2010	24350	26	217	464	9	75	114	0	0	1.19
2011	24600	54	446	482	15	124	110	0	0	1.20
2012	24850	61	498	476	12	98	118	0	0	1.13
2013	25100	49	396	610	15	121	128	0	0	1.20

SWA=Statewide Average Crash Rate for like facility

¹Crash rates calculated based on the number of crashes per 100 million vehicle miles traveled

With the exception of 2012, all of the crash rates fall below the statewide averages. The only year that the injury crash rate was above the statewide average was 2011.

Table 6 summarizes the crash rates for the section of SR 120 from Parsons Road to Medlock Bridge Road. This section of SR 120 is classified an Urban Minor Arterial. The table shows the rates for all crashes, injuries, and fatalities and compares each to the statewide averages for like facilities. Appendix E provides the calculation for this section of SR 120.

**Table 6: CRASH RATES FOR SR 120 (ABBOTTS BRIDGE ROAD)
(Parsons Road/Sweet Creek Road to Medlock Bridge Road)**

YEAR	ADT	ALL CRASHES			INJURIES			FATALITIES		
		FREQ	PROJECT ¹	SWA	FREQ	PROJECT ¹	SWA	FREQ	PROJECT ¹	SWA
2010	19075	8	135	464	0	0	114	0	0	1.19
2011	19250	7	117	482	1	17	110	0	0	1.20
2012	19450	6	99	476	2	33	118	0	0	1.13
2013	19650	13	213	610	7	115	128	0	0	1.20

SWA=Statewide Average Crash Rate for like facility

¹Crash rates calculated based on the number of crashes per 100 million vehicle miles traveled

All of the crash and injury rates fall below the statewide averages.

Table 7 summarizes the crash rates for the section of Parsons Road from SR 120 to Medlock Bridge Road. This section of Parsons Road is classified an Urban Collector. The table shows the rates for all crashes, injuries, and fatalities and compares each to the statewide averages for like facilities. Appendix F provides the calculation for Parsons Road.

**Table 7: CRASH RATES FOR PARSONS ROAD
(SR 120 to Medlock Bridge Road)**

YEAR	ADT	ALL CRASHES			INJURIES			FATALITIES		
		FREQ	PROJECT ¹	SWA	FREQ	PROJECT ¹	SWA	FREQ	PROJECT ¹	SWA
2010	6775	4	230	438	0	0	104	0	0	1.11
2011	6850	2	114	443	0	0	98	0	0	1.10
2012	6900	4	226	514	0	0	110	0	0	1.09
2013	7975	7	391	455	5	279	93	0	0	0.90

SWA=Statewide Average Crash Rate for like facility

¹Crash rates calculated based on the number of crashes per 100 million vehicle miles traveled

All of the crash rates fall below the statewide averages. The only year that the injury crash rate was above the statewide average was 2013.

Table 8 summarizes the crash rates for Wilson Road from Parsons Road to Medlock Bridge Road. This section of Wilson Road is classified an Urban Local Street. The table shows the rates for all crashes, injuries, and fatalities and compares each to the statewide averages for like facilities. Appendix G provides the calculation for Wilson Road.

**Table 8: CRASH RATES FOR WILSON ROAD
(Parsons Road to Medlock Bridge Road)**

YEAR	ADT	ALL CRASHES			INJURIES			FATALITIES		
		FREQ	PROJECT ¹	SWA	FREQ	PROJECT ¹	SWA	FREQ	PROJECT ¹	SWA
2010	6800	3	221	239	0	0	52	0	0	0.61
2011	6875	0	0	277	0	0	56	0	0	0.69
2012	6950	1	72	310	0	0	61	0	0	0.66
2013	7000	0	0	315	0	0	59	0	0	0.62

SWA=Statewide Average Crash Rate for like facility

¹Crash rates calculated based on the number of crashes per 100 million vehicle miles traveled

All of the crash and injury rates fall below the statewide averages.

TRAFFIC PROJECTION METHODOLOGY

The methodology used to estimate future traffic volumes is based on the procedures in Chapter 13 of the *GDOT Policy Manual*. The process begins with an examination of historic trends and then consider travel forecasts from the regional travel demand model maintained by the Atlanta Regional Commission (ARC). The following sections describe the analysis of historic data and GDOT forecasts.

Historic Traffic Data

GDOT maintains an annual traffic count station on SR 120 in the vicinity of the project. Count station 0318 is located between Parsons Road and Northview High School. The last 15 years of available data are shown in Table 9.

Table 9: GDOT HISTORIC TRAFFIC DATA – STATION 0318

1998	1999	2000	2001	2002	2003	2004	2005
13600	14000	15500	12700	16479	17980	20480	14200
2006	2007	2008	2009	2010	2011	2012	
15870	17830	16790	16320	16350	18370	18270	

Source: GDOT Traffic Count Database System

The ARC regional transportation model forecasts for 2010, 2040 No-Build, and 2040 Build for the SR 120 study area are shown in Table 10. The last entry is for the section where the GDOT count station 0318 is located.

Table 10: ARC MODEL FORECAST

SR 120	2010	2040 No-Build	2040 Build
From PIB to the River	32000	41800	61000
From the River to Boles Road	32100	41900	55900
From Boles Road to Parsons Road	22000	27600	37800
From Parsons Road to Medlock Bridge Road ¹	31700	36600	40000

Source: ARC

¹ Section corresponding to GDOT count station 0318

Using the procedure from Figure 13-2 in the *GDOT Policy Manual*, the 2040 No-Build and 2040 Build growth rates were calculated. Table 11, on the following page shows the calculation for the 2040 No-Build growth rate. Table 12, on the following page shows the calculation for the 2040 Build growth rate.

Table 11: 2040 NO-BUILD GROWTH RATE

GDOT COUNT STATION	GDOT 2010	ARC 2010	ARC NO-BUILD 2040	ARC GROWTH ('40-'10)	GDOT 2010 + ARC GROWTH	(2010-2040) GROWTH RATE %
0318	16350	31700	36600	4900	21250	0.88%

Table 12: 2040 BUILD GROWTH RATE

GDOT COUNT STATION	GDOT 2010	ARC 2010	ARC BUILD 2040	ARC GROWTH ('40-'10)	GDOT 2010 + ARC GROWTH	(2010-2040) GROWTH RATE %
0318	16350	31700	40000	8300	24650	1.38%

The No-Build condition involves no improvements being made to the SR 120 corridor through the Design Year. The No-Build growth rate for projection purposes was established as 1.2% from Existing Year (2013) to Base Year (2022) and 1.0% from Base Year to Design Year (2042).

The Build condition involved the widening of SR 120 from two-lane to four-lane and other intersection improvements being made as needed. The Build growth rate for projection purposes was established as 2% from Existing Year (2013) to Base Year (2022) and 1.5% from Base Year to Design Year (2042).

The exponential equation used to calculate the future volumes was:

$$Future\ Volume = Present\ Volume (1+r)^n$$

The 2022 projections were calculated using n=9, taken as the time period from Existing Year (2013) to Base Year (2022). The 2042 projections were calculated using n=20, taken as the time period from Base Year (2022) to Design Year (2042). The calculated growth factors to be used for the project are shown in Table 13.

Table 13: GROWTH FACTORS

	BASE YEAR 2022	DESIGN YEAR 2042
No-Build	1.11	1.22
Build	1.20	1.35

Traffic Projections

The following summarizes the traffic projection methodology used in this study. The project is planned to be completed by the Year 2022. Therefore the Construction Year will be 2022. The Design Year will be 2042.

1. A trend analysis was conducted using the GDOT historical data with horizon years at fifteen, ten, and five years. The 15-year trend was 1.18% per year, the 10-year trend was 0.235 % per year, and the 5-year trend was 2.02% per year using the exponential formula.
2. The ARC Travel Demand Model forecasted 36,600 vpd for the 2040 No-Build and 40,000 vpd for the 2040 Build at the GDOT count station 0318.
3. Existing traffic volumes were rounded to the nearest 5 and balanced between intersections.
4. Daily volumes were balanced between reciprocal movements and adjacent intersections and then were rounded to the nearest 25.
5. The Base Year (2022) No-Build and Build growth factors were applied to the existing volumes to develop the projected volumes for the Base Year (2022). Whereas, the No-Build and Build growth factors for the Design Year (2042) were applied to the Base Year (2022) volumes.
6. There are several intersecting streets along the SR 120 corridor that serve subdivisions or developments that are not expected to have future increases in traffic. Therefore, growth factors were not applied to the volumes associated with ingress and egress of the following streets:
 - Abbotts Pointe Drive
 - Sweet Creek Road
 - Northview High School (Both Driveways)
 - Abbotts Mill Drive/Glenbarr Drive
 - Gold Cove Lane
 - Abbotts Walk Drive/Winford Close
 - St. Ives Country Club Parkway
 - Clapham Lane
7. One of the underlying issues with growth rates not being applied to some streets is the volume imbalance it causes to adjacent mainline street sections. Therefore, the through volumes were smoothed to balance between intersections.
8. Intersecting streets where traffic volumes are expected to increase are:
 - Peachtree Industrial Boulevard
 - Boles Road
 - Parsons Road
 - Abbotts Bridge Station (Skyway Drive)
 - Medlock Bridge Road
 - Wilson Road

PROJECTED TRAFFIC VOLUMES

The traffic projection methodology presented in the previous section was used to develop the Construction Year (2022 No-Build and Build) and Design Year (2042 No-Build and Build) design hour traffic volumes. Truck percentages are expected to remain constant throughout the design period.

Peak Hour Traffic Projections, Construction Year (2022)

Figures 10 and 11 on the following pages illustrates the peak hour projections for the Construction Year (2022 No-Build and Build).

Figure 10: PEAK HOUR VOLUMES, 2022 CONSTRUCTION YEAR – NO-BUILD

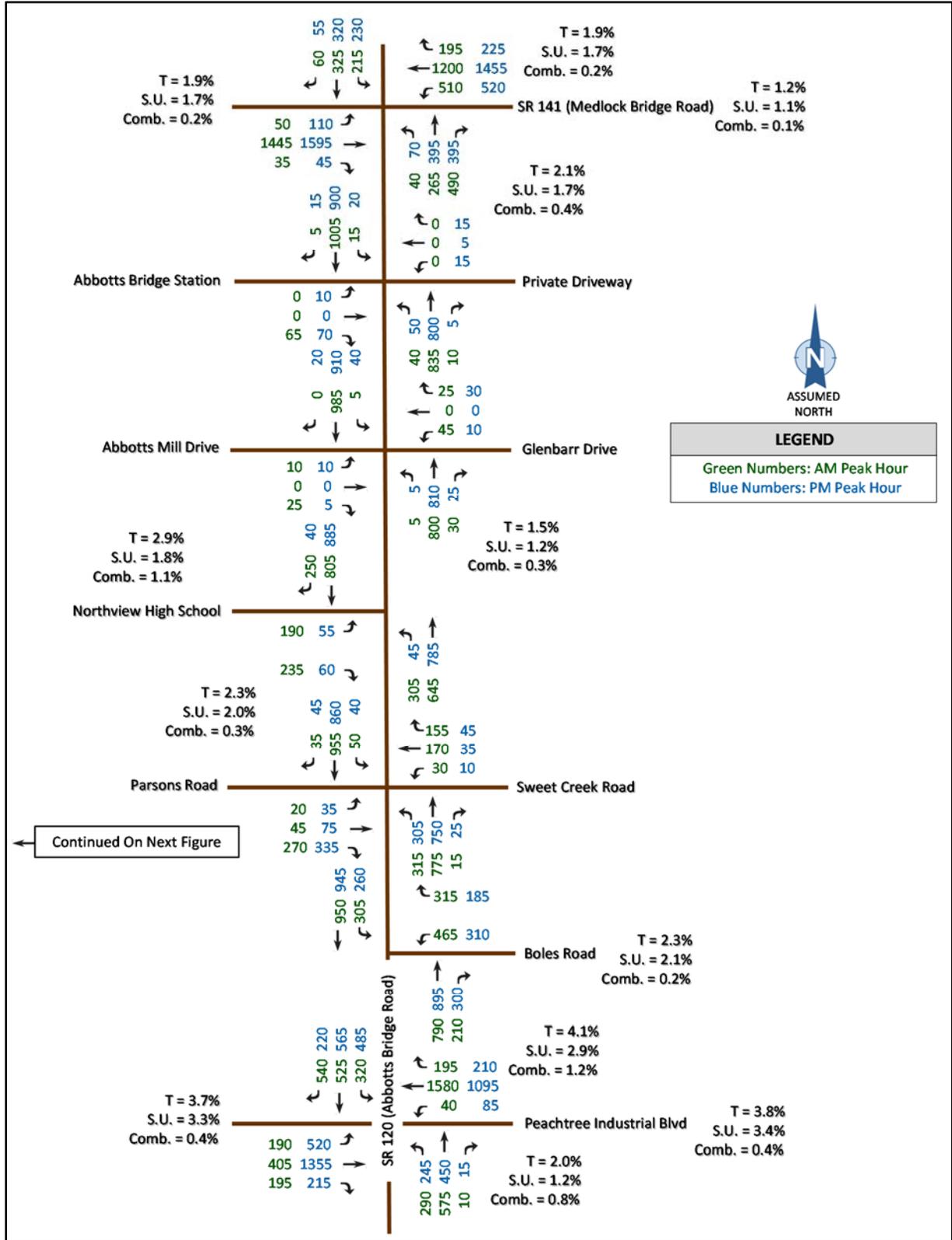


Figure 10: PEAK HOUR VOLUMES, 2022 CONSTRUCTION YEAR – NO-BUILD (continued)

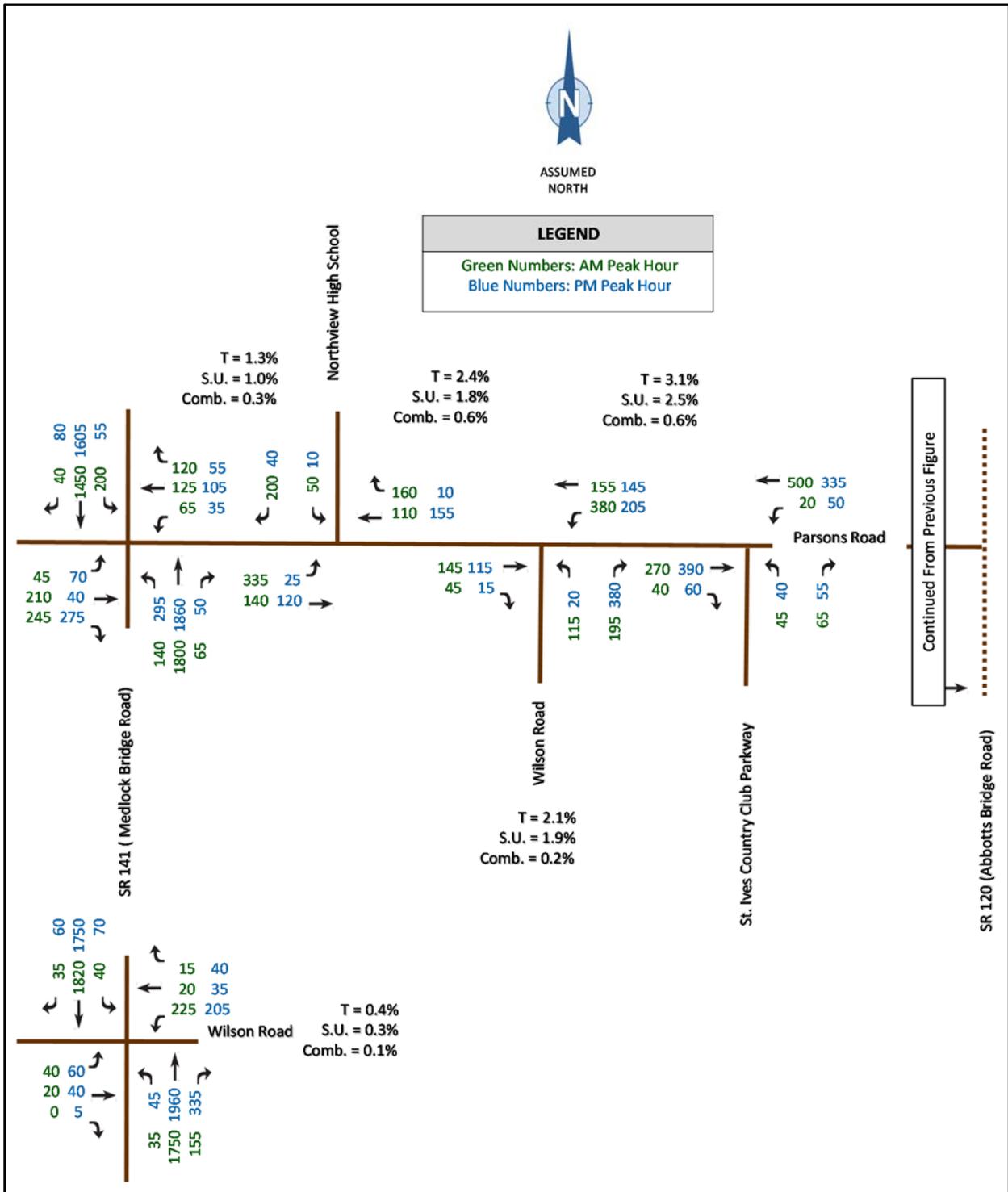


Figure 11: PEAK HOUR VOLUMES, 2022 CONSTRUCTION YEAR - BUILD

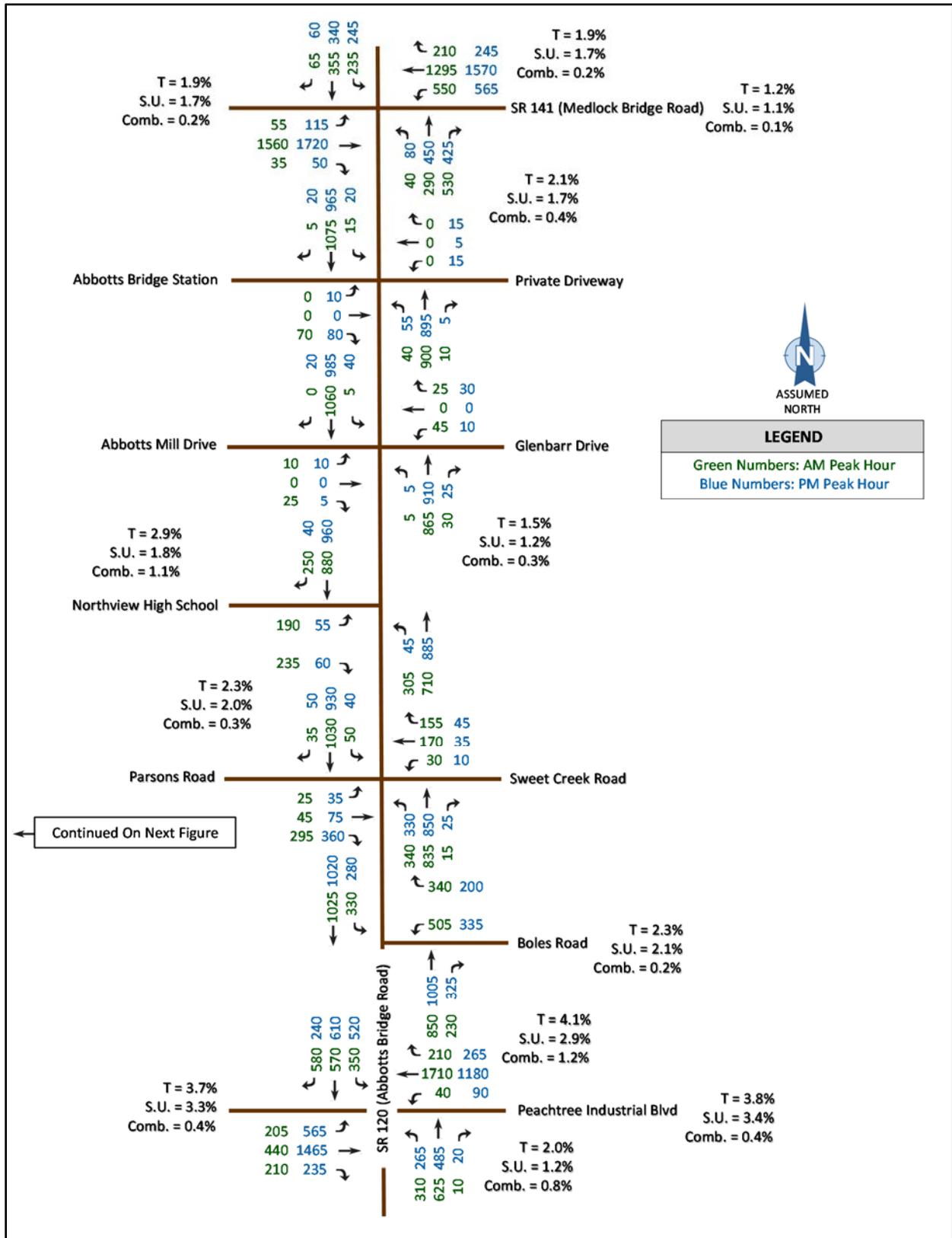
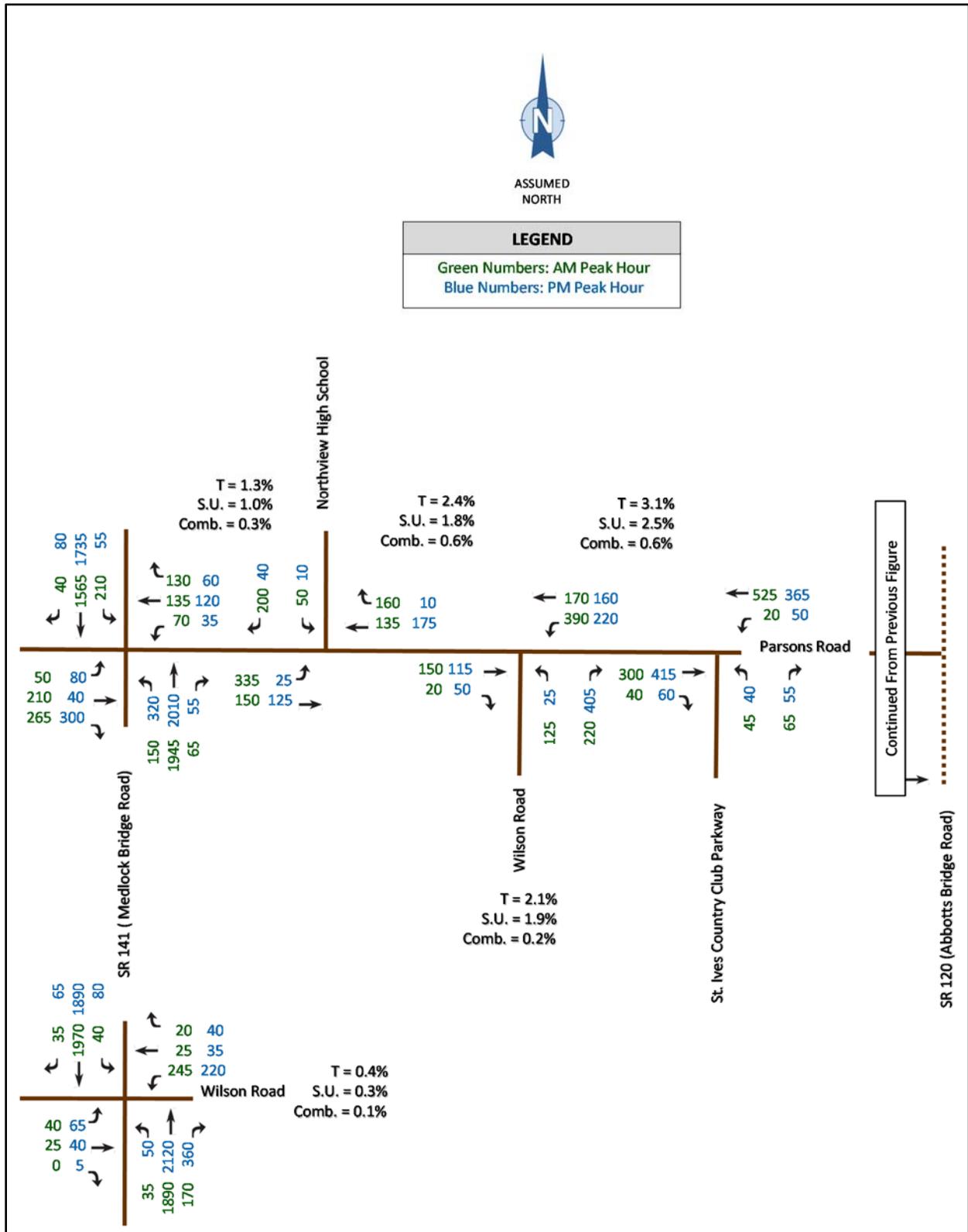


Figure 11: PEAK HOUR VOLUMES, 2022 CONSTRUCTION YEAR - BUILD (continued)



Peak Hour Traffic Projections, Design Year (2042)

Figures 12 and 13 on the following pages illustrates the peak hour projections for the Design Year (2042 No-Build and Build).

Figure 12: PEAK HOUR VOLUMES, 2022 DESIGN YEAR – NO-BUILD

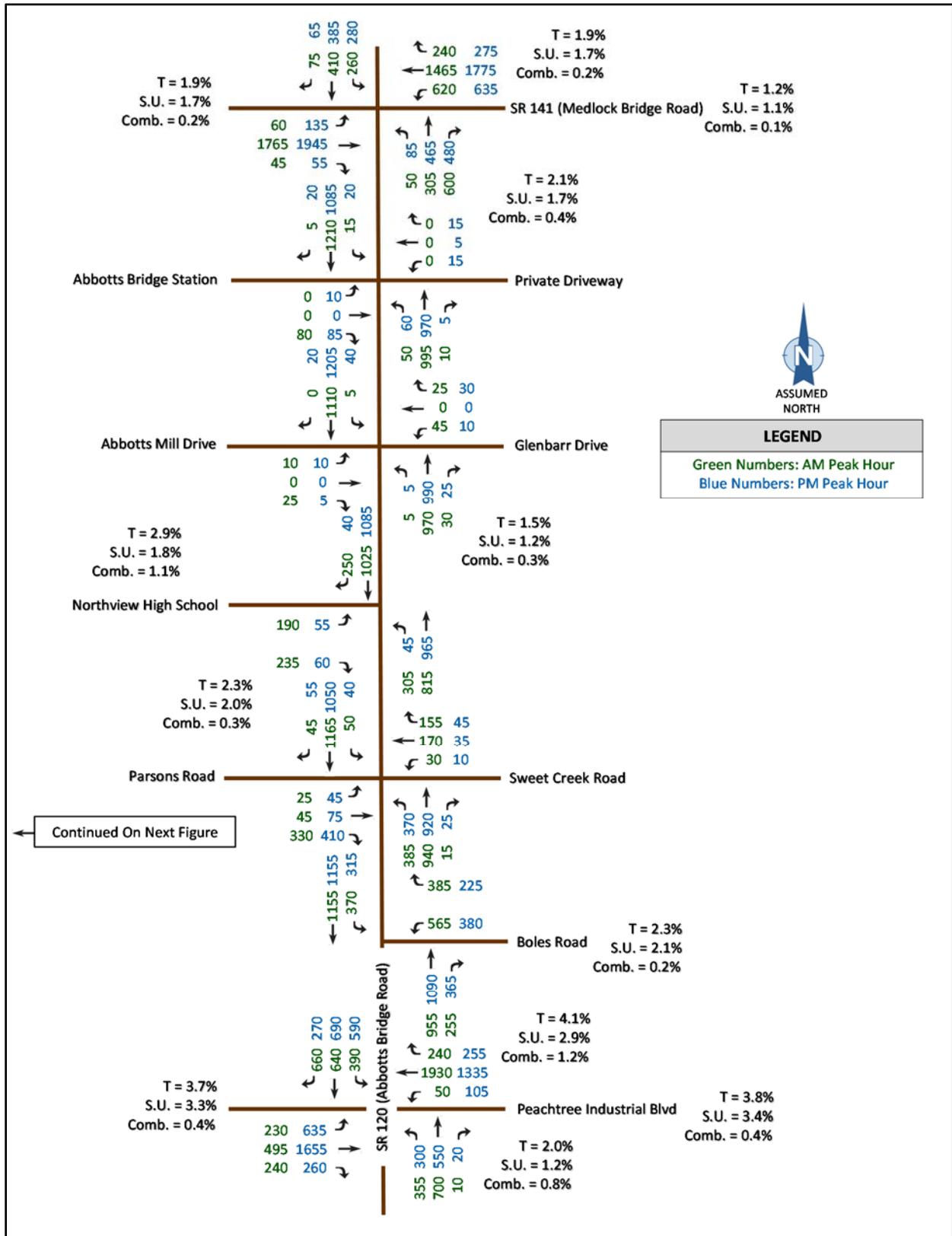


Figure 12: PEAK HOUR VOLUMES, 2042 DESIGN YEAR – NO-BUILD (continued)

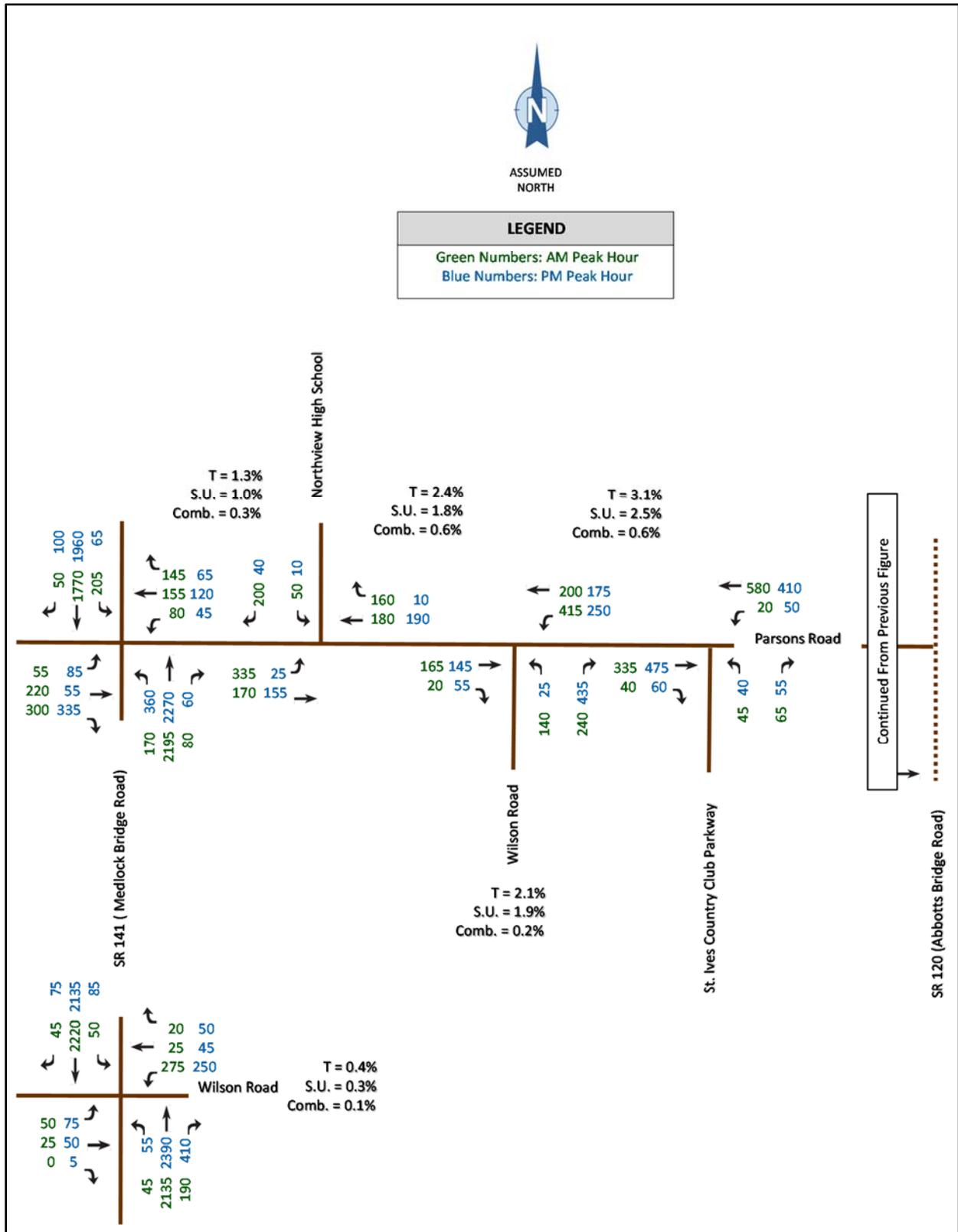


Figure 13: PEAK HOUR VOLUMES, 2042 DESIGN YEAR – BUILD

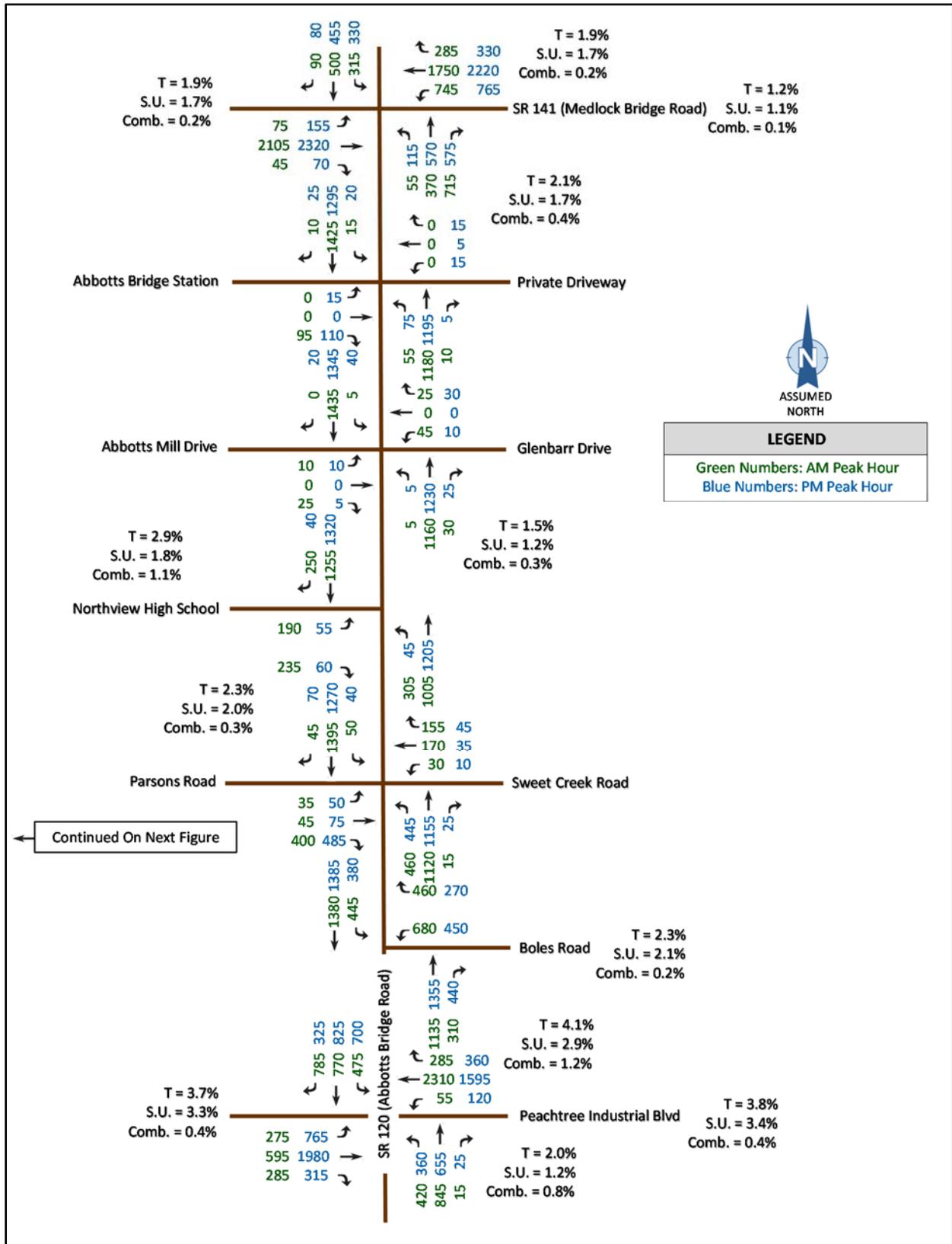
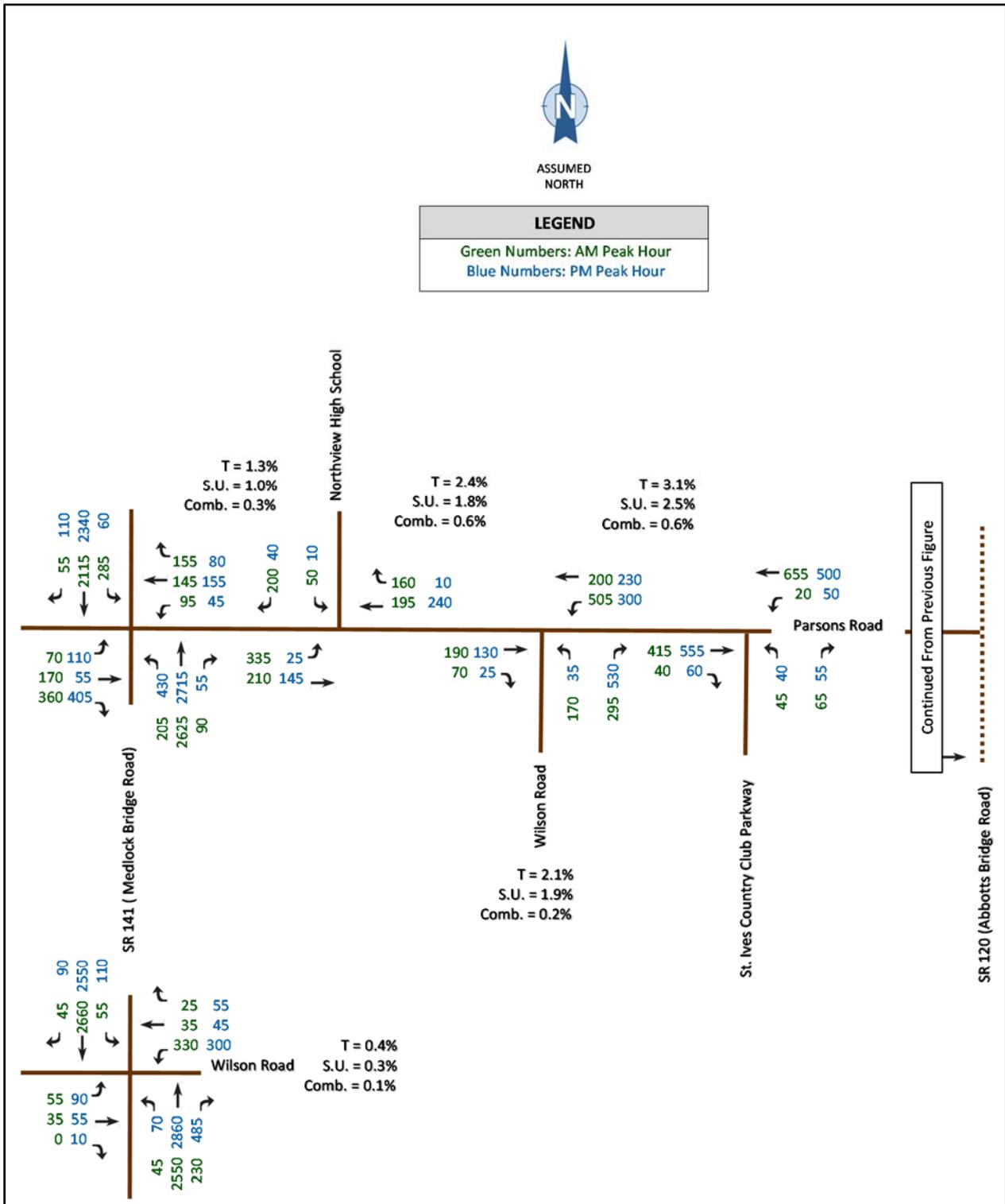


Figure 13: PEAK HOUR VOLUMES, 2042 DESIGN YEAR – BUILD (continued)



Daily Traffic Projections

The projected daily traffic volumes are illustrated in Figures 14-17 on the following pages. The daily volumes are shown for each turning movement. The Construction Year volumes (2022 No-Build and Build) are shown first in Figures 14 and 15 followed by the Design Year volumes (2042 No-Build and Build) shown in Figure 16 and 17. Adjustments were made to achieve volume balancing and rounded to the nearest 25. The ADT for each section can be derived by adding together the volumes for the corresponding opposite directions in that section.

Figure 14: DAILY VOLUMES, 2022 CONSTRUCTION YEAR – NO-BUILD

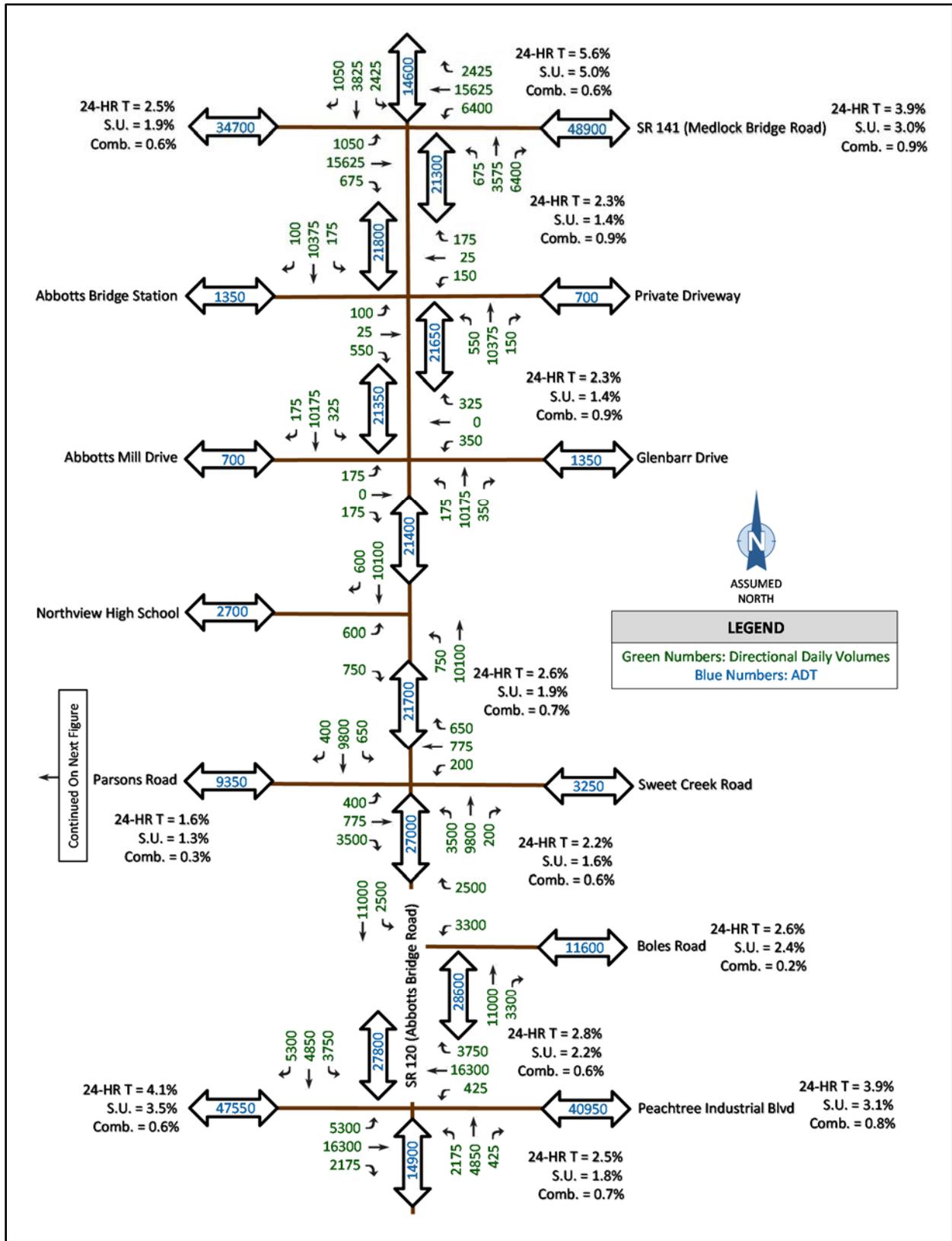


Figure 14: DAILY VOLUMES, 2022 CONSTRUCTION YEAR – NO-BUILD (continued)

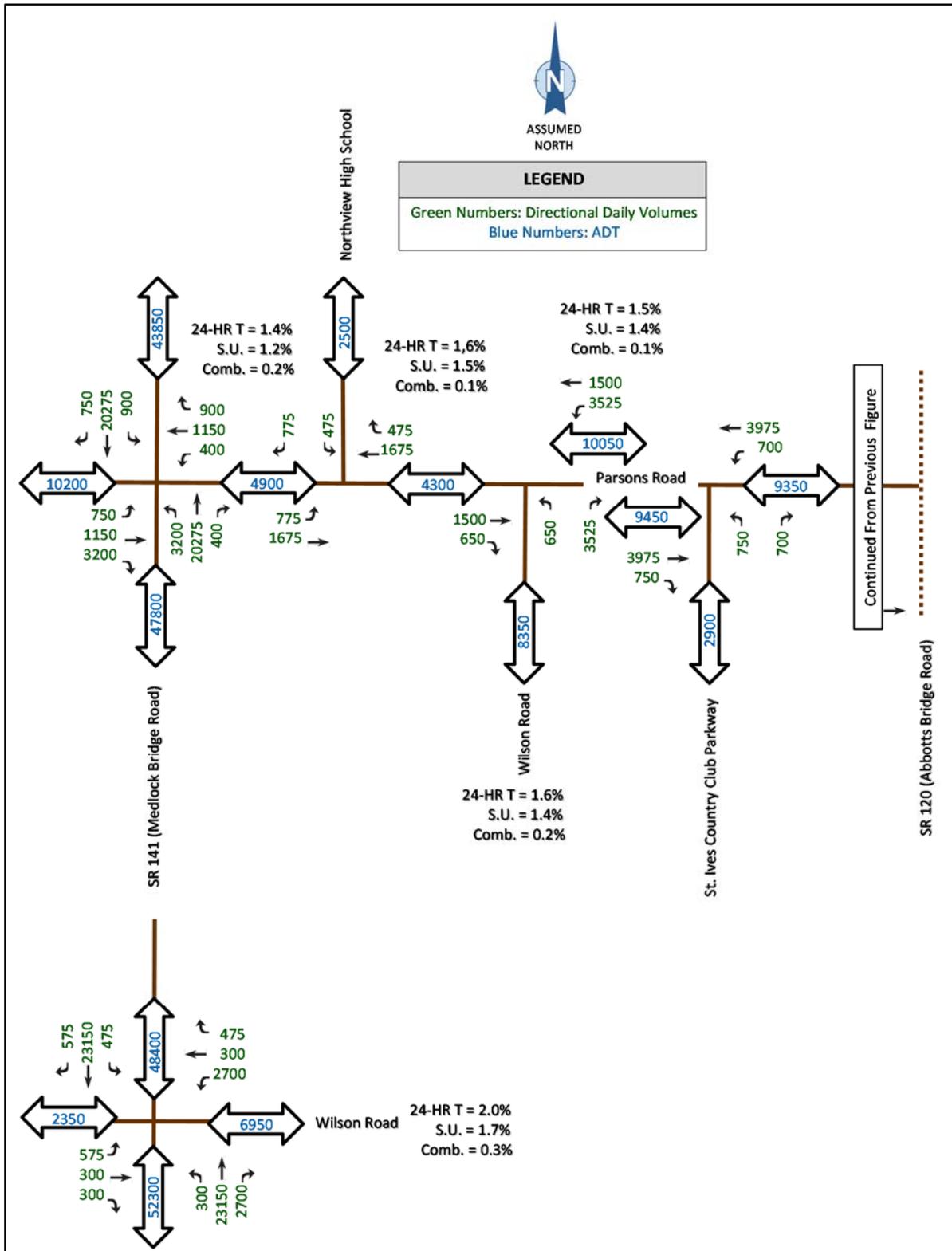


Figure 15: DAILY VOLUMES, 2022 CONSTRUCTION YEAR – BUILD

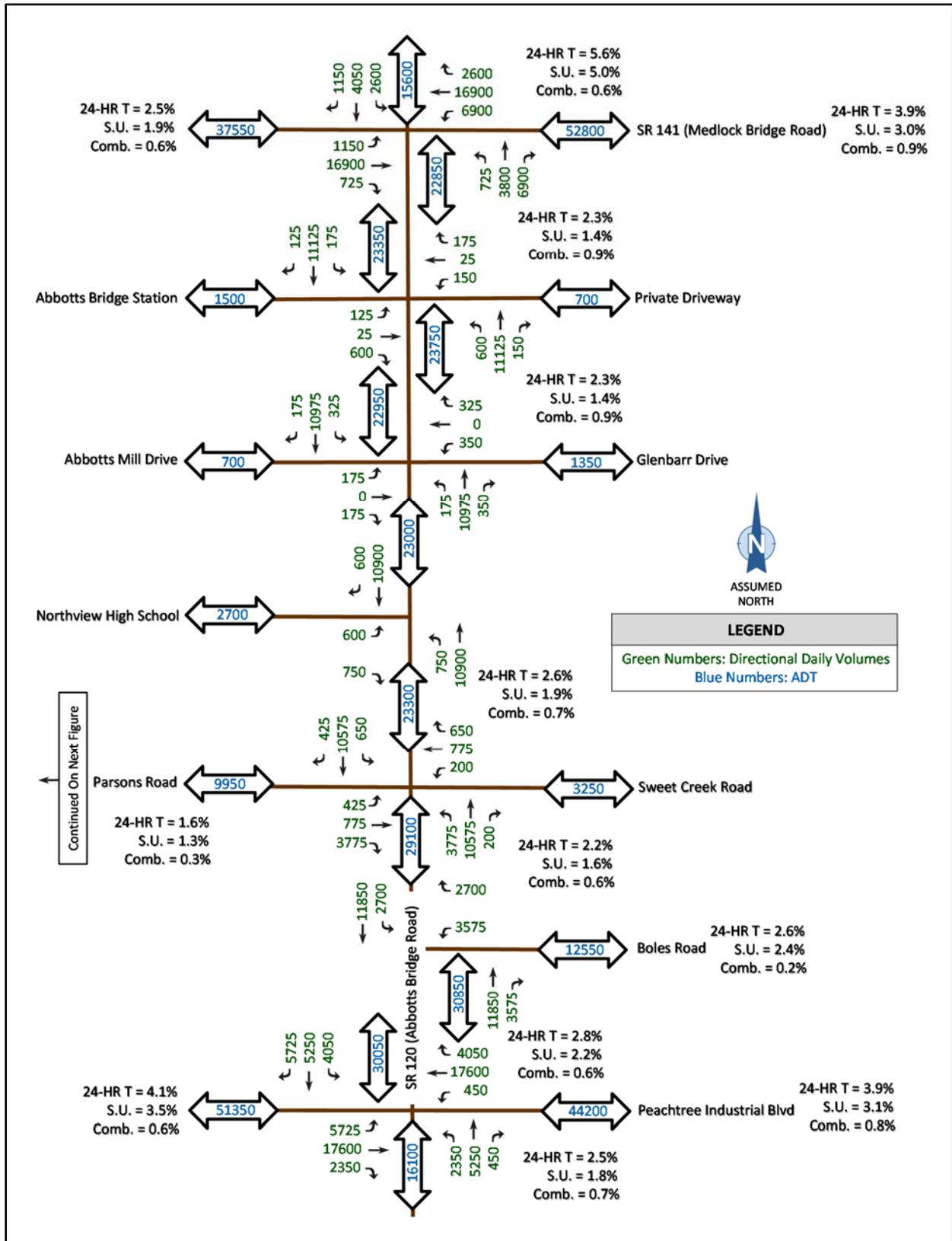


Figure 15: DAILY VOLUMES, 2022 CONSTRUCTION YEAR - BUILD (continued)

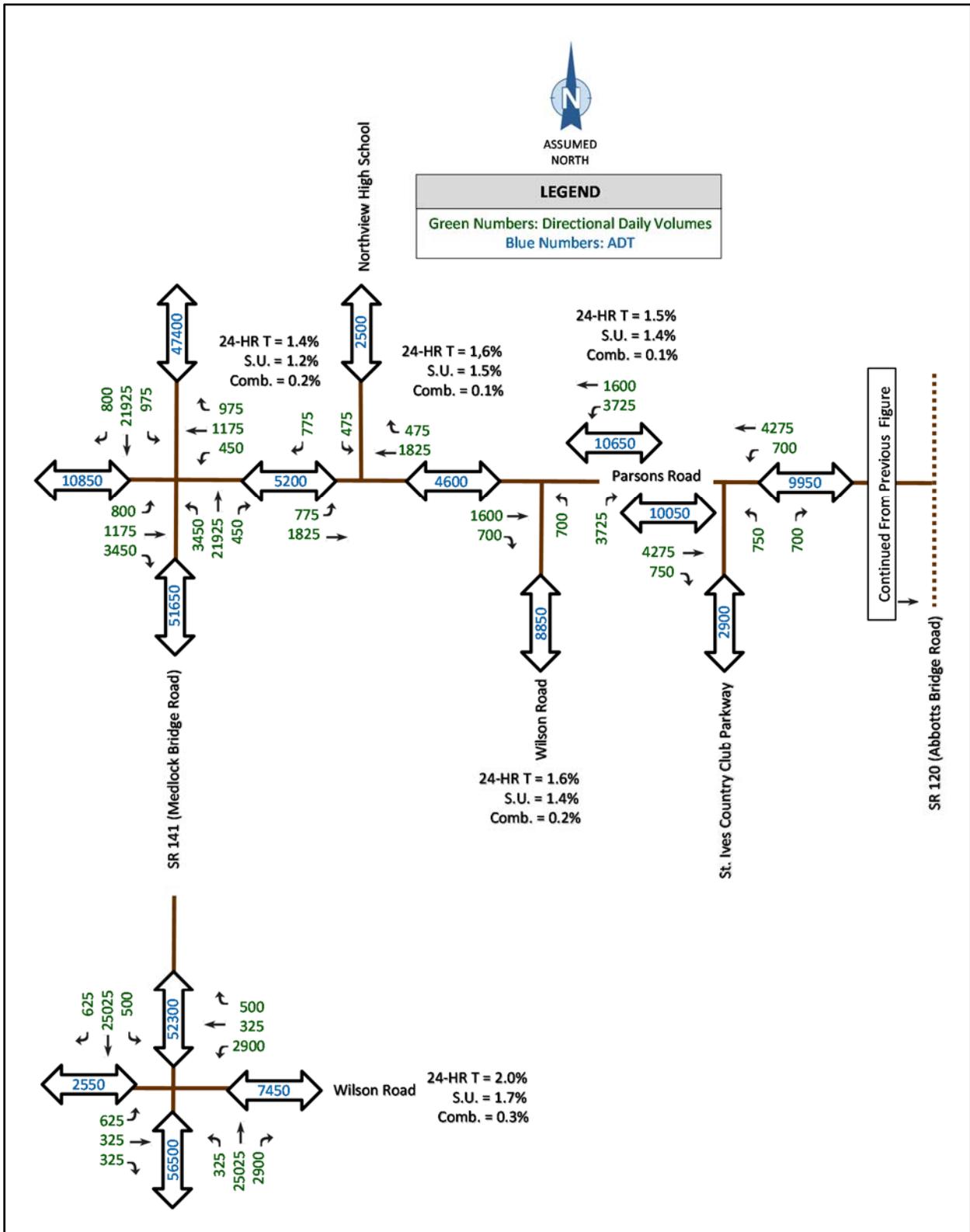


Figure 16: DAILY VOLUMES, 2042 DESIGN YEAR – NO-BUILD

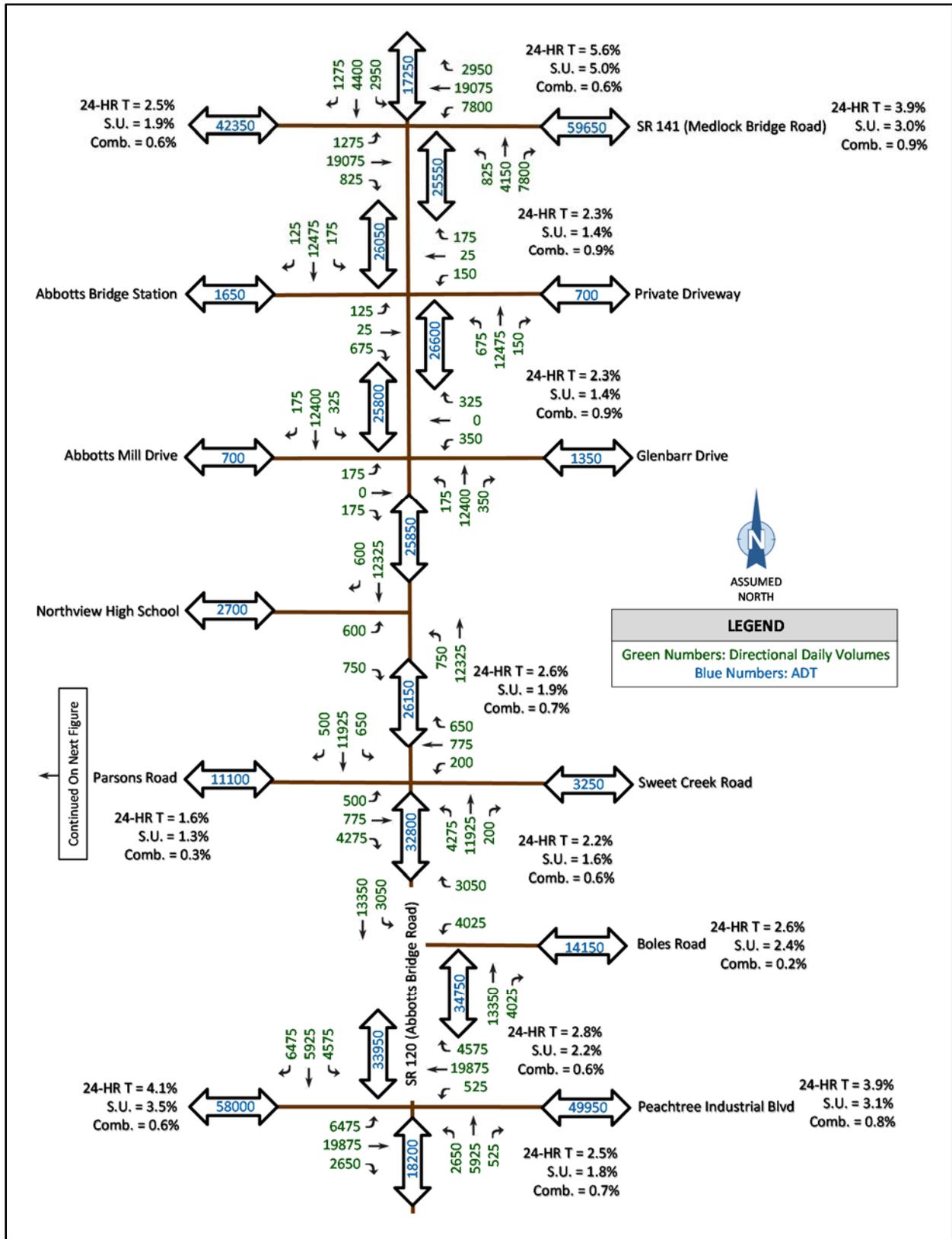


Figure 16: DAILY VOLUMES, 2042 DESIGN YEAR – NO-BUILD (continued)

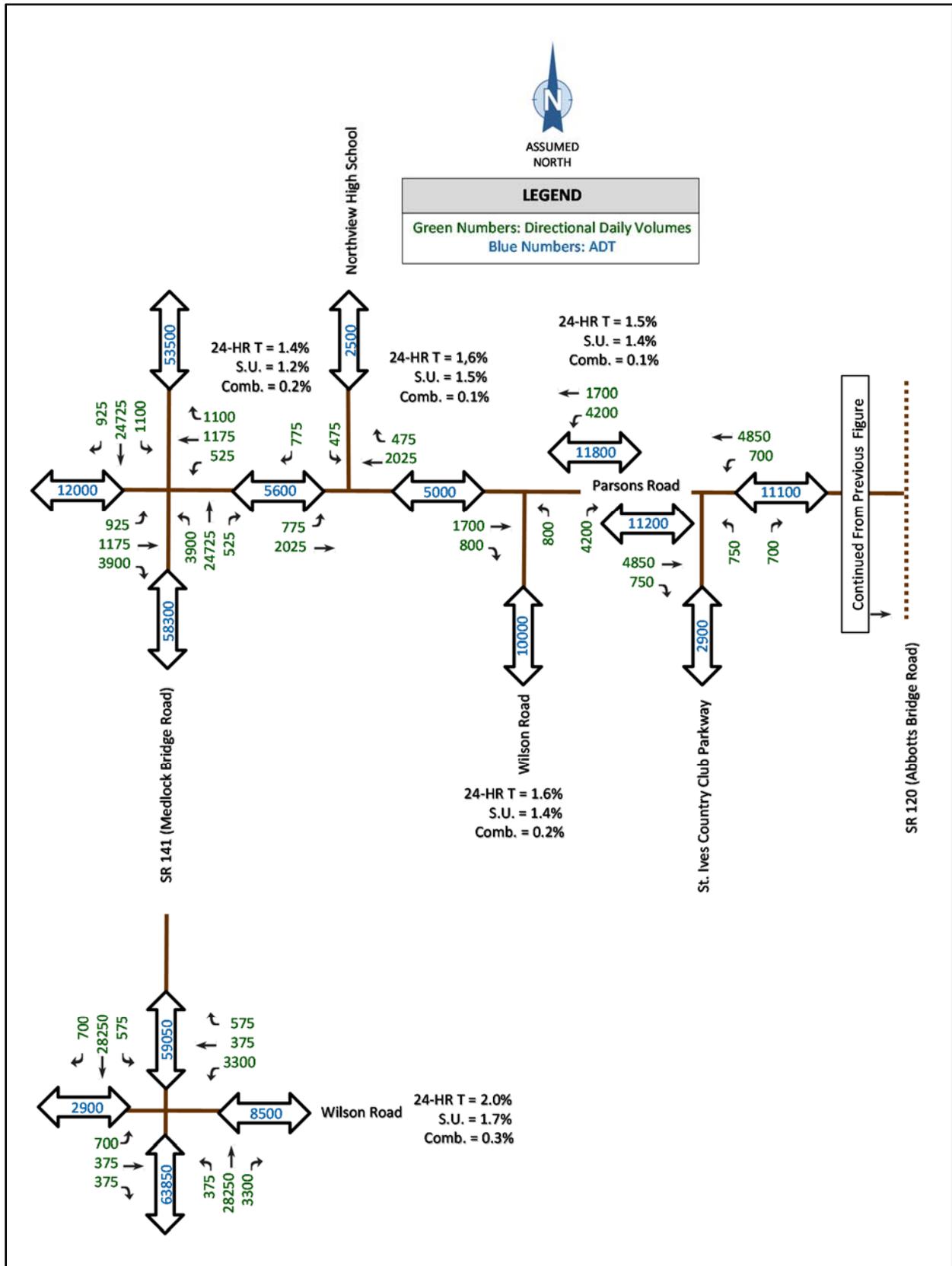


Figure 17: DAILY VOLUMES, 2042 DESIGN YEAR – BUILD

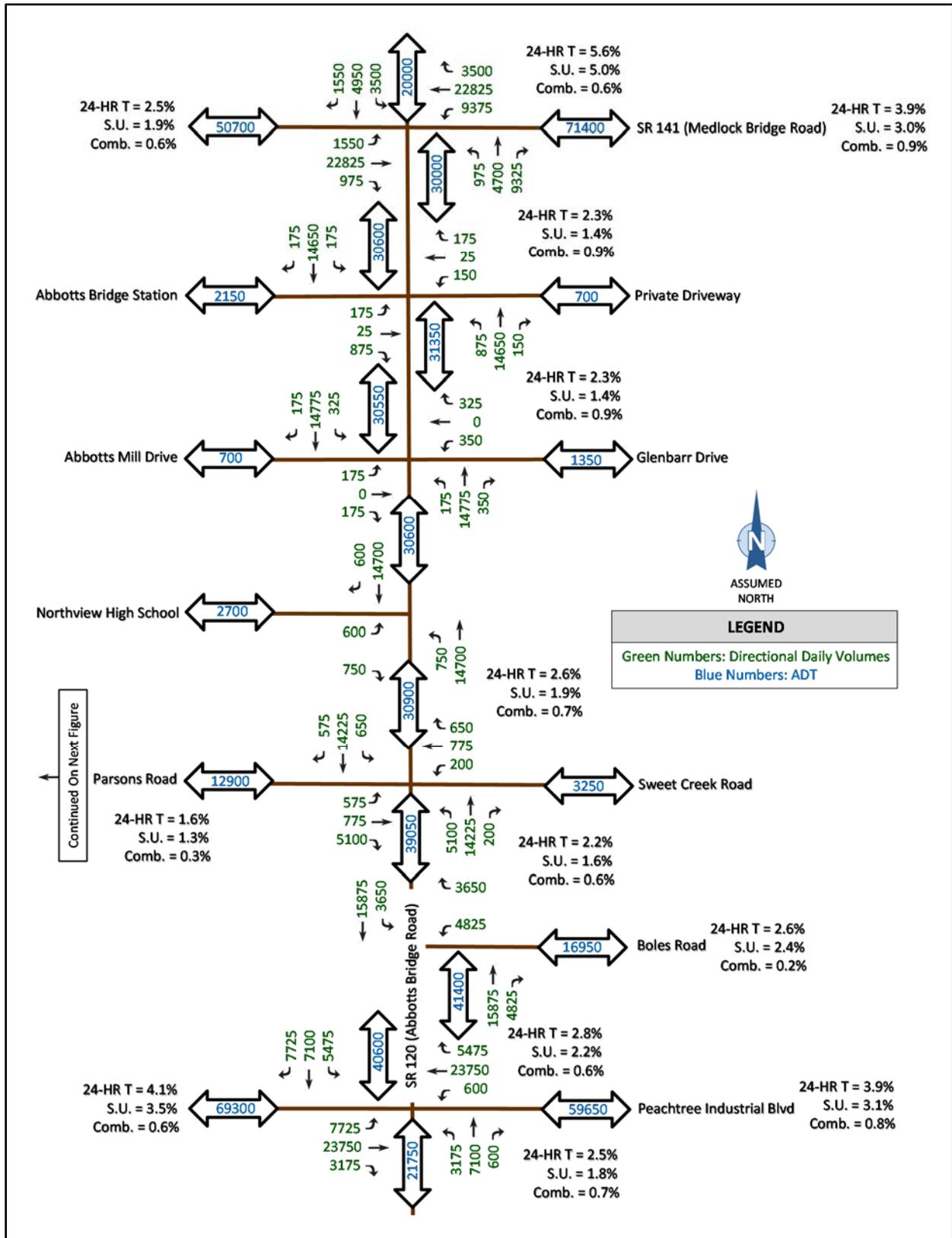
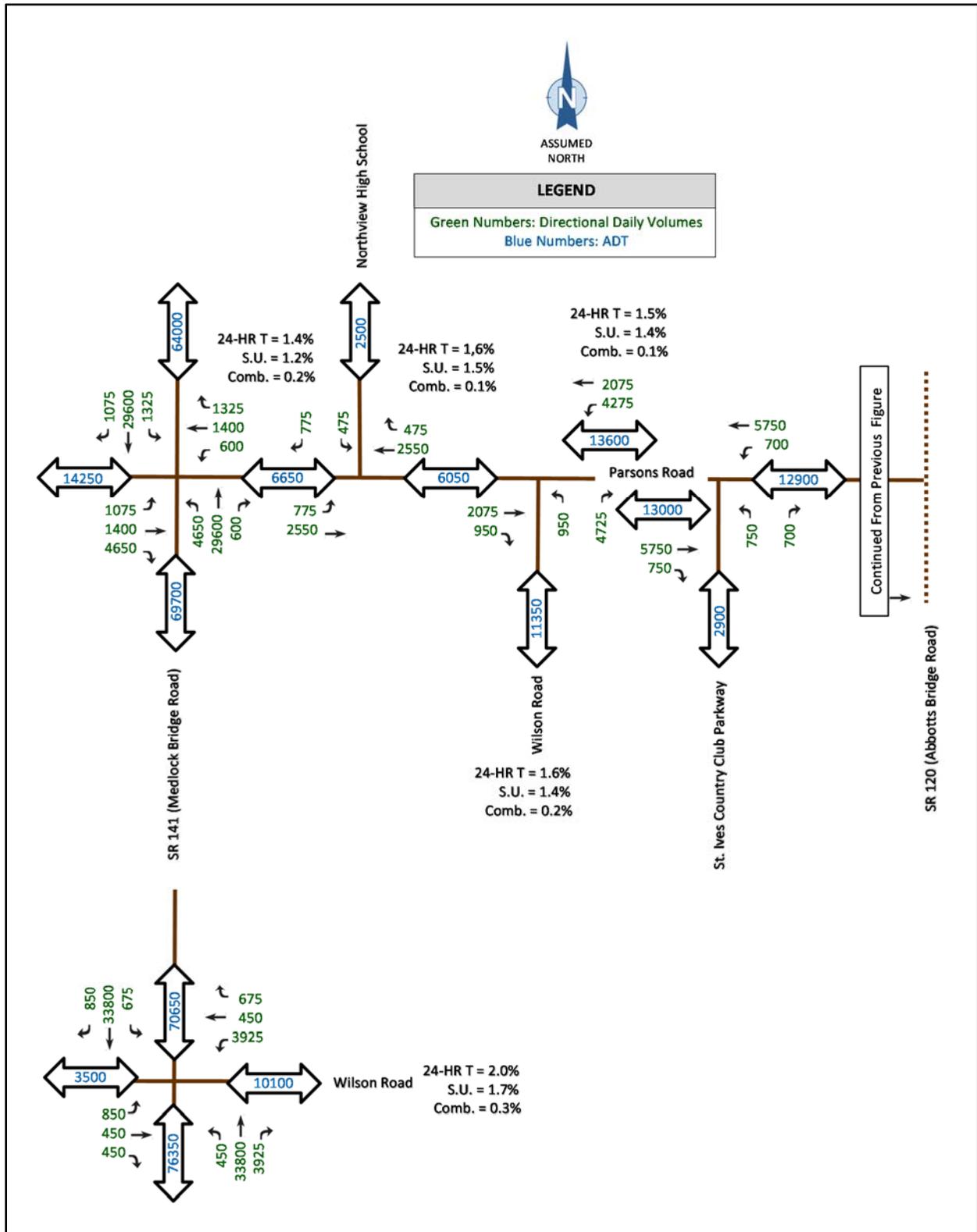


Figure 17: DAILY VOLUMES, 2042 DESIGN YEAR – BUILD (continued)



CAPACITY ANALYSIS

Capacity analysis was used to evaluate both existing and projected traffic volumes. The *Synchro* Program (Version 9) was used to conduct the capacity analysis. This program replicates the procedures outlined in the *Highway Capacity Manual, Special Report 2009* (HCM 2000 & 2010) published by the Transportation Research Board 2000.

The level of service definitions are provided in Table 14. The HCM has different LOS definitions for signalized intersections than for stop controlled intersections.

Table 14: LEVEL OF SERVICE CRITERIA

LEVEL OF SERVICE (LOS)	SIGNALIZED INTERSECTION CONTROL DELAY PER VEHICLE (SECONDS)	STOP CONTROLLED INTERSECTION CONTROL DELAY PER VEHICLE (SECONDS)
A	≤10	≤10
B	>10 and ≤20	>10 and ≤15
C	>20 and ≤35	>15 and ≤25
D	>35 and ≤55	>25 and ≤35
E	>55 and ≤80	>35 and ≤50
F	>80	>50

Capacity analysis is shown for signalized intersections first followed by unsignalized intersections. Capacity analysis results for unsignalized intersections provide estimates of level of service (LOS) for each minor movement that is required to yield to free flow movements. No overall intersection LOS is given for the unsignalized intersections. LOS for each movement is shown followed by the estimated delay per vehicle in seconds.

Existing Conditions

Table 15 summarizes the results of the capacity analysis for existing signalized intersections. Poor operating conditions are highlighted. Capacity analysis reports for Existing Conditions are provided in Appendix H.

Table 15: EXISTING LEVELS OF SERVICE, SIGNALIZED INTERSECTIONS

INTERSECTION	AM PEAK HOUR	PM PEAK HOUR
SR 120 & PIB	F (101.1)	F (92.4)
SR 120 & BOLES ROAD	F (207.3)	F (288.4)
SR 120 & PARSONS ROAD/SWEET CREEK ROAD	F (258.3)	F (158.0)
SR 120 & NORTHVIEW HIGH SCHOOL	F (97.8)	F (91.7)
SR 120 & SR 141	E (67.7)	E (68.2)
SR 141 & PARSONS ROAD	D (54.8)	C (29.4)
SR 141 & WILSON ROAD	C (24.4)	D (39.0)

Table 16 summarizes the results of the capacity analysis for the existing unsignalized intersections.

Table 16: EXISTING LEVELS OF SERVICE, UNSIGNALIZED INTERSECTIONS

INTERSECTION	MOVEMENT	CONTROL	AM PEAK HOUR	PM PEAK HOUR
SR 120 & Abbotts Mill Dr/Glenbarr Dr	EBL – T – R	Stop	F (52.6)	F (99.6)
	WBL – T – R	Stop	F (292.3)	E (44.4)
	NBL	Yield	B (10.0)	A (10.0)
	NBT	Free	A (0.0)	A (0.0)
	NBR	Free	A (0.0)	A (0.0)
	SBL	Yield	A(9.5)	A (9.6)
	SBT	Free	A (0.0)	A (0.0)
	SBR	Free	A (0.0)	A (0.0)
SR 120 & Abbotts Bridge Station/ Private DW	EBL – T	Stop	C (24.7)	D (26.9)
	EBR	Yield	C (20.6)	C (17.8)
	WBL – T – R	Stop	A (0.0)	D (27.4)
	NBL	Yield	B (11.2)	B (10.3)
	NBT	Free	A (0.0)	A (0.0)
	NBR	Free	A (0.0)	A (0.0)
	SBL	Yield	A (9.6)	A (9.4)
	SBR	Free	A (0.0)	A (0.0)
Parsons Road & St. Ives CC Parkway	EBT	Free	A (0.0)	A (0.0)
	EBR	Free	A (0.0)	A (0.0)
	WBL - T	Free	A (1.0)	A (1.6)
	NBL	Stop	C (21.4)	C (21.0)
	NBR	Yield	B (10.5)	B (11.4)
Parsons Road & Wilson Road	EBT - R	Free	A (0.0)	A (0.0)
	WBL	Yield	A (8.6)	A (8.0)
	WBT	Free	A (0.0)	A (0.0)
	NBL - R	Stop	F (157.4)	B (13.9)
Parsons Road & Northview High School	EBL	Yield	A (8.5)	A (7.6)
	EBT	Free	A (0.0)	A (0.0)
	WBR	Free	A (0.0)	A (0.0)
	WBT	Free	A (0.0)	A (0.0)
	SBL	Stop	F (86.1)	B (10.7)
	SBR	Yield	B (10.3)	A (9.4)

Projected No-Build Conditions

Tables 17 and 18 summarize the results of the capacity analysis for the No-Build Construction Year (2022) and Design Year (2042) projected volumes. Poor operating conditions are highlighted. Capacity analysis reports for 2022 No-Build Conditions are included in Appendix I. Capacity analysis reports for 2042 No-Build Conditions are included in Appendix J.

Table 17: PROJECTED NO-BUILD LEVELS OF SERVICE, SIGNALIZED INTERSECTIONS

INTERSECTION	2022 CONSTRUCTION YEAR		2042 DESIGN YEAR	
	AM PEAK HOUR	PM PEAK HOUR	AM PEAK HOUR	PM PEAK HOUR
SR 120 & PIB	F (130.3)	F (118.8)	F (186.0)	F (189.4)
SR 120 & BOLES ROAD	F (289.9)	F (355.1)	F (419.3)	F (505.7)
SR 120 & PARSONS ROAD/ SWEET CREEK ROAD	F (310.8)	F (304.6)	F (448.5)	F (487.9)
SR 120 & NORTHVIEW HIGH SCHOOL	F (147.9)	F (124.1)	F (279.3)	F (265.9)
SR 120 & SR 141	F (96.4)	F (111.2)	F (139.9)	F (172.0)
SR 141 & PARSONS ROAD	E (77.8)	C (36.9)	F (129.6)	F (93.2)
SR 141 & WILSON ROAD	C (29.2)	D (40.6)	E (75.8)	F (91.1)

Table 18: PROJECTED NO-BUILD LEVELS OF SERVICE, UNSIGNALIZED INTERSECTIONS

INTERSECTION	MOVEMENT	CONTROL	2022 CONSTRUCTION YEAR		2042 DESIGN YEAR	
			AM PEAK HOUR	PM PEAK HOUR	AM PEAK HOUR	PM PEAK HOUR
SR 120 & Abbotts Mill Dr/ Glenbarr Dr	EBL – T – R	Stop	F (65.3)	F (140.9)	F (*)	F (*)
	WBL – T - R	Stop	F (487.6)	F (70.2)	F (*)	F (*)
	NBL	Yield	B (10.5)	A (10.3)	B (11.8)	B (11.5)
	NBT	Free	A (0.0)	A (0.0)	A (0.0)	A (0.0)
	NBR	Free	A (0.0)	A (0.0)	A (0.0)	A (0.0)
	SBL	Yield	B (9.8)	A (9.9)	B (13.3)	B (15.1)
	SBT	Free	A (0.0)	A (0.0)	A (0.0)	A (0.0)
SR 120 & Abbotts Bridge Station/ Private DW	SBR	Free	A (0.0)	A (0.0)	A (0.0)	A (0.0)
	EBL - T	Stop	A (0.0)	D (32.1)	A (0.0)	E (50.0)
	EBR	Yield	D (25.3)	C (20.9)	E (48.0)	D (34.0)
	WBL – T - R	Stop	A (0.0)	E (37.6)	A (0.0)	F (768.6)
	NBL	Yield	B (12.2)	B (11.0)	C (15.2)	B (12.9)
	NBT	Free	A (0.0)	A (0.0)	A (0.0)	A (0.0)
	NBR	Free	A (0.0)	A (0.0)	A (0.0)	A (0.0)
	SBL	Yield	A (9.9)	A (9.7)	B (10.7)	B (10.6)
Parsons Road & St. Ives CC Parkway	SBT	Free	A (0.0)	A (0.0)	A (0.0)	A (0.0)
	SBR	Free	A (0.0)	A (0.0)	A (0.0)	A (0.0)
	EBT	Free	A (0.0)	A (0.0)	A (0.0)	A (0.0)
	EBR	Free	A (0.0)	A (0.0)	A (0.0)	A (0.0)
	WBL - T	Yield	A (0.9)	A (1.6)	A (0.9)	A (1.6)
Parsons Road & Wilson Road	NBL	Stop	C (24.4)	C (24.4)	D (36.1)	E (36.9)
	NBR	Yield	B (10.8)	B (11.9)	B (11.5)	B (13.0)
	EBT - R	Free	A (0.0)	A (0.0)	A (0.0)	A (0.0)
	WBL	Yield	A (8.9)	A (8.1)	A (8.5)	A (8.4)
Parsons Road & Northview High School	WBT	Free	A (0.0)	A (0.0)	A (0.0)	A (0.0)
	NBL – R	Stop	F (288.6)	B (15.7)	F (191.1)	C (23.6)
	EBL	Yield	A (8.6)	A (7.6)	A (9.0)	A (7.7)
	EBT	Free	A (0.0)	A (0.0)	A (0.0)	A (0.0)
	WBR	Free	A (0.0)	A (0.0)	A (0.0)	A (0.0)
	WBT	Free	A (0.0)	A (0.0)	A (0.0)	A (0.0)
Parsons Road & Northview High School	SBL	Stop	F (101.1)	B (11.0)	F (164.1)	B (11.7)
	SBR	Yield	B (10.4)	A (9.5)	B (11.2)	A (9.8)

* = Delay outside of calculated range

The results indicate that six signalized intersections and three unsignalized intersections will fail by 2022. The results also indicate that eight signalized intersections and five unsignalized intersections will fail by 2042.

Projected Build Conditions

The previous section established that the corridor operating conditions will continue to degrade over time unless improvements are made. From Existing to 2022 No-Build to 2042 No-Build Conditions, the capacity analysis demonstrated that doing nothing will result in unacceptable conditions.

This section provides capacity analysis results for the Base Alternative evaluated. The Base Alternative improvements include:

➤ **Base Alternative**

- A four-lane divided section with a raised median.
- Enhanced sidewalks/multiuse trails on one or both sides.
- Dual left turns in one or both directions.
- Median breaks at all intersecting public roadways.
- Median width increased from 20'-24' to 32' to accommodate two-stage left turn maneuvers at unsignalized intersections.

Figures 18–24 on the following pages illustrate the improvements of the Base Alternative.

Figure 18: BUILD CONDITION, SR 120 & PIB

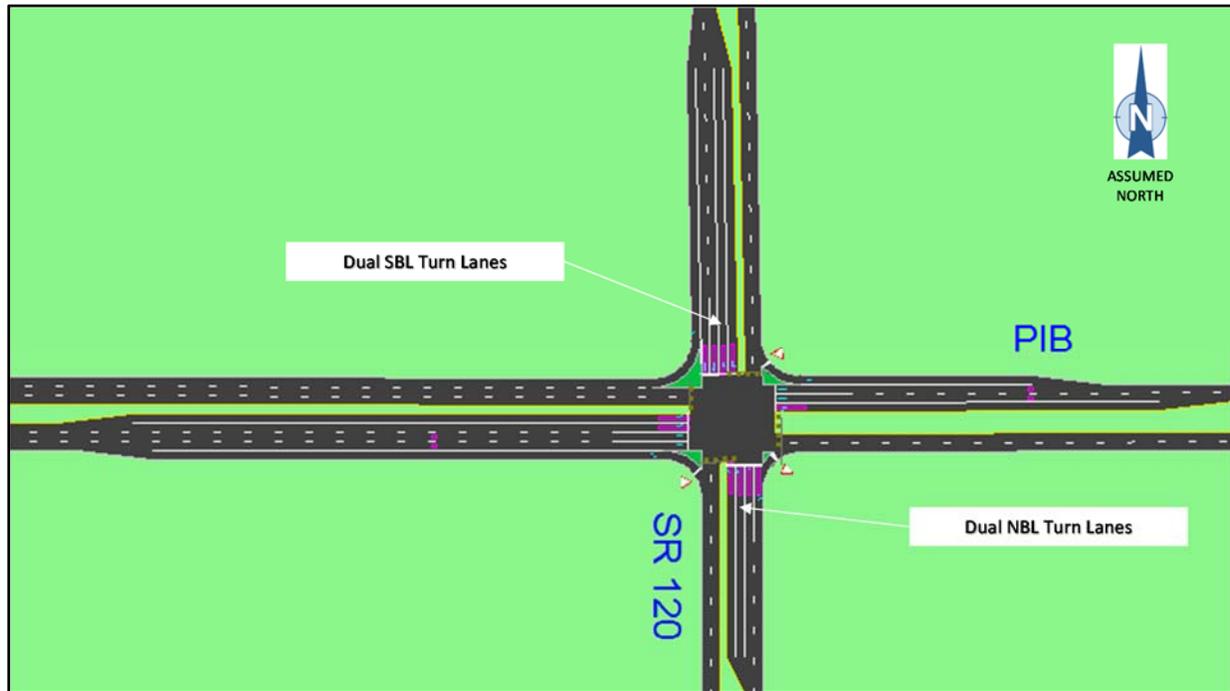


Figure 19: BUILD CONDITION, SR 120 & BOLES ROAD

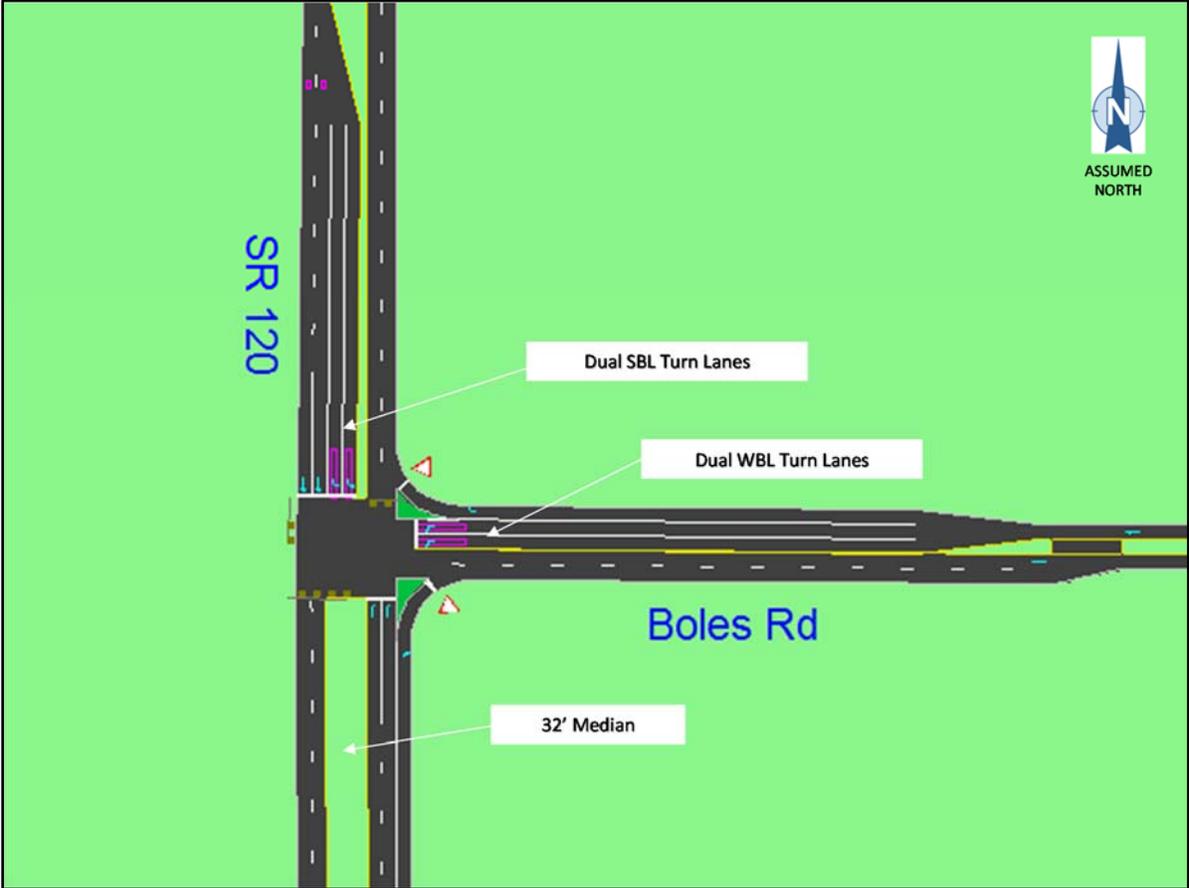


Figure 20: BUILD CONDITION, SR 120 & PARSONS ROAD/SWEET CREEK ROAD



Figure 21: BUILD CONDITION, SR 120 & ABBOTTS MILL DRIVE/GLENBARR DRIVE

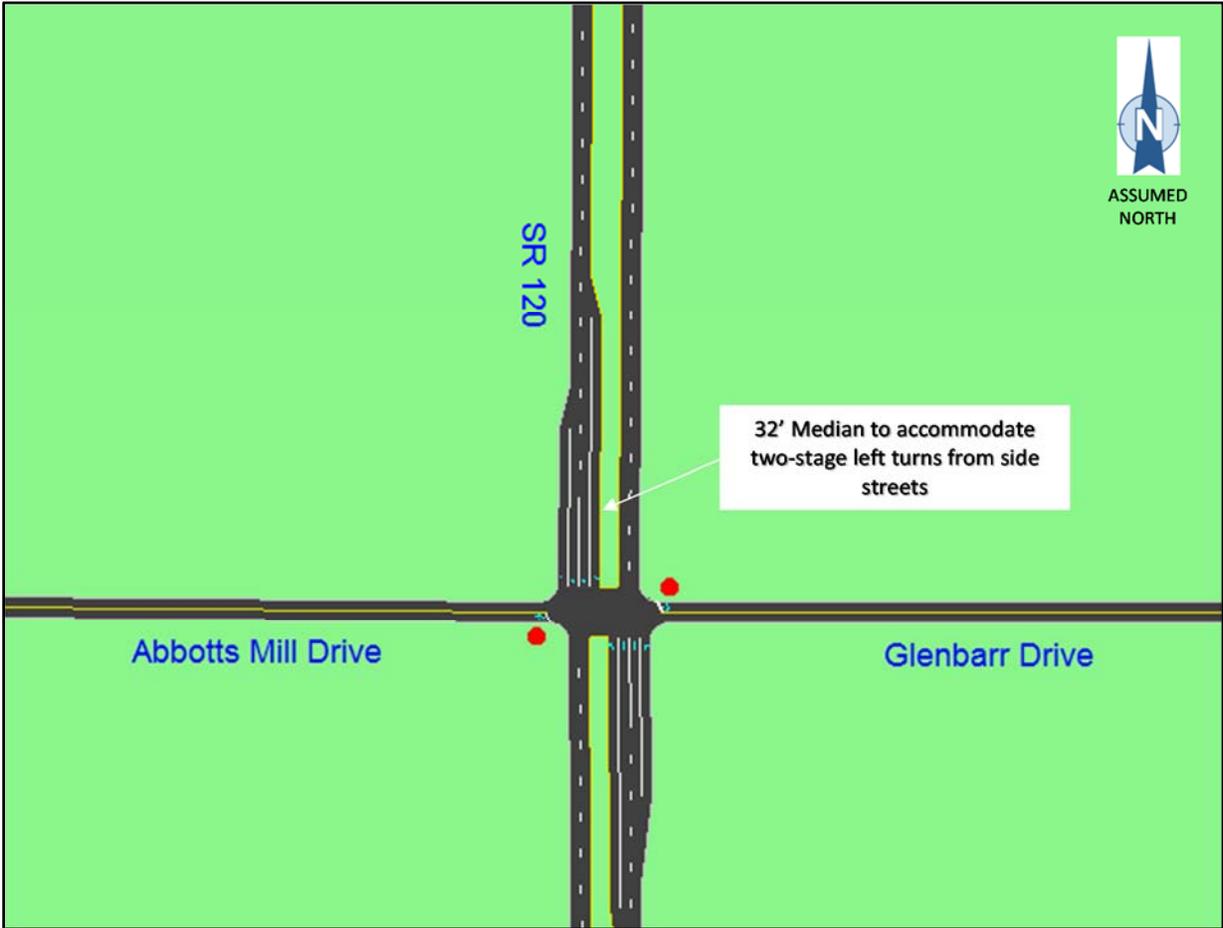


Figure 22: BUILD CONDITION, SR 120 & ABBOTTS BRIDGE STATION DRIVEWAY

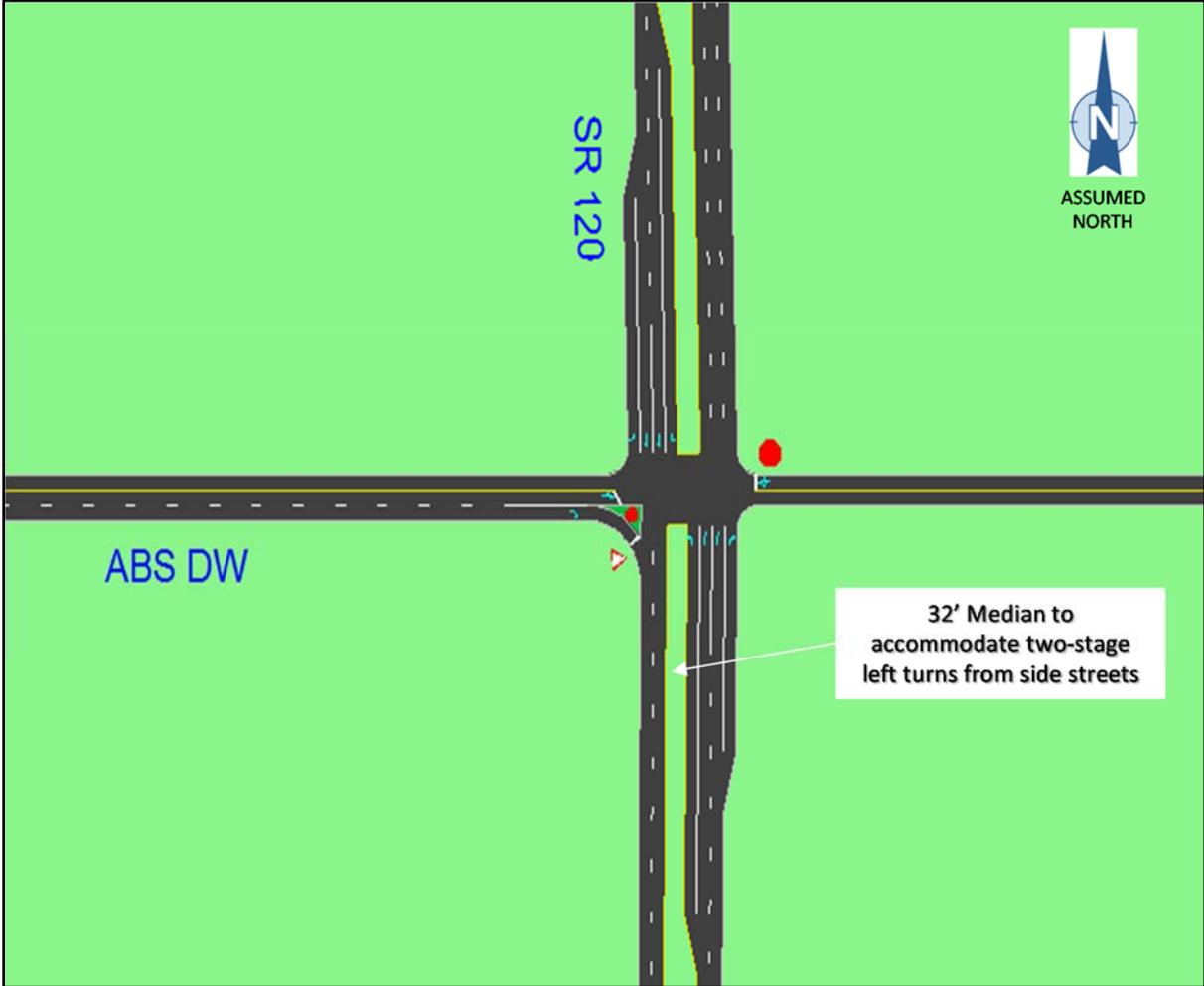


Figure 23: BUILD CONDITION, SR 120 & SR 141/MEDLOCK BRIDGE ROAD



Figure 24: BUILD CONDITION, PARSONS ROAD & ST. IVES COUNTRY CLUB PKWY



Tables 19 and 20 summarize the capacity analysis results for the Construction Year (2022) and Design Year using the Base Alternative. Poor operating conditions are highlighted. Capacity analysis reports for the 2022 Base Alternative are provided in Appendix K. Capacity analysis reports for 2042 Base Alternative are provided in Appendix L.

Table 19: PROJECTED BUILD LEVELS OF SERVICE, SIGNALIZED INTERSECTIONS

INTERSECTION	2022 CONSTRUCTION YEAR		2042 DESIGN YEAR	
	AM PEAK HOUR	PM PEAK HOUR	AM PEAK HOUR	PM PEAK HOUR
SR 120 & PIB	F (102.1)	F (104.6)	F (207.4)	F (220.9)
SR 120 & BOLES ROAD	C (22.0)	B (15.3)	C (23.6)	C (21.4)
SR 120 & PARSONS ROAD/SWEET CREEK ROAD (OPTION 1: FREE FLOW EBR) (OPTION 2: DUAL RIGHTS EBR W/SIGNAL CONTROL)	B (17.8) C (20.0)	B (13.2) B (15.6)	B (19.0) C (20.8)	B (14.3) B (17.8)
SR 120 & NORTHVIEW HIGH SCHOOL	C (20.2)	A (6.5)	C (31.8)	A (8.1)
SR 120 & SR 141 (OPTION 1: FREE FLOW NBR) (OPTION 2: DUAL RIGHTS NBR W/SIGNAL CONTROL)	E (75.2) E (62.9)	F (82.2) F (80.8)	F (107.5) F (114.4)	F (179.8) F (182.9)
SR 141 & PARSONS ROAD	E (56.4)	D (38.2)	F (141.8)	F (127.7)
SR 141 & WILSON ROAD	C (29.3)	C (32.3)	F (123.1)	F (161.6)

Table 20: PROJECTED BUILD LEVELS OF SERVICE, UNSIGNALIZED INTERSECTIONS

INTERSECTION	MOVEMENT	CONTROL	2022 CONSTRUCTION YEAR		2042 DESIGN YEAR	
			AM PEAK HOUR	PM PEAK HOUR	AM PEAK HOUR	PM PEAK HOUR
SR 120 & Abbotts Mill Dr/ Glenbarr Dr	EBL – T – R	Stop	C (19.0)	D (27.6)	D (28.9)	E (49.0)
	WBL – T - R	Stop	D (26.1)	C (16.2)	E (42.5)	C (21.4)
	NBL	Yield	B (10.9)	B (10.7)	B (13.4)	B (13.2)
	NBT	Free	A (0.0)	A (0.0)	A (0.0)	A (0.0)
	NBR	Free	A (0.0)	A (0.0)	A (0.0)	A (0.0)
	SBL	Yield	A (9.8)	A (10.1)	B (11.0)	B (11.8)
	SBT	Free	A (0.0)	A (0.0)	A (0.0)	A (0.0)
SR 120 & Abbotts Bridge Station/ Private DW	SBR	Free	A (0.0)	A (0.0)	A (0.0)	A (0.0)
	EBL - T	Stop	A (0.0)	D (31.3)	A (0.0)	F (67.5)
	EBR	Yield	A (11.3)	B (11.0)	B (13.4)	B (13.2)
	WBL – T - R	Stop	A (0.0)	D (30.4)	A (0.0)	F (80.6)
	NBL	Yield	B (11.4)	B (10.4)	C (15.5)	B (13.3)
	NBT	Free	A (0.0)	A (0.0)	A (0.0)	A (0.0)
	NBR	Free	A (0.0)	A (0.0)	A (0.0)	A (0.0)
	SBL	Yield	B (10.2)	A (10.2)	B (11.8)	B (11.9)
Parsons Road & St. Ives CC Parkway	SBT	Free	A (0.0)	A (0.0)	A (0.0)	A (0.0)
	SBR	Free	A (0.0)	A (0.0)	A (0.0)	A (0.0)
	EBT	Free	A (0.0)	A (0.0)	A (0.0)	A (0.0)
	EBR	Free	A (0.0)	A (0.0)	A (0.0)	A (0.0)
	WBL - T	Yield	A (8.1)	A (8.5)	A (8.5)	A (9.1)
Parsons Road & Wilson Road	NBL	Stop	C (18.1)	C (20.5)	C (24.8)	D (30.5)
	NBR	Yield	B (11.6)	B (13.0)	B (13.5)	C (15.8)
	EBT - R	Free	A (0.0)	A (0.0)	A (0.0)	A (0.0)
	WBL	Yield	A (9.3)	A (8.3)	B (10.9)	A (8.7)
Parsons Road & Northview High School	WBT	Free	A (0.0)	A (0.0)	A (0.0)	A (0.0)
	NBL – R	Stop	F (429.1)	C (18.0)	F (*)	F (57.8)
	EBL	Yield	A (8.7)	A (7.7)	A (9.1)	A (7.9)
	EBT	Free	A (0.0)	A (0.0)	A (0.0)	A (0.0)
	WBR	Free	A (0.0)	A (0.0)	A (0.0)	A (0.0)
	WBT	Free	A (0.0)	A (0.0)	A (0.0)	A (0.0)
SR 120 & Peachtree Industrial Boulevard	SBL	Stop	F (119.6)	B (11.3)	F (207.4)	B (12.2)
	SBR	Yield	B (10.6)	A (9.6)	B (11.4)	B (10.2)

* = Delay outside of calculated range

The results indicate that the proposed Base Alternative will improve Construction Year (2022) LOS. However, SR 120 and Peachtree Industrial Boulevard, SR 120 and SR 141/Medlock Bridge Road, and SR 141/Medlock Bridge Road and Parsons Road will not operate with acceptable LOS under this alternative.

The results indicate that the proposed Base Alternative will not sustain acceptable LOS through 2042. With the high number of intersections resulting in unacceptable LOS through 2042, additional alternatives were explored.

Proposed Additional Intersection Improvements

The Base Alternative provides significant improvements for the SR 120 corridor. The previous section determined that further improvements were necessary at several intersections. The improvements evaluated in this section, in addition to the Base Alternative, include:

- SR 120 & Peachtree Industrial Boulevard
 - Unconventional intersections, includes: Continuous Flow Intersection and Single Point Urban Interchange and major widening of PIB were evaluated. However, due to the significant impacts, and cost/benefit these improvements were not recommended for the construction phase.

- SR 120 & SR 141/Medlock Bridge Road
 - Triple lefts were analyzed on the westbound approach of the intersection but no significant improvement in LOS is achieved.
 - Unconventional intersections, includes: Continuous Flow Intersection and Single Point Urban Interchange and major widening of SR 141/Medlock Bridge Road were evaluated. However, due to the significant impacts, and cost/benefit these improvements were not recommended for the construction phase.

- Parsons Road & Wilson Road
 - A roundabout operation was evaluated (See Roundabout Analysis).

- SR 141/Medlock Bridge Road & Wilson Road
 - Convert WBL single left turn lane to dual lefts.

- The other intersections were also evaluated but capacity analysis determined that no improvements outside of the Base Alternative were needed other than signal timing adjustments.

Figure 25 shows the triple WBL at SR 120 and SR 141/Medlock Bridge Road.

Figure 25: SR 120 & SR 141/MEDLOCK BRIDGE RD TRIPLE WBL

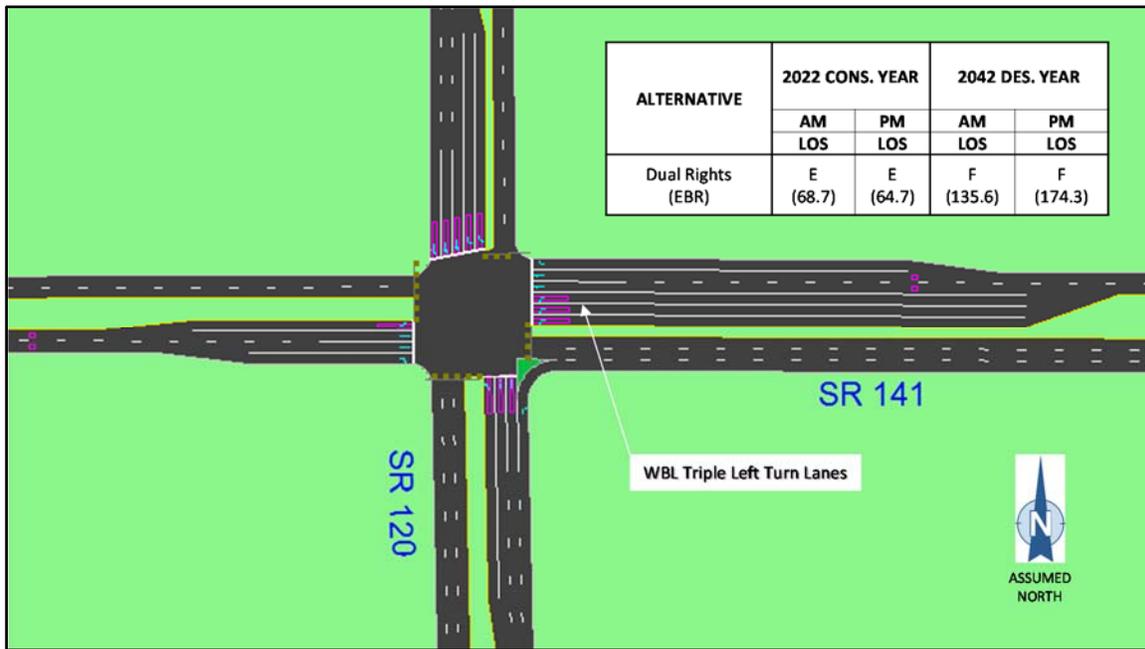


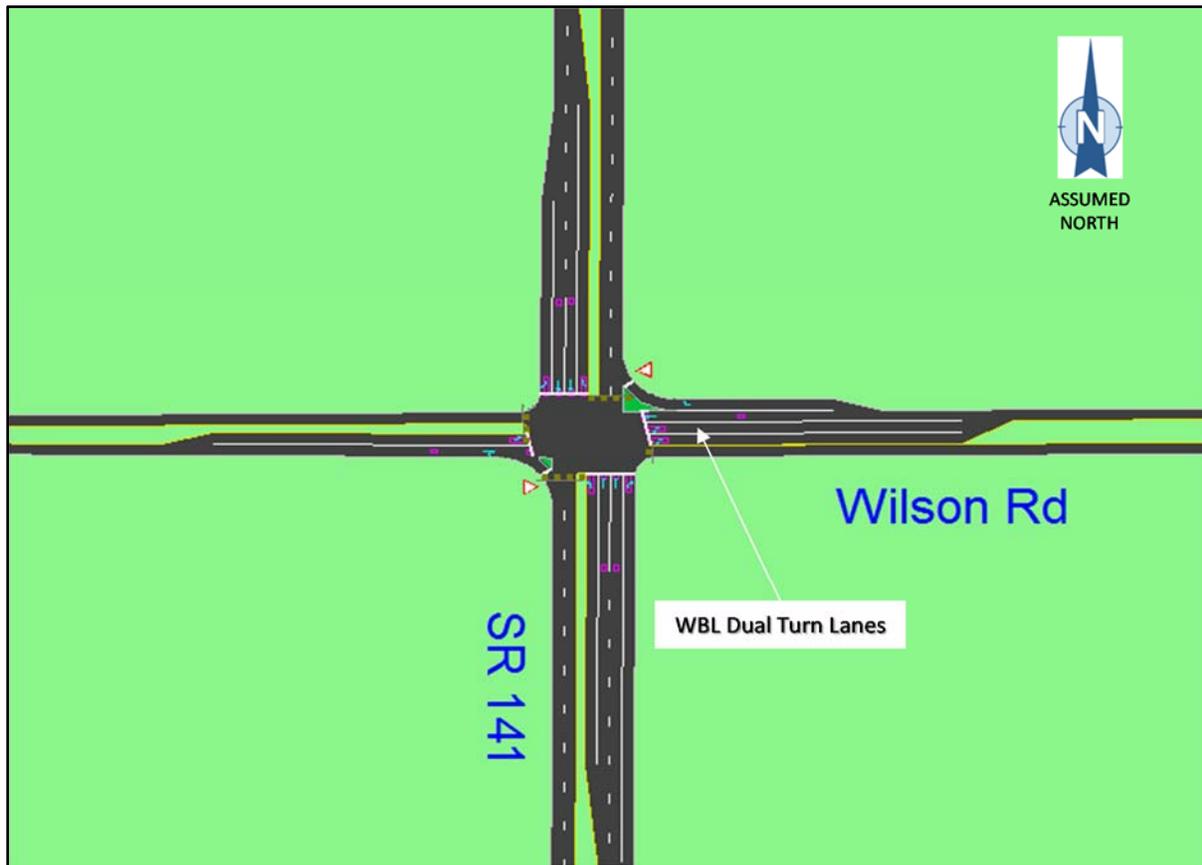
Figure 26 shows the single-lane roundabout at Parsons Road and Wilson Road.

Figure 26: PARSONS ROAD & WILSON ROAD SINGLE-LANE ROUNDABOUT



Figure 27 shows the dual WBL at SR 141/Medlock Bridge Road and Wilson Road.

Figure 27: SR 141/MEDLOCK BRIDGE RD & WILSON RD DUAL WBL



ROUNDAABOUT ANALYSIS

GDOT Policy *4A-2-Use of Modern Roundabouts on Street Facilities* requires that a roundabout be considered before a permit will be issued for a new traffic signal installation.

The selection criteria for a proposed roundabout should be conducted if the following conditions are expected:

1. The total entering volume is less than 25,000 vehicles for a single-lane roundabout, or
2. The total entering volume is less than 45,000 vehicles for a multi-lane roundabout, or
3. The percentage of volume on the main roadway is less than 90% of the total volume.

Table 21 summarizes the existing volumes for three intersections identified for potential roundabout operation using the 2042 Build Daily Volumes.

Table 21: ROUNDAABOUT ANALYSIS – 2042

	DAILY VOLUME		TOTAL	MAINLINE PERCENTAGE
	MAIN STREET	SIDE STREET		
SR 120 & Boles Road	43,150	9,100	53,250	83%
SR 120 & Parsons Road	37,475	8,475	45,950	82%
Parsons Road & Wilson Road	16,400	5,840	22,240	74%

The data in Table 21 indicate that the intersection of Parsons Road and Wilson Road might be a candidate for single-lane roundabout. The intersections of Boles Road and Parsons Road exceed the total volume threshold.

Operational analysis was conducted for the intersection of Wilson Road and Parsons Road using the GDOT Roundabout Analysis Tool. The analysis results use the NCHRP-672 methodology. A single-lane roundabout was analyzed.

Table 22 shows the results for the 2042 AM and PM Peak Hours, respectively.

Table 22: EXPECTED ROUNDABOUT LOS

2042 AM PEAK HOUR

	PARSONS ROAD		WILSON ROAD
	EB	WB	NB
	GDOT	GDOT	GDOT
LOS	C	B	B
DELAY (sec/veh)	18	12	12
QUEUE (ft)	363	173	116

2042 PM PEAK HOUR

	PARSONS ROAD		WILSON ROAD
	EB	WB	NB
	GDOT	GDOT	GDOT
LOS	A	B	A
DELAY (sec/veh)	8	11	6
QUEUE (ft)	68	105	21

The analysis indicates that a roundabout would operate acceptably. Appendix M includes the GDOT analysis worksheets.

SUMMARY OF FINDINGS

The following summarizes the findings of the analysis.

The Base Alternative will provide a four-lane divided section with a raised median and enhanced sidewalks on one or both sides.

SR 120 & PEACHTREE INDUSTRIAL BOULEVARD

1. The intersection of PIB and SR 120 currently operates at LOS F.
2. Projected 2022 No-Build daily traffic volumes range from a low of 14,900 vpd to a high of 47,550 vpd. Projected 2022 Build daily traffic volumes range from a low of 16,100 vpd to a high of 51,350 vpd.
3. Projected 2042 No-Build daily traffic volumes range from a low of 18,200 vpd to a high of 58,000 vpd. Projected 2042 Build daily traffic volumes range from a low of 21,750 vpd to a high of 69,300 vpd.
4. Of the traffic on the north side of the SR 120 and PIB intersection: 65% originates from PIB and the other 35% originates from the south side of SR 120.
5. The intersection will continue to operate at LOS F with the Base Alternative through the Design Year 2042.
6. Alternative intersection configurations (e.g. Continuous Flow Intersection and Urban Single Point, the widening of PIB) were analyzed and provide acceptable LOS but due to the significant expense and impacts were not selected as part of this project.

SR 120 & BOLES ROAD

1. The intersection of SR 120 and Boles Road currently operates at LOS F.
2. Projected 2022 No-Build daily traffic volumes range from a low of 11,600 vpd to a high of 28,600 vpd. Projected 2022 Build daily traffic volumes range from a low of 12,550 vpd to a high of 30,850 vpd.
3. Projected 2042 No-Build daily traffic volumes range from a low of 14,150 vpd to a high of 34,750 vpd. Projected 2042 Build daily traffic volumes range from a low of 16,950 vpd to a high of 41,400 vpd.
4. The intersection will operate at LOS C with the Base Alternative through the Design Year 2042.

SR 120 & PARSONS ROAD/SWEET CREEK ROAD

1. The intersection of SR 120 and Parsons Road/Sweet Creek Road currently operates at LOS D.
2. Projected 2022 No-Build daily traffic volumes range from a low of 3,250 vpd to a high of 27,000 vpd. Projected 2022 Build daily traffic volumes range from a low of 3,250 vpd to a high of 29,100 vpd.
3. Projected 2042 No-Build daily traffic volumes range from a low of 3,250 vpd to a high of 32,800 vpd. Projected 2042 Build daily traffic volumes range from a low of 3,250 vpd to a high of 39,050 vpd.
4. The intersection will operate at LOS B with the Base Alternative through the Design Year 2042.

SR 120 & SR 141/MEDLOCK BRIDGE ROAD

1. The intersection of SR 120 and SR 141/Medlock Bridge Road currently operates at level of service F.
2. Projected 2022 No-Build daily traffic volumes range from a low of 14,600 vpd to a high of 48,900 vpd. Projected 2022 Build daily traffic volumes range from a low of 15,600 vpd to a high of 52,800 vpd.
3. Projected 2042 No-Build daily traffic volumes range from a low of 17,250 vpd to a high of 59,650 vpd. Projected 2042 Build daily traffic volumes range from a low of 20,000 vpd to a high of 71,400 vpd.
4. Of the traffic on the south side of the SR 120 and SR 141/Medlock Bridge Road intersection: 64% originates from SR 141/Medlock Bridge Road and the other 36% originates from the north side of SR 120.
5. The intersection will continue to operate at LOS F with the Base Alternative through the Design Year 2042.
6. Alternative intersection configurations (e.g. Continuous Flow Intersection and Urban Single Point, the widening of SR 141/Medlock Bridge Road) were analyzed and provide acceptable LOS but due to the significant expense and impacts were not selected as part of this project.

OTHER INTERSECTION IMPROVEMENTS

1. The intersection of Parsons Road and Wilson Road currently operates at LOS F. The intersection will operate at LOS C or better as a single-lane roundabout through the Design Year 2042.

RECOMMENDATIONS

SR 120 & PEACHTREE INDUSTRIAL BOULEVARD

- Provide dual left turn lanes on the northbound and southbound approaches of SR 120 and PIB.

SR 120 & BOLES ROAD

- Provide dual left turn lanes on the southbound and westbound approaches of SR 120 and Boles Road.

SR 120 & PARSONS ROAD/SWEET CREEK ROAD

- Provide dual left turn lanes on the northbound approach, left and right turn lanes on the eastbound and westbound approaches, and a free flow right turn on the eastbound approach.

SR 120 & SR 141/MEDLOCK BRIDGE ROAD

- Provide a right turn lane on the southbound approach and a free flow right turn on the northbound approach.

OTHER INTERSECTION IMPROVEMENTS

- Provide 32' medians at unsignalized intersections to allow two-stage left turns.
- The intersection of SR 141/Medlock Bridge Road and Wilson Road needs dual left turn lanes on the westbound approach.

Table 23 below shows the recommended turn bay lengths.

Table 23: RECOMMENDED TURN BAY LENGTHS

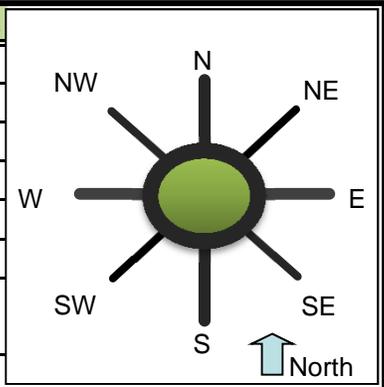
INTERSECTION	EB		WB		NB		SB	
	LT	RT	LT	RT	LT	RT	LT	RT
SR 120 & PIB	725', C (Dual)	700'	500'	335'	250' (Dual)	N/A	400' (Dual)	400'
SR 120 & BOLES ROAD	N/A		400', C (Dual)	400'	N/A	500'	300' (Dual)	N/A
SR 120 & PARSONS ROAD	100'	C (Dual) or Free Flow	100'	150'	300' (Dual)	175'	225'	175'
SR 120 & NHS DW	C	C	N/A		575'	N/A	N/A	175'
SR 120 & SR 141/MEDLOCK BRIDGE ROAD	235'	175'	525' (Dual)	400'	235'	300', C (Dual) or Free Flow	450' (Dual)	200'
SR 141/MEDLOCK BRIDGE ROAD & PARSONS ROAD	300'	500'	300'	300'	400'	200'	600'	200'
SR 141/MEDLOCK BRIDGE ROAD & WILSON ROAD	300'	N/A	300' (Dual)	175'	300'	400'	300'	200'
SR 120 & ABBOTTS MILL DRIVE/GLENBARR DRIVE	N/A		N/A		300'	175'	300'	175'
SR 120 & ABS DW	N/A		N/A		300'	175'	300'	200'
PARSONS ROAD & ST. IVES COUNTRY CLUB PARKWAY	N/A	100'	75'	N/A	C	C	N/A	
PARSONS ROAD & WILSON ROAD	N/A	N/A	N/A	N/A	N/A		N/A	
PARSONS RD & NHS DW	300'	N/A	N/A	175'	N/A		C	C

C = Continuous lane

APPENDIX M
ROUNABOUT ANALYSIS

General & Site Information v2.1

Analyst:	DREW RITTER
Agency/Co:	WILBURN ENGINEERING
Date:	3/26/2015
Project or PI#:	PI# 721000
Year, Peak Hour:	2042 AM PEAK HOUR
County/District:	FULTON
Intersection Name:	PARSONS RD @ WILSON RD



Volumes Entry Legs (FROM)

		N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
Exit Legs (TO)	N (1), vph								
	NE (2), vph								
	E (3), vph					295		190	
	SE (4), vph								
	S (5), vph			505				70	
	SW (6), vph								
	W (7), vph			200		170			
	NW (8), vph								
Output	Total Vehicles	0	0	705	0	465	0	260	0

Volume Characteristics

	N	NE	E	SE	S	SW	W	NW
% Cars	100%	100%	96%	100%	98%	100%	95%	100%
% Heavy Vehicles	0%	0%	4%	0%	2%	0%	5%	0%
% Bicycle	0%	0%	0%	0%	0%	0%	0%	0%
# of Pedestrians (ped/hr)	0	0	0	0	0	0	0	0
PHF	0.92	0.92	0.91	0.92	0.82	0.92	0.70	0.92
F _{HV}	1.000	1.000	0.962	1.000	0.980	1.000	0.952	1.000
F _{ped}	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Entry/Conflicting Flows

	N	NE	E	SE	S	SW	W	NW
Flow to Leg #								
N (1), pcu/h	0	0	0	0	0	0	0	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	0	0	0	0	367	0	285	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	0	0	577	0	0	0	105	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	0	0	229	0	211	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	0	0	806	0	578	0	390	0
Conflicting flow, pcu/h	0	0	211	0	285	0	577	0

Roundabout Type Standard Single Lane or Urban Compact

Enter type here...	Standard Single Lane
--------------------	----------------------

Results: Approach Measures of Effectiveness								
HCM 2010 Model (build)	N	NE	E	SE	S	SW	W	NW
Entry Capacity, vph	NA	NA	879	NA	833	NA	604	NA
Entry Flow Rates, vph	NA	NA	775	NA	567	NA	371	NA
V/C ratio			0.88		0.68		0.61	
Control Delay, s/veh			30		16		18	
LOS			D		C		C	
95th % Queue (ft)			305		140		110	
Calibrated Model (future)	N	NE	E	SE	S	SW	W	NW
Entry Capacity, vph	NA	NA	1082	NA	1040	NA	800	NA
Entry Flow Rates, vph	NA	NA	775	NA	567	NA	371	NA
V/C ratio			0.74		0.56		0.49	
Control Delay, sec/pcu			16		10		11	
LOS			C		B		B	
95th % Queue (ft)			188		90		71	

Notes:

v2.1

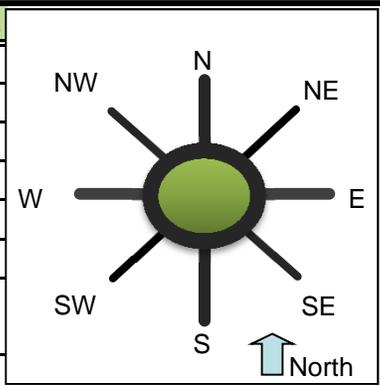
Unit Legend:

- vph = vehicles per hour
- PHF = peak hour factor
- F_{HV} = heavy vehicle factor
- pcu = passenger car unit

Bypass Lane Merge Point Analysis (if applicable)						
Bypass Characteristics	Bypass #1	Bypass #2	Bypass #3	Bypass #4	Bypass #5	Bypass #6
Select Entry Leg from Bypass (FROM)						
Select Exit Leg for Bypass (TO)						
Does the bypass have a dedicated receiving lane?						
Volumes						
Right Turn Volume removed from Entry Leg						
Volume Characteristics (for entry leg)						
PHF						
F _{HV}						
F _{ped}						
NOTE: Volume Characteristics for Exit Leg are already taken into account						
Entry/Conflicting Flows						
Entry Flow, pcu/hr						
Conflicting Flow, pcu/hr						
Bypass Lane Results (HCM 2010 Model)						
Entry Capacity of Bypass, vph						
Flow Rates of Exiting Traffic, vph						
V/C ratio						
Control Delay, s/veh						
LOS						
95th % Queue (ft)						
Approach w/Bypass Delay, s/veh						
Approach w/Bypass LOS						

General & Site Information v2.1

Analyst:	DREW RITTER
Agency/Co:	WILBURN ENGINEERING
Date:	3/26/2015
Project or PI#:	PI# 721000
Year, Peak Hour:	2042 PM PEAK HOUR
County/District:	FULTON
Intersection Name:	PARSONS RD & WILSON RD



Volumes Entry Legs (FROM)

		N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
Exit Legs (TO)	N (1), vph								
	NE (2), vph								
	E (3), vph					530		130	
	SE (4), vph								
	S (5), vph			300				25	
	SW (6), vph								
	W (7), vph			230		35			
	NW (8), vph								
Output	Total Vehicles	0	0	530	0	565	0	155	0

Volume Characteristics

	N	NE	E	SE	S	SW	W	NW
% Cars	100%	100%	99%	100%	99%	100%	100%	100%
% Heavy Vehicles	0%	0%	1%	0%	1%	0%	0%	0%
% Bicycle	0%	0%	0%	0%	0%	0%	0%	0%
# of Pedestrians (ped/hr)	0	0	0	0	0	0	0	0
PHF	0.92	0.92	0.90	0.92	0.89	0.92	0.70	0.92
F _{HV}	1.000	1.000	0.990	1.000	0.990	1.000	1.000	1.000
F _{ped}	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Entry/Conflicting Flows

	N	NE	E	SE	S	SW	W	NW
Flow to Leg #								
N (1), pcu/h	0	0	0	0	0	0	0	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	0	0	0	0	601	0	186	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	0	0	337	0	0	0	36	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	0	0	258	0	40	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	0	0	595	0	641	0	221	0
Conflicting flow, pcu/h	0	0	40	0	186	0	337	0

Roundabout Type Standard Single Lane or Urban Compact

Enter type here...	Standard Single Lane
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Results: Approach Measures of Effectiveness								
HCM 2010 Model (build)	N	NE	E	SE	S	SW	W	NW
Entry Capacity, vph	NA	NA	1075	NA	929	NA	807	NA
Entry Flow Rates, vph	NA	NA	589	NA	635	NA	221	NA
V/C ratio			0.55		0.68		0.27	
Control Delay, s/veh			10		15		8	
LOS			B		C		A	
95th % Queue (ft)			87		142		28	
Calibrated Model (future)	N	NE	E	SE	S	SW	W	NW
Entry Capacity, vph	NA	NA	1279	NA	1138	NA	1018	NA
Entry Flow Rates, vph	NA	NA	589	NA	635	NA	221	NA
V/C ratio			0.47		0.56		0.22	
Control Delay, sec/pcu			8		10		6	
LOS			A		A		A	
95th % Queue (ft)			64		92		21	

Notes:

v2.1

Unit Legend:

- vph = vehicles per hour
- PHF = peak hour factor
- F_{HV} = heavy vehicle factor
- pcu = passenger car unit

Bypass Lane Merge Point Analysis (if applicable)						
Bypass Characteristics	Bypass #1	Bypass #2	Bypass #3	Bypass #4	Bypass #5	Bypass #6
Select Entry Leg from Bypass (FROM)						
Select Exit Leg for Bypass (TO)						
Does the bypass have a dedicated receiving lane?						
Volumes						
Right Turn Volume removed from Entry Leg						
Volume Characteristics (for entry leg)						
PHF						
F _{HV}						
F _{ped}						
NOTE: Volume Characteristics for Exit Leg are already taken into account						
Entry/Conflicting Flows						
Entry Flow, pcu/hr						
Conflicting Flow, pcu/hr						
Bypass Lane Results (HCM 2010 Model)						
Entry Capacity of Bypass, vph						
Flow Rates of Exiting Traffic, vph						
V/C ratio						
Control Delay, s/veh						
LOS						
95th % Queue (ft)						
Approach w/Bypass Delay, s/veh						
Approach w/Bypass LOS						

MEMORANDUM

From: Vern Wilburn, P.E., PTOE
Date: August 26, 2014
Subject: Benefit / Cost Analysis, SR 120, P.I. # 721000, Fulton & Gwinnett Counties

ALTERNATIVES

This memorandum describes a Benefit/Cost Analysis that was conducted to evaluate alternative improvements for the two termini intersections on the SR 120 improvement project.

The Base Improvement (ALT 1) is to add turn lanes at the Peachtree Industrial Boulevard (PIB) intersection on the south end and to revise the phasing operation at the SR 141 intersection on the north end of the project.

Alternative 2 involves the construction of Single Point Urban Diamond Interchanges (Grade Separation) at both termini intersections. Alternative 3 is to install Continuous Flow Intersections (CFI) at both termini intersections.

Alternative 4 is to install a Quadrant Intersection (QUAD) at the SR 141 intersection. Figure 1 is a diagram representing the configuration of the Quad Intersection at SR 141.

Figure 1: QUAD INTERSECTION CONFIGURATION



Alternative 4 includes the prohibition of northbound left turns from SR 120 to SR 141 and the westbound left turns from SR 141 to SR 120. These movements would use the Abbotts Walk Drive. This alternative introduces a new signalized intersection on SR 120 and moves the existing signal on SR 141 at Skyway to Abbotts Walk Drive.

Table 1 summarizes the four alternatives included in the analysis.

Table 1: ALTERNATIVE IMPROVEMENTS

ALTERNATIVE	PIB INTERSECTION	SR 141 INTERSECTION
ALT 1 Base Improvement	Add another LT lane to both the NB and SB approaches on SR 120	Revise phasing to provide a right turn overlap for the NB approach on SR 120
ALT 2 Single Point Urban Interchanges (Grade Separation)	Single Point Urban Interchange (Grade Separation)	Single Point Urban Interchange (Grade Separation)
ALT 3 Continuous Flow Interchanges	Continuous Flow Intersection	Continuous Flow Intersection
ALT 4 Quadrant Intersection	Not applicable	Quadrant Intersection

In order to estimate benefits of the improvements, a simulation was conducted for each alternative using the SimTraffic program from Trafficware. The simulation provided Measures of Effectiveness (MOEs) in terms of travel time, fuel consumption, and vehicular emissions. The models were developed so that the boundaries of all models were congruent so that valid comparisons could be made. The 2042 projected design hour volumes were used in the models.

The results of the simulation for the PIB intersection are summarized in Table 2.

Table 2: MOEs FOR IMPROVEMENT ALTERNATIVES AT PIB INTERSECTION

	ALTERNATIVE		
	1 BASE	2 Single Point Urban Interchange (Grade Separation)	3 Continuous Flow Intersection
AM PEAK HOUR			
Total Travel Time, Hrs.	866.2	156.1	598.2
Fuel Used, Gal.	330.3	169.1	285.3
Nitrous Oxide (NO), Gm	9,944.0	9,490.0	11,405.0
MIDDAY PEAK HOUR			
Total Travel Time, Hrs.	379.5	148.3	300.2
Fuel Used, Gal.	223.0	155.0	213.4
Nitrous Oxide (NO), Gm	10,864.0	9,038.0	10,870.0
PM PEAK HOUR			
Total Travel Time, Hrs.	1,158.8	236.5	815.5
Fuel Used, Gal.	415.6	206.8	349.6
Nitrous Oxide (NO), Gm	11,539.0	11,587.0	12,009.0

Table 3 summarizes the MOEs for each alternative of the intersection of SR 141.

Table 3: MOEs FOR IMPROVEMENT ALTERNATIVES AT SR 141 INTERSECTION

	ALTERNATIVE			
	1 BASE	2 Single Point Urban Interchange (Grade Separation)	3 Continuous Flow Intersection	4 QUAD
AM PEAK HOUR				
Total Travel Time, Hrs.	728.8	133.4	374.5	447.8
Fuel Used, Gal.	326.0	161.0	246.7	287.0
Nitrous Oxide (NO), Gm	9,616.0	9,093.0	10,711.0	11,870.0
MIDDAY PEAK HOUR				
Total Travel Time, Hrs.	746.8	127.6	237.5	445.3
Fuel Used, Gal.	322.8	155.6	210.5	291.8
Nitrous Oxide (NO), Gm	6,803.0	6,124.0	7,219.0	8,951.0
PM PEAK HOUR				
Total Travel Time, Hrs.	1271.0	156.3	585.1	669.0
Fuel Used, Gal.	448.9	185.1	313.3	359.0
Nitrous Oxide (NO), Gm	7,056.0	7,256.0	7,769.0	9,504.0

The results given in Tables 2 and 3 are the total for each MOE for all vehicles travelling through the network. As described earlier, the extents of the network encompass the intersections and go out far enough so that coordinate points for the boundaries are the same for each modelled alternative. The results shown are the average of five simulation runs with each run recording data for a 60-minute simulation.

For both intersections, the Single Point Urban Interchange (Grade Separation) Alternative results in the best travel time and fuel consumption estimates, followed by the Continuous Flow Intersection (CFI) Alternative.

The Quad Alternative was also modelled for the SR 141. The MOEs for this alternative are better than the Base Alternative but are worse than Alternatives 2 and 3.

It appears that Alternative 2 Single Point Urban Interchange (Grade Separation) is the best alternative at both intersections. However, this alternative is more expensive to construct. Therefore, a detailed benefit/cost analysis was conducted to determine if the additional benefits of this alternative are sufficient to warrant the added cost.

BENEFITS

Daily Operational Costs

The benefits of a particular improvement are the total reduction in travel time, fuel consumption, and vehicular emissions that accrue as a result of the improvement. Since it is difficult to quantify the benefits of reduced vehicular emissions, only travel time and fuel consumption benefits are included in the benefit/cost analysis.

In order to summarize the daily benefits, the AM Peak Hour conditions were assumed to represent a two hour period between 7 AM and 9 AM. The Midday Peak Period was assumed to represent the seven hours from 9 AM to 4 PM. The PM Peak Hour was assumed to represent a two hour period between 4 PM and 6 PM. The evening hours were not quantified.

Table 4 summarizes the daily user operational costs (travel time and fuel consumption) for each improvement alternative at the PIB intersection.

Table 4: DAILY USER OPERATION COSTS FOR IMPROVEMENT ALTERNATIVES AT THE PIB INTERSECTION

	ALTERNATIVE		
	1 BASE	2 Single Point Urban Interchange (Grade Separation)	3 Continuous Flow Intersection
AM PEAK PERIOD (7-9 AM)			
Total Travel Time, Hrs.	1,732.4	312.2	1,196.4
Fuel Used, Gal.	660.6	338.2	570.6
MIDDAY PERIOD (9 AM-4 PM)			
Total Travel Time, Hrs.	2,656.5	1,038.1	2,101.4
Fuel Used, Gal.	1,561.0	1,085.0	1,493.8
PM PEAK PERIOD (4-6 PM)			
Total Travel Time, Hrs.	2,317.6	473.0	1,631.0
Fuel Used, Gal.	831.2	413.6	699.2
TOTAL DAILY			
Total Travel Time, Hrs.	6,706.5	1,823.3	4,928.8
Fuel Used, Gal.	3,052.8	1,836.8	2,763.6

Table 5 summarizes the daily user operational cost for each improvement alternative at the

intersection of SR 141.

Table 5: DAILY USER OPERATION COST FOR IMPROVEMENT ALTERNATIVES AR SR 141 INTERSECTION

	ALTERNATIVE			
	1 BASE	2 Single Point Urban Interchange (Grade Separation)	3 Continuous Flow Intersection	4 QUAD
AM PEAK PERIOD (7-9 AM)				
Total Travel Time, Hrs.	1,457.6	266.8	749.0	895.6
Fuel Used, Gal.	652.0	322.0	493.4	574.0
MIDDAY PERIOD (9 AM-4 PM)				
Total Travel Time, Hrs.	5,227.6	893.2	1,662.5	3,117.1
Fuel Used, Gal.	2,259.6	1,089.2	1,473.5	2,042.6
PM PEAK PERIOD (4-6 PM)				
Total Travel Time, Hrs.	2,542.0	312.6	1,170.2	1,338.0
Fuel Used, Gal.	897.8	370.2	626.6	718.0
TOTAL DAILY				
Total Travel Time, Hrs.	9,227.2	1,472.6	3,581.7	5,350.7
Fuel Used, Gal.	3,809.4	1,781.4	2,593.5	3,334.6

Yearly Operational Costs

The daily operational costs were converted to a dollar amount and then expanded to a yearly cost. The value of time was obtained from the Georgia Department of Labor webpage where average weekly wages are reported by county. The rate in Gwinnett County is reported as \$23.20 which was used for the PIB intersection. The reported average labor rate in Fulton County is \$31.93 which was used for the SR 141 intersection. The current price of mid-grade gasoline as reported by AAA is \$3.83 per gallon.

The daily cost will occur for five (5) days each week or 260 days each year. The weekends were not included in the analysis.

The annual user operational costs for each alternative are summarized in Table 6 for the PIB intersection and in Table 7 for the SR 141 intersection.

Table 6: YEARLY USER OPERATION COST FOR IMPROVEMENT ALTERNATIVES AT PIB INTERSECTION

	ALTERNATIVE		
	1 BASE	2 Single Point Urban Interchange (Grade Separation)	3 Continuous Flow Intersection
Total Travel Time Cost	\$40,453,608.00	\$10,998,145.60	\$29,730,521.60
Total Fuel Cost	\$3,039,978.24	\$1,829,085.44	\$2,751,992.88
TOTAL YEARLY COST	\$43,493,586.24	\$12,827,231.04	\$32,482,514.48

Table 7: YEARLY USER OPERATION COST FOR IMPROVEMENT ALTERNATIVES AT SR 141 INTERSECTION

	ALTERNATIVE			
	1 BASE	2 Single Point Urban Interchange (Grade Separation)	3 Continuous Flow Intersection	4 QUAD
Total Travel Time Cost	\$76,602,368.96	\$12,225,230.68	\$29,734,557.06	\$44,420,441.26
Total Fuel Cost	\$3,793,400.52	\$1,773,918.12	\$2,582,607.30	\$3,320,594.68
TOTAL YEARLY COST	\$80,395,769.48	\$13,999,148.80	\$32,317,164.36	\$47,741,035.94

Quantification of Benefits

The quantifiable benefits of the alternatives are primarily related to reduction in travel time, fuel consumption, and maintenance cost. Other benefits such as safety are likely to occur from all of the alternatives but the differential safety benefits are difficult to quantify and are not included in this study.

The benefits of the alternatives are the amount by which they are able to reduce the total operational cost. Tables 8 and 9 show the amount of benefit that would be realized by each improvement alternative as compared to the Base Alternative.

Table 8: YEARLY BENEFIT FOR EACH IMPROVEMENT ALTERNATIVE, PIB INTERSECTION

ALTERNATIVE	
2 Single Point Urban Interchange (Grade Separation)	3 Continuous Flow Intersection
\$30,666,355.20	\$11,011,071.76

Table 9: YEARLY BENEFIT FOR EACH IMPROVEMENT ALTERNATIVE, SR 141 INTERSECTION

ALTERNATIVE		
2 Single Point Urban Interchange (Grade Separation)	3 Continuous Flow Intersection	4 QUAD
\$66,396,620.68	\$48,078,605.12	\$32,654,733.54

COSTS

Construction & Right of Way Costs

Detailed construction and right of way costs estimates were developed for each alternative. Table 10 summarizes the construction and right of way costs for improvement alternatives at the PIB intersection; while the construction and right of way costs for the SR 141 improvement alternatives are shown in Table 11.

Table 10: ESTIMATED CONSTRUCTION & RIGHT OF WAY COSTS OF IMPROVEMENT ALTERNATIVES, PIB INTERSECTION

	ALTERNATIVE		
	1 BASE	2 Single Point Urban Interchange (Grade Separation)	3 Continuous Flow Intersection
TOTAL CONSTRUCTION COST	\$6,397,321.00	\$28,763,348.00	\$11,728,848.00

Table 11: ESTIMATED CONSTRUCTION & RIGHT OF WAY COSTS OF IMPROVEMENT ALTERNATIVES, SR 141 INTERSECTION

	ALTERNATIVE			
	1 BASE	2 Single Point Urban Interchange (Grade Separation)	3 Continuous Flow Intersection	4 QUAD
TOTAL CONSTRUCTION COST	\$6,008,085.00	\$40,165,123.00	\$17,402,624.00	\$12,687,891.44

The construction and right of way costs were converted to an annualized equivalent cost. All improvements were assumed to have a useful life of 20 years. An interest rate of 2% (compounded annually) was used to amortize the initial cost to an annual equivalent cost for 20 years. The resulting factor that is applied to the present cost to obtain the annual cost is 0.0612. Tables 12 and 13 show the annual construction and right of way costs of the improvement alternatives.

Table 12: CONSTRUCTION & RIGHT OF WAY COSTS, ANNUAL EQUIVALENT, IMPROVEMENT ALTERNATIVES, PIB INTERSECTION

	ALTERNATIVE		
	1 BASE	2 Single Point Urban Interchange (Grade Separation)	3 Continuous Flow Intersection
Total Construction Cost	\$6,397,321.00	\$28,763,348.00	\$11,728,848.00
Annual Equiv. Factor	0.0612	0.0612	0.0612
EQUIV. ANNUAL CONSTRUCTION COST	\$391,516.05	\$1,760,316.90	\$717,805.50

Table 13: CONSTRUCTION & RIGHT OF WAY COSTS, ANNUAL EQUIVALENT, IMPROVEMENT ALTERNATIVES, SR 141 INTERSECTION

	ALTERNATIVE			
	1 BASE	2 Single Point Urban Interchange (Grade Separation)	3 Continuous Flow Intersection	4 QUAD
Total Construction Cost	\$6,008,085.00	\$40,165,123.00	\$17,402,624.00	\$12,687,891.44
Annual Equiv. Factor	0.0612	0.0612	0.0612	0.0612
EQUIV. ANNUAL CONSTRUCTION COST	\$367,694.80	\$2,458,105.53	\$1,065,040.59	\$776,498.96

Maintenance Cost

Each alternative will result in additional pavement. Some may require marginally more pavement maintenance than the other alternatives. However, for this analysis, it is assumed that pavement maintenance is a constant for all alternatives and is not included in the comparisons.

Each alternative will require annual traffic signal maintenance. The cost of signal maintenance was derived from a publication by the Federal Highway Administration, *Traffic Signal Operations and Maintenance Activities*, 2009. The publication suggests that a total annual maintenance requirement (including routine and emergency maintenance) of 45 hours per year is needed to insure proper signal operations. Using a cost of \$45 per hour including equipment, this amounts to a yearly cost of \$2,025. Adding \$600 per year for electricity service, the resulting annual signal maintenance cost is \$2,625.

Total Cost

The total cost of the alternatives was then determined by adding the equivalent annual construction and right of way costs to the annual maintenance cost. Tables 14 and 15 show the total annual cost of the improvement alternatives.

Table 14: TOTAL ANNUAL COST OF IMPROVEMENT ALTERNATIVES, PIB INTERSECTION

	ALTERNATIVE		
	1 BASE	2 Single Point Urban Interchange (Grade Separation)	3 Continuous Flow Intersection
Equiv. Annual Construction Cost	\$391,516.05	\$1,760,316.90	\$717,805.50
Annual Maintenance Cost	\$2,625.00	\$2,625.00	\$10,500.00
TOTAL	\$394,141.05	\$1,762,941.90	\$728,305.50

Table 15: TOTAL ANNUAL COST OF IMPROVEMENT ALTERNATIVES, SR 141 INTERSECTION

	ALTERNATIVE			
	1 BASE	2 Single Point Urban Interchange (Grade Separation)	3 Continuous Flow Intersection	4 QUAD
Equiv. Annual Construction Cost	\$367,694.80	\$2,458,105.53	\$1,065,040.59	\$776,498.96
Annual Maintenance Cost	\$2,625.00	\$2,625.00	\$10,500.00	\$7,875.00
TOTAL	\$370,319.80	\$2,460,730.53	\$1,075,540.59	\$784,373.96

B/C RATIOS

Tables 16 and 17 show the incremental benefit-to-cost ratio for each improvement alternative. The incremental B/C ratio for each alternative is the ratio of incremental benefits that are estimated to result as compared to the incremental cost between each alternative and the Base Improvement.

Table 16: INCREMENTAL B/C RATIOS OF PIB INTERSECTION ALTERNATIVES

	ALTERNATIVE	
	2 Single Point Urban Interchange (Grade Separation)	3 Continuous Flow Intersection
Incremental Annual Benefit	\$30,666,355.20	\$11,011,071.76
Incremental Annual Cost	\$1,368,800.85	\$334,164.45
Incremental B/C Ratio	22.4	33.0

Table 17: INCREMENTAL B/C RATIOS OF SR 141 ALTERNATIVES

	ALTERNATIVE		
	2 Single Point Urban Interchange (Grade Separation)	3 Continuous Flow Intersection I	4 QUAD
Incremental Annual Benefit	\$66,396,620.68	\$48,078,605.12	\$32,654,733.54
Incremental Annual Cost	\$2,090,410.73	\$705,220.79	\$414,054.16
Incremental B/C Ratio	31.8	68.2	78.9

SENSITIVITY ANALYSIS

In addition to the B/C analysis, a sensitivity analysis was also performed to determine the length of time each alternative will provide acceptable level of service. Tables 18 and 19 show the estimated year that each alternative will reach level of service F.

Table 18: IMPROVEMENT ALTERNATIVES, YEAR REACHES LEVEL OF SERVICE F AT PIB INTERSECTION

ALTERNATIVE	PIB INTERSECTION
	ESTIMATED YEAR OF FAILURE
ALT 1 Base Improvement	CONSTRUCTION YEAR (2022)
ALT 2 Single Point Urban Interchanges (Grade Separation)	THROUGH DESIGN YEAR (2042)
ALT 3 Continuous Flow Interchange	2031

Table 19: IMPROVEMENT ALTERNATIVES, YEAR REACHES LEVEL OF SERVICE F AT SR 141 INTERSECTION

ALTERNATIVE	SR 141 INTERSECTION
	ESTIMATED YEAR OF FAILURE
ALT 1 Base Improvement	CONSTRUCTION YEAR (2022)
ALT 2 Single Point Urban Interchanges (Grade Separation)	THROUGH DESIGN YEAR (2042)
ALT 3 Continuous Flow Interchange	2033
ALT 4 Quadrant Intersection	2038

CONCLUSION

If the additional cost of the improvement alternatives can be funded, each of the alternatives indicates that B/C ratios greater than one can be realized from the additional costs above the Base Improvement.

At the PIB intersection, the Continuous Flow Intersection (ALT 3) is expected to have the greatest incremental B/C ratio (33.0) of the alternatives.

At the SR 141 intersection, the QUAD (ALT 4) has the highest incremental B/C (78.9). The Continuous Flow Intersection (ALT 3) also has a high incremental B/C ratio of 68.2.

Sensitivity analysis established the year that each improvement alternative would degrade back down to level of service F as future traffic volumes increase.

At the PIB intersection, the Single Point Urban Interchange (Grade Separation) would provide an acceptable level of service (E or better) through the Design Year (2042).

At the SR 141 intersection, the Single Point Urban Interchange (Grade Separation) provided an acceptable level of service through the Design Year (2042). The QUAD reaches level of service F in the year 2038.

GEORGIA DEPARTMENT OF TRANSPORTATION

Project Number: STP00-0189-01(010)

P.I. No.: 721000

County: Fulton

SR 120 over Chattahoochee River

BRIDGE TYPE STUDY

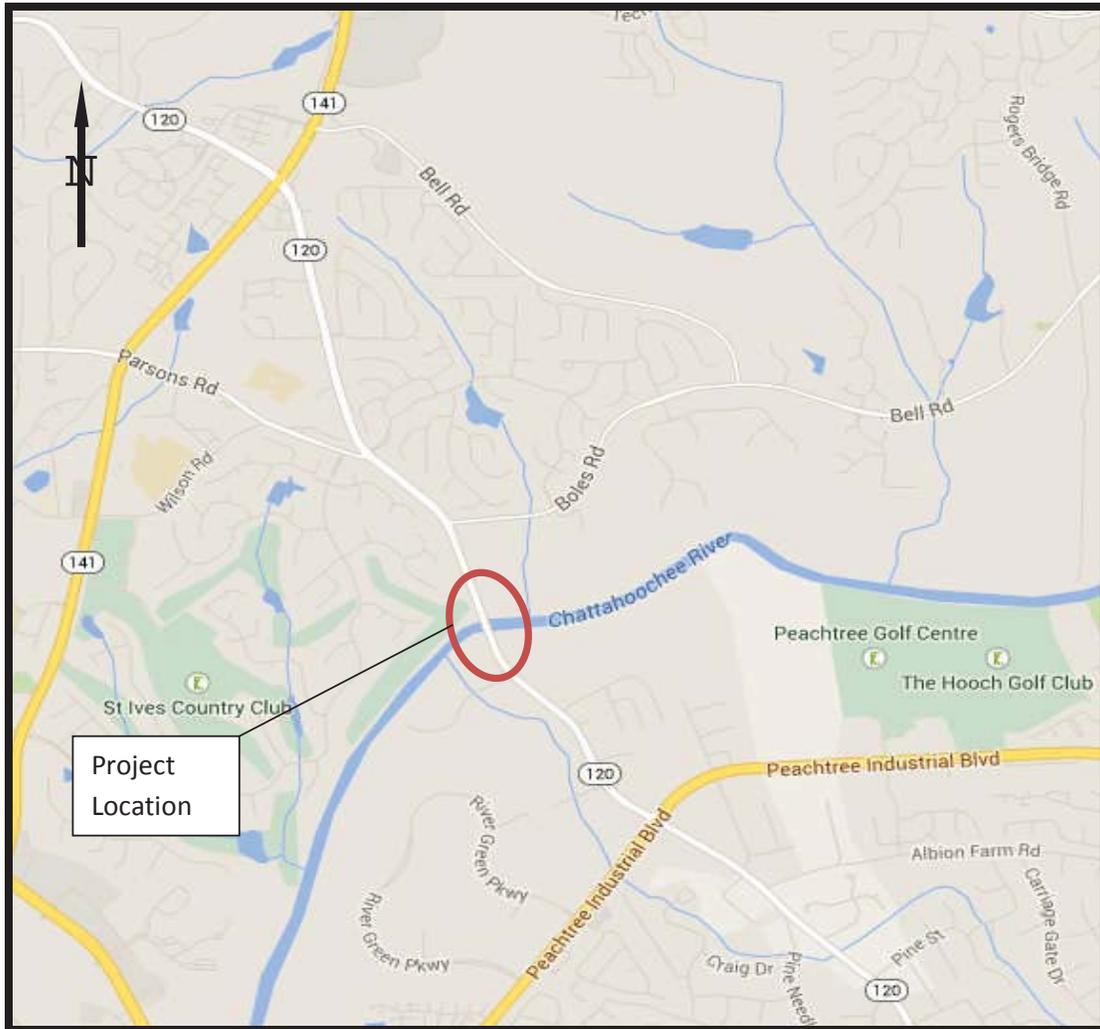
Prepared By:



HEATH & LINEBACK ENGINEERS, INC.

Date: June 15, 2015

SR 120 over Chattahoochee Bridge Type Study Page 2
Project Number: STP00-0189-01(010)
County: Fulton



LOCATION MAP

Description: SR 120 over Chattahoochee River

Description of the proposed project:

This project involves the widening of SR 120 in the vicinity of Chattahoochee River. The project will require either widening or replacement of the existing bridge.

The goal of this Bridge Type Study is to look at various alternates for a wider proposed bridge which could be completely new or widened to accommodate the proposed roadway typical section. The proposed typical section consist of three 12 foot lanes eastbound and two 12 foot lanes westbound with a 20 foot median. This Bridge Type Study will compare implications within the limits of the bridge and cost. However, the implications of each alternate at the approaches will have to be considered in order to make a final selection.

The existing bridge was constructed in 1960 and was designed for H20-S16 loading. The total length of the bridge is 304'-6" and consist of four spans (73.23'-79'-79'-73.25') with five steel beams per span. The superstructure consist of a 6" deck with 1 1/2" clear cover. The substructure consist of pile end bents and concrete intermediate bents on spread footings. One of the concrete intermediate bents are in the middle of the river.

Construction in the river will require utilizing either work bridges or rock jetties. Barges are not recommended because the water depth in the river is too shallow. If rock jetties are utilized for constructing the proposed bridge options, recreational access shall be maintained as required by the appropriate agencies. The temporary work bridge option will typically comprise of 10 to 20 foot spans on pile bents in the water. Warning signs may be required in either case, warning Kayakers of the temporary obstructions in the River.

A 404 permit issued by the USACOE will be required for working in the river. The work bridge pile bents is anticipated to have minimal environmental impacts since the piles will most likely have to be installed by predrilling or driving. This assumes that the bents can be constructed without placing equipment or material in the river. Driven piles are not considered an impact per USACOE policy. Rock Jetties however will result in significant impacts to the river, both during installation and removal. The permit application should take the worst case (rock Jetty) into consideration in order to give the contractor flexibility during construction. Mitigation cost should be based on the impacts of rock jetties.

For options requiring that the existing bridge be demolished, the existing bridge bents in the river can be removed by utilizing either a work bridge or a rock jetty. Coordination with the appropriate agencies like the USACOE and the National Park Services will be required for all work in the river.

Alternates considered:

Alternate # 1 – Construct a separate bridge to one side separated from the existing bridge by an open joint, utilizing concrete (AASHTO) beams. (A portion of the existing bridge would remain)

THIS IS NOT A VIABLE ALTERNATE SINCE THE OPEN JOINT FALLS WITHIN A TRAVEL LANE. PROS AND CONS SHOWN BELOW FOR INFORMATION ONLY. See attachments for deck section drawing.

Pros:

1. This alternate makes it possible to change the span arrangement to have a longer span over the river thus eliminating a bent in the middle of the river.
2. Either a work bridge or a rock jetty will be required.

Cons:

1. Open joint falls within travel lane which is unacceptable.
2. Water from the bridge will seep through the open joint into the river.
3. Drainage will be an issue once the deck is widened due to the existing bridge longitudinal profile being practically flat at 0.6 percent.
4. Cost associated with repairing the existing bridge. See attached calculations.

Alternate # 2 – Widen to one side of the existing bridge, utilizing the existing span arrangement and steel beams.

Pros:

1. The drainage from the deck can be easily contained and kept from entering the river.
2. Either a work bridge or a rock jetty will be required.

Cons:

1. It is more costly to widen the existing bridge versus constructing a new bridge. This is primarily due to the cost associated with the steel beams and the repair of the existing bridge section.
2. The reverse cross slope on one of the existing lanes will have to be rectified. If not the result will be undesirable.
3. Drainage will be an issue once the deck is widened due to the existing bridge longitudinal profile being practically flat at 0.6 percent.
4. Maintenance cost associated with future painting of steel beams.

Alternate # 3 – Widen on both sides of the existing bridge, utilizing the existing span arrangement and steel beams.

Pros:

1. The drainage from the deck can be easily contained and kept from entering the river.

Cons:

1. It is more costly to widen the existing bridge versus constructing a new bridge. This is primarily due to the cost associated with the steel beams and the repair of the existing bridge section.
2. Construction will be more complicated since the contractor will have to build substructure on both sides of the existing bridge. Two work bridges or two rock jetties will be required.
3. Drainage will be an issue once the deck is widened due to the existing bridge longitudinal profile being practically flat at 0.6 percent.
4. The existing bridge section will be sandwiched between the new widened sections and hence difficult to replace in the future.
5. Maintenance cost associated with future painting of steel beams.

Alternate # 4 – Construct new bridge in two stages and remove the existing bridge after stage 1 of the proposed bridge is constructed.

Pros:

1. It is less costly to construct a new bridge versus widening the existing bridge.
2. The drainage from the deck can be easily contained and kept from entering the river.
3. The proposed bridge will have a 2% cross slope which will facilitate drainage. The existing bridge deck has a 1% cross slope.
4. The new bridge will be designed per the latest design requirements.
5. The proposed bridge will eliminate a bent in the middle of the river. The substructure will be designed to straddle the main channel of the river.
6. The longitudinal grade on the bridge could be increased to improve drainage on the bridge. The existing bridge is practically flat with 0.6 percent longitudinal slope.
7. Relative low cost of future maintenance of PSC beams.

Cons:

1. The removal of the existing bridge substructure and superstructure could be costly depending on if there are protected species in the water. In that case there may be limitations on how the existing bridge can be demolished. Example, blasting may not be

allowed for the removal of the existing substructure. The cost of removing the existing bridge used for comparisons, accounts for this worst case scenario.

2. Two work bridges or two rock jetties will be required.

Alternate # 5 – Permanent Offset - Construct new bridge in one stage at a permanent offset to the north then remove the existing bridge.

This alternate has the same pros and cons as alternate 4 except for:

Pros: The proposed bridge will cost slightly less to construct since it is not stage constructed.

Cons: The permanent offset would result in additional property and environmental impacts.

This alternate was not studied further for the following reasons:

1. The reduced cost associated with constructing the bridge in one stage is outweighed by the additional cost associated with the additional property acquisition and environmental impacts.
2. The larger environmental footprint will potentially increase the environmental approval process.
3. The pavement cost for the permanent offset will be higher.

Cost for alternate 5 is not detailed.

Summary

This Bridge Type Study looks at the implications of various alternates within the limits of the widened/proposed and existing bridge. Therefore a final conclusion must look at the implications of each alternate at the roadway approaches.

The existing bridge was built in 1960 and has a sufficiency rating of 53 which is low, but does not justify replacement. Bridges with a sufficiency rating of less than 50 qualify for replacement. The attached Bridge Inspection Report however, notes issues with the existing bridge that are of concern, like the deck slapping on beam 1 at the end spans. GADOT BMU prepared a report dated April 21, 2014 listing items to be repaired if the existing bridge is to remain. The cost to repair all issues noted in the inspection report will be high, as shown in the attached cost matrix and calculations.

If it is determined that the existing bridge will be demolished and replaced, a three span bridge utilizing concrete (AASHTO) beams would be recommended. The intermediate bents would straddle the main channel of the river with a span of approximately 158 feet in length. This option eliminates a bent in the middle of the river as is the case with the existing bridge. No issues are anticipated with getting the long beams to the site or erecting the beams over the river. Spread footings are anticipated for the foundation type due to the proximity of rock to the

SR 120 over Chattahoochee Bridge Type Study Page 7
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surface. However, the final foundation determination is subject to the Bridge Foundation Investigation results and environmental constraints.

Attachments:

1. Alternates Comparison Cost Matrix and Calculations
2. Deck Sections for each Alternate
3. Existing Bridge Plans
4. Bridge Condition Survey
5. Bridge Inventory Data Listing
6. GADOT Bridge Inspection Report

SR 120 over Chattahoochee River

COST COMPARISON TABLE

Alternate	Alternate Description	Span Arrangement	Existing Bridge Removal Cost (Includes cost for cofferdams)	Existing Bridge Repair Cost **	Fix Existing Bridge Cross Slope Cost	Proposed Bridge or Widening Cost	Drainage System Cost	Work Bridge Cost	Construction Cost	5% Engineering and Inspection + 4% Construction Contingency = 9% (Inflation not included)	15% Fuel and Liquid Adjustment	Total Cost
1 *	Widen to one side with open joint	73.25-158-73.25	NA	\$374,417	\$319,725	\$2,397,938	\$150,000	\$50,000	\$3,292,080	\$296,287	\$493,812	\$4,082,179
2	Widen to one side with existing span arrangement	73.25-79-79-73.25	NA	\$374,417	\$319,725	\$3,425,625	\$150,000	\$50,000	\$4,319,767	\$388,779	\$647,965	\$5,356,511
3	Widen to both sides with existing span arrangement	73.25-79-79-73.25	NA	\$374,417	NA	\$3,539,813	\$150,000	\$100,000	\$4,164,230	\$374,781	\$624,634	\$5,163,645
4	Remove Existing Bridge and construct a new bridge	73.25-158-73.25	\$400,000	NA	NA	\$3,261,195	\$75,000	\$100,000	\$3,836,195	\$345,258	\$575,429	\$4,756,882

Notes: 1. The total cost of the studied Alternates is for comparison and is not the total cost of the project.

2. * Alternate 1 is not a viable alternate since the open joint falls within a travel lane. See Alternate 1 Deck Section.

ALTERNATES EVALUATION/RATING MATRIX (Alternate 1 not included since not a viable alternate)

Needs and Desires	Alternates			
Drainage on Bridge	2	3	4	4
Satisfies Latest Design Requirements	8	8	10	10
Life Span of Bridge	6	6	10	10
Environmental Risk (Mainly associated with demolishing existing bridge)	10	10	7	7
Initial Cost of Alternative	6	8	9	9
Constructability	9	9	9	9
Maintenance Cost	7	7	9	9
Total Score =	52	54	64	64

Notes: 1. Alternate 4 rates the highest based only on looking at the immediate area of the existing and widened/proposed bridge.

2. The implications of each alternate at the approaches must be considered before a final selection is made.

SR 120 over Chattahoochee River

EXISTING BRIDGE DECK, SUPERSTRUCTURE AND SUBSTRUCTURE REPAIR COST

Replace joints at abutments with concrete headers and preformed silicon type joints(Pay Item 449-1375) = 160\$/LF X 60' =	\$9,600
Reseal all construction joints (Pay Item 461-2000) = 55\$/LF X 11 x 30' =	\$18,150
Seal the deck by using a two part polymer overlay system (Pay Items 519-0515 & 519-0530) = 50\$/SY x (30' X 304.5')/9 =	\$50,750
Groove existing bridge deck (Pay Item 500-0100) = 10\$/SY X (13.5'x304.5')/9 SY =	\$4,567
Clean and paint steel beams(Includes cleaning and painting bearings) = 10\$/SF X 13,135 SF =	\$131,350
Reset all bearings at abutments once cleaned and painted (Includes replacing anchor bolts)(Lump Sum)	\$40,000
Repair undermining at abutment 5 (Lump Sum) =	\$15,000
Stabilize bank under spans 1 and 4 (Lump Sum) =	\$20,000
Fix issue with deck slapping on beam 1 =	\$85,000
Cost to repair existing bridge =	<u>\$374,417</u>

STEEL AREA

Beam Area = (3' x 2 sides + .83' x 3 sides) x 300' X 5 beams =	12,735 sf
Bearing area = 4sf x 10 =	400 sf
Total Steel Area =	<u>13,135 sf</u>

FIX EXISTING BRIDGE DECK CROSS SLOPE COST + FIX SUBSTANDARD DECK THICKNESS

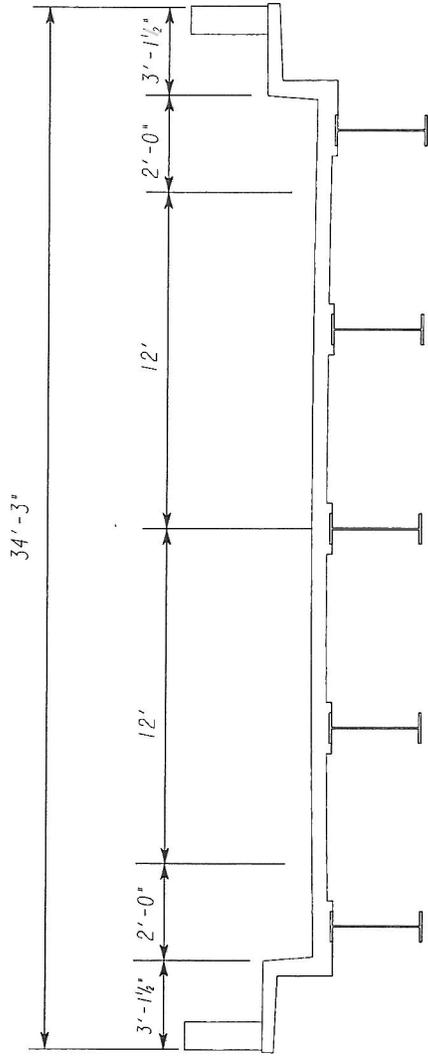
Hydrodemolish top layer of deck and add concrete layer (Pay Item 519-0400) = (27' X 304.5')/9 X 350\$/SY =	<u>\$319,725</u>
--	-------------------------

SR 120 over Chattahoochee River

Cost for New Bridge/Widened Section					
ALTERNATE	ALTERNATE DESCRIPTION	NEW BRIDGE WIDTH	NEW BRIDGE AREA	SQUARE FOOT COST	TOTAL COST
1	Widen to one side with open joint	75	22838	\$105	\$2,397,938
2	Widen to one side with existing span arrangement	75	22838	\$150	\$3,425,625
3	Widen to both sides with existing span arrangement	75	22838	\$155	\$3,539,813
4	Remove Existing Bridge and construct a new	102	31059	\$105	\$3,261,195

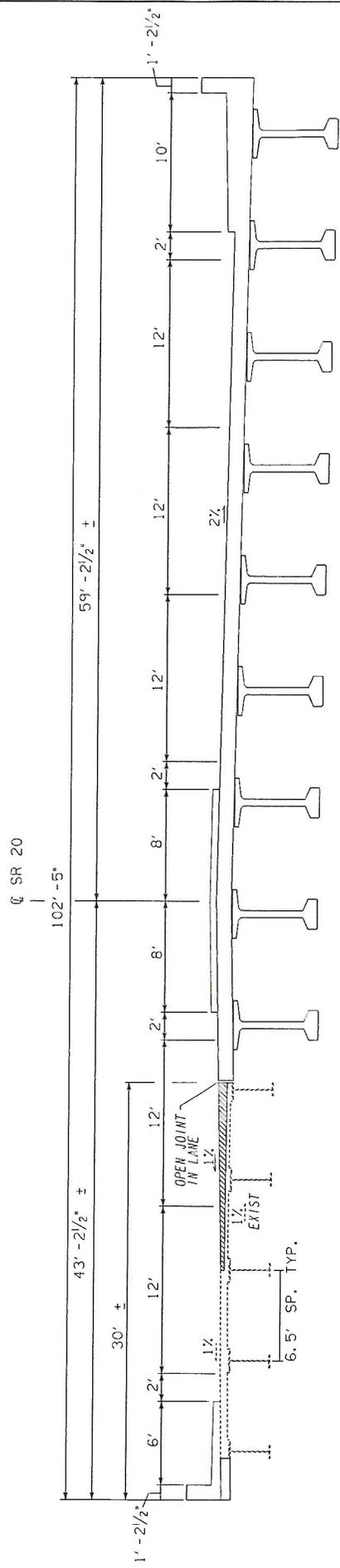
Notes:

1. Bridge cost were obtained from the GADOT Bridge Design Manual and increased by 5% to 10%, depending on the complexity of the staged construction.
2. AASHTO beams on concrete bents cost from GADOT Bridge Design Manual = \$95/sf
3. Steel Beams on Concrete Bents cost from Bridge Design Manual = \$140/sf



EXISTING DECK SECTION

DATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
CA.	STP00-0189-01(10)		



 HYDRODEMOLISH AND NEW CONCRETE LAYER

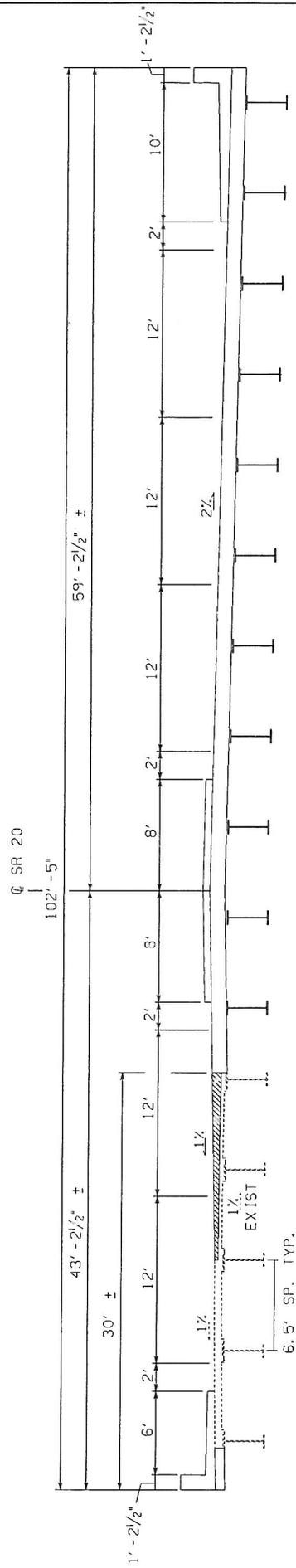
ALTERNATE 1
 CONSTRUCT A SEPARATE BRIDGE TO ONE SIDE SEPARATED FROM THE EXISTING BRIDGE BY AN OPEN JOINT.
 NOT A VIABLE ALTERNATE - FOR INFORMATION ONLY.



STATE OF GEORGIA	
DEPARTMENT OF TRANSPORTATION	
CONCEPT ALTERNATE 1	
SR 120 OVER CHATTAHOOCHEE RIVER	
FULTON COUNTY	
STP00-0189-01(10)	
SCALE: NOT A SCALE	JANUARY 2015
DRAWING NO.	BY
BRIDGE SHEET	DATE
	SCALE
	REVISIONS
	DATE

1/8" = 1'-0" PRINTED FULL SIZE

DATE: CA. STP00-0189-01(01)



▨ • HYDROEMLISH AND NEW CONCRETE LAYER

ALTERNATE 2

WIDEN TO ONE SIDE UTILIZING THE EXISTING SPAN ARRANGEMENT AND USE OF STEEL BEAMS.

HL Heath & Lineback Engineers
 INCORPORATED
 1000 MARKET STREET, SUITE 200
 FULTON COUNTY, GA 30204

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION

CONCEPT ALTERNATE 2
 SR 120 OVER CHATTAHOOCHEE RIVER
 FULTON COUNTY STP00-0189-01(01)

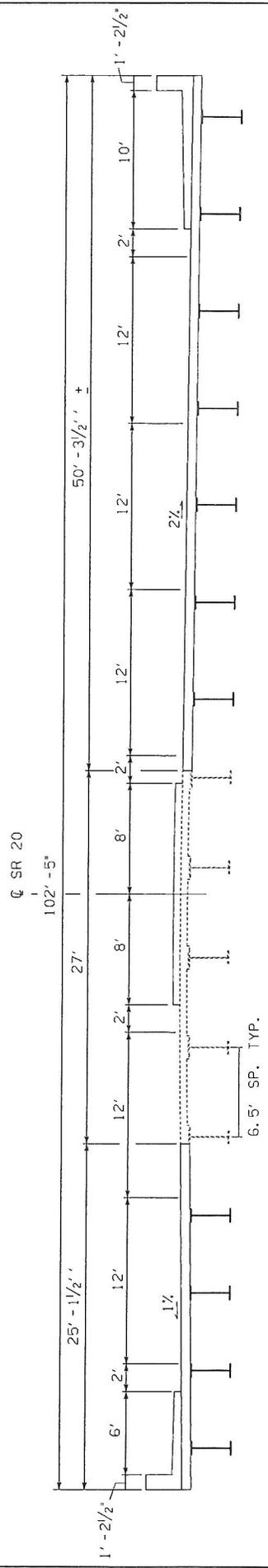
SCALE: NOT A SCALE
 DRAWN: []
 DATE: JANUARY 2015

CHANGING NO.	REVISIONS	DATE

BY	DATE

1/8" = 1' PRINTED FULL SIZE

STATE	PROJECT NUMBER	SHEET NUMBER	TOTAL SHEETS
GA.	STP00-0189-01(01)		



ALTERNATE 3

WIDEN ON BOTH SIDES OF THE EXISTING BRIDGE, UTILIZING THE EXISTING SPAN ARRANGEMENT AND USE OF STEEL BEAMS.

Health & Lineback Engineers
 33 BRICK LANE ROAD, SUITE 100
 MABLETTON, GEORGIA 30058

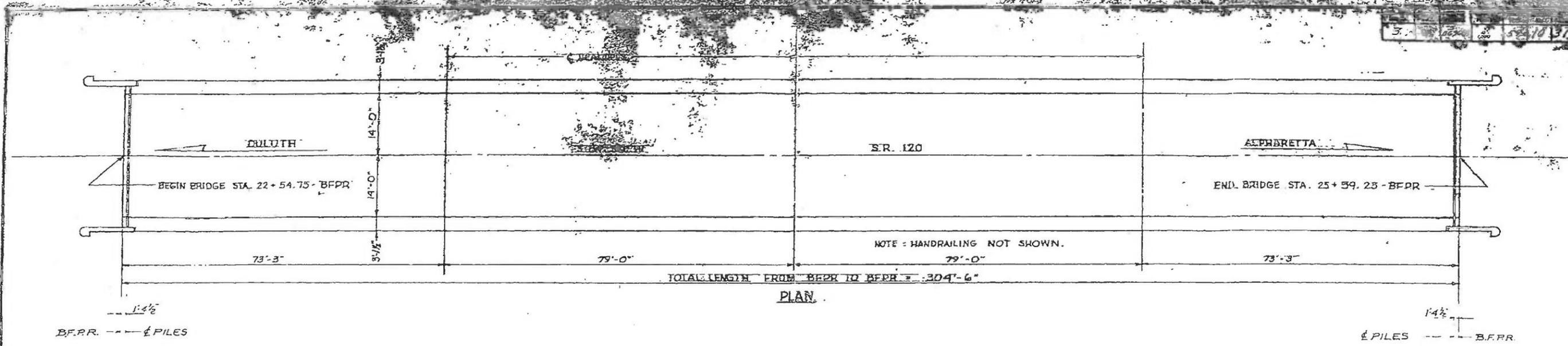
STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION

CONCEPT ALTERNATE 3
 SR 120 OVER CHATTAHOOCHEE RIVER
 FULTON COUNTY STP00-0189-01(01)

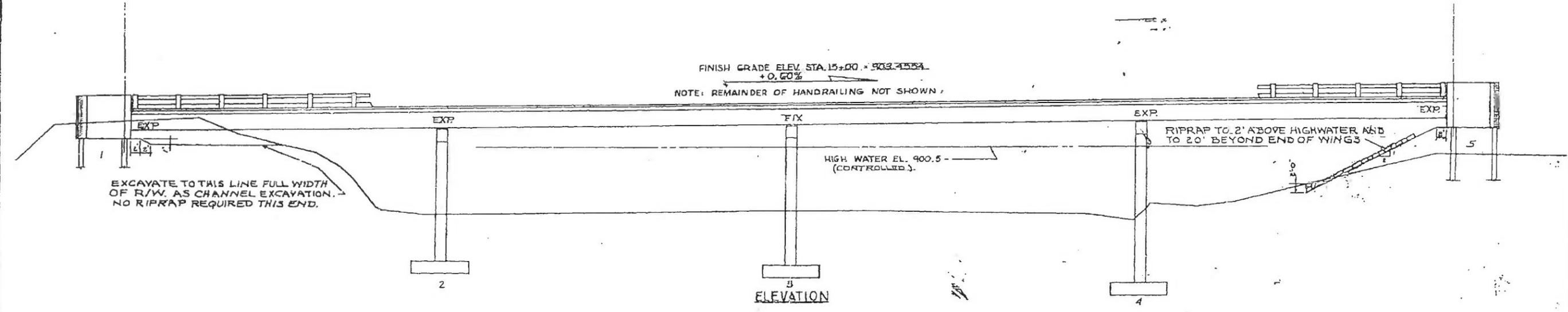
SCALE: NOT A SCALE
 DRAWN BY: []
 CHECKED BY: []
 DATE: []

DRAWING NO. []
 BRIDGE SHEET []

SCALE: 1/4" = 1' WHEN PRINTED FULL SIZE



PLAN



ELEVATION

EXCAVATE TO THIS LINE FULL WIDTH OF R/W. AS CHANNEL EXCAVATION. NO RIPRAP REQUIRED THIS END.

RIPRAP TO 2' ABOVE HIGHWATER AND TO 20' BEYOND END OF WINGS

BRIDGE CONSISTS OF

- 1 - 71'-6", 79'-0", 79'-0", 71'-6" WFLAK CONTINUOUS UNIT ----- SPECIAL DESIGN
- 2 - STEEL "H" PILE END BENTS ----- SPECIAL DESIGN
- 3 - CONCRETE PIERS ----- SPECIAL DESIGN
- CONCRETE HANDRAILING ----- GEORGIA STANDARD NO. 3616
- BAR BENDING DETAILS ----- GEORGIA STANDARD NO. 3900

DRAINAGE DATA

- DRAINAGE AREA ----- 1160 SQUARE MILES
- AREA OF OPENING UNDER CONTROLLED HIGHWATER ----- 3100 SQUARE FEET

GENERAL NOTES

SPECIFICATIONS - GEORGIA STANDARD.
 ALL CONCRETE SHALL BE CLASS "A".
 CHAMFER ALL EXPOSED EDGES 3/8" UNLESS NOTED. CHAMFERS SHALL BE FORMED WITH HILL CUT AND DRESSED CHAMFER STRIPS.
 EXCAVATION AT BENT 1 SHALL BE PAID FOR AS BRIDGE EXCAVATION NO. 1. COST OF ANY EXCAVATION NECESSARY FOR BENT 5 SHALL BE INCLUDED IN PRICE BID FOR CLASS "A" CONCRETE.
 STRUCTURAL STEEL TO BE WELDED SHALL BE A.S.T.M. DESIGNATION A375-56T.
 STRUCTURAL STEEL TO BE PAINTED SHALL BE PAINTED THUS: ONE SHOP COAT NO. 1A (RED LEAD), TOUCH-UP FIELD COAT NO. 1A OR 2B (RED LEAD), AND FIRST AND SECOND FIELD COATS NO. C (ALUMINUM).
 STRUCTURAL STEEL ITEM SHALL INCLUDE FURNISHING, FABRICATING, WELDING, PLACING, AND PAINTING ALL ITEMS; COVER PLATES; ARMORED JOINTS COMPLETE; BEARING, SOLE AND URETHANE PLATES; ANCHOR BOLTS, NUTS AND WASHERS.
 BEARING AREAS SHALL BE PREPARED IN ACCORDANCE WITH SECTION 501.52 OF THE STANDARD SPECIFICATIONS. ESTIMATED PILE LENGTHS = 30 FT.
 DRIVE PILES TO ROCK IF IT CAN BE REACHED WITH REASONABLE PILE LENGTHS. IF NOT, DRIVE TO BEARING SHOWN ON PLANS.
 COST OF EXPANSION MATERIAL, RED LEAD AND CANVAS, POURED RUBBER SEALING COMPOUND, DECK DRAINS, AND ANY OTHER INCIDENTAL ITEMS SHALL BE INCLUDED IN PRICES BID FOR CONTRACT ITEMS.
 FOR OTHER GENERAL NOTES SEE GEORGIA STANDARD NO. 3616 AND SPECIAL PROVISIONS.

SUMMARY OF QUANTITIES

- LUMP SUPERSTRUCTURE CONCRETE
- LUMP SUPERSTRUCTURE REINFORCEMENT STEEL
- LUMP STRUCTURAL STEEL
- LUMP REMOVAL OF EXISTING BRIDGE
- 597 LIN. FT. CONCRETE HANDRAILING
- 190 CU. YDS. CLASS "A" CONCRETE
- 195 CU. YDS. CLASS "A" CONCRETE (DEPOSITED IN WATER) (IF REQUIRED)
- 560 LIN. FT. STEEL "H" PILING (12 BP 53)
- 14 EACH PILE TIP REINFORCEMENT COMPLETE
- 1 EACH LOADING TEST (IF REQUIRED)
- 30,275 LBS. BAR REINFORCEMENT STEEL
- 6 EACH COFFERDAMS
- 525 CU. YDS. BRIDGE EXCAVATION NO. 1
- 600 CU. YDS. CHANNEL EXCAVATION
- 600 SQ. YDS. SAND CEMENT RIP RAP OR
- 300 TONS PLAIN STONE RIP RAP
- 309 ACRES CLEARING AND GRUBBING BRIDGE SITE (LUMP SUM)

DESIGN DATA

SPECIFICATIONS - A.A.S.H.O., 1957
 TYPICAL H20-S16 AND/OR MILITARY LOADING - IMPACT ALLOWED
 ALLOWANCE FOR FUTURE PAVING = 15 LBS. PER SQ. FT.

STATE HIGHWAY DEPARTMENT OF GEORGIA
 DEPARTMENT
 PLAN AND ELEVATION
 BRIDGE OVER CHATTAHOOCHEE RIVER
 STA. 22+54.75 TO STA. 25+59.25
 FULTON-GWINNETT COS. 0696-0
 NO. SCALE
 1969

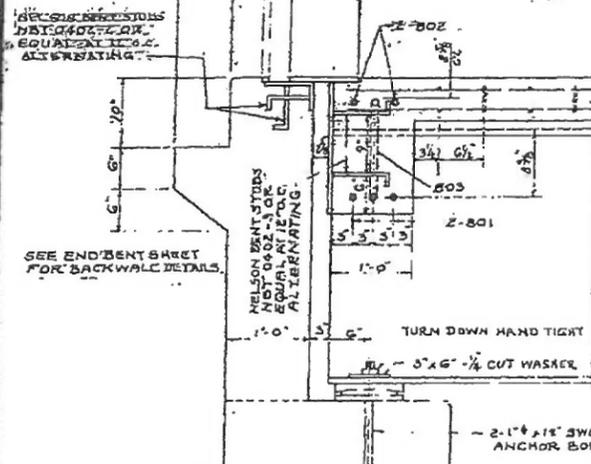
SUPERSTRUCTURE QUANTITIES	
CU. YDS. CLASS A CONCRETE	251
LB. BAR REINF. STEEL	45,886
LB. STRUCTURAL STEEL	280,500

1" x 20" POURED RUBBER SEALING COMPOUND

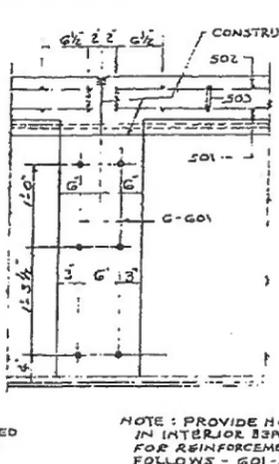
NOTE: POUR DIAPHRAGMS AT LEAST 24 HOURS IN ADVANCE OF SLABS.

FLANGE TOP SIDE OF ALL BEARING PLATES OR HOT STRAINING LUBRITE PLATES SHALL BE ROLLED BRONZE ALLOY-ASTM A 300-52 ALLOY 1 (LUBRITE OR EQUAL). IN THE EVENT ZEE SHAPES ARE NOT AVAILABLE FABRICATOR MAY SUBMIT DETAILS FOR FABRICATION FROM ANGLES FOR APPROVAL.

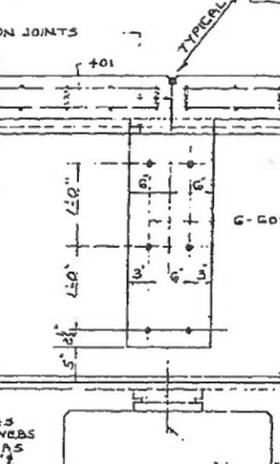
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
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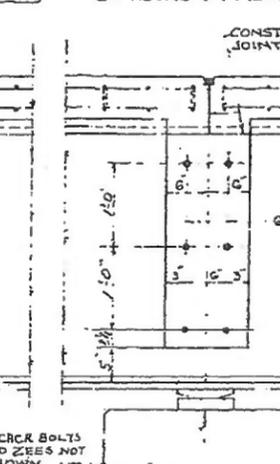
SECTION A-A



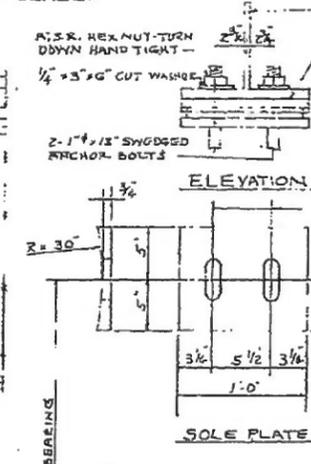
SECTION B-B



SECTION C-C

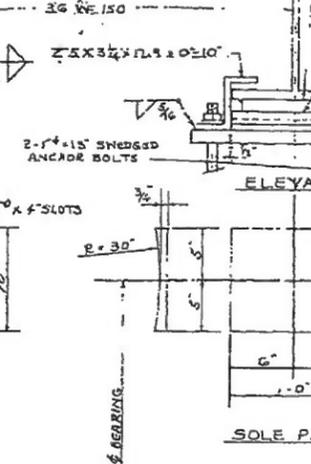


SECTION D-D



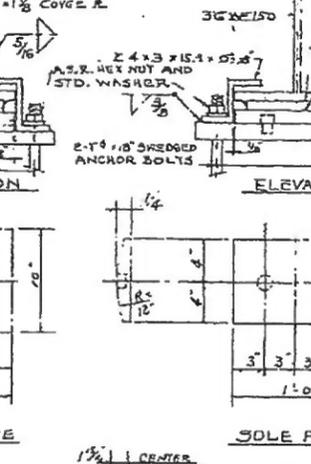
ELEVATION

SOLE PLATE



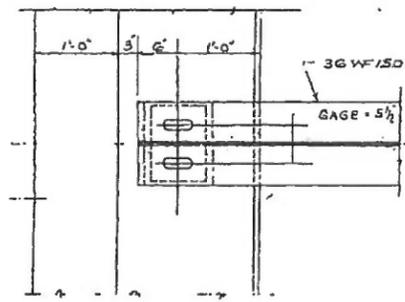
ELEVATION

SOLE PLATE

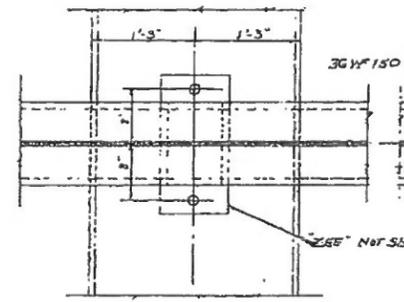


ELEVATION

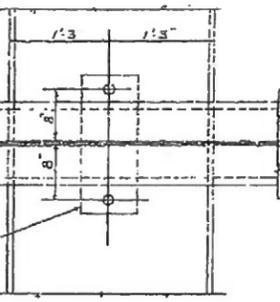
SOLE PLATE



BENTS 1 & 5

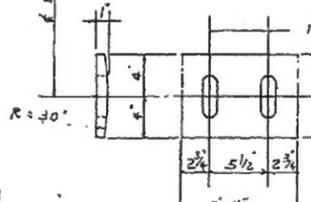


PIERS 2 & 4

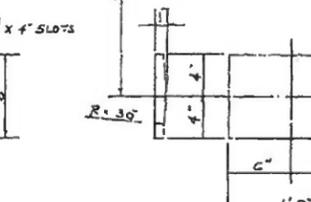


PIER 3

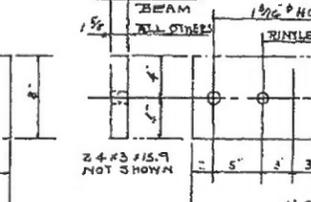
BEARING DETAILS



LUBRITE PLATE



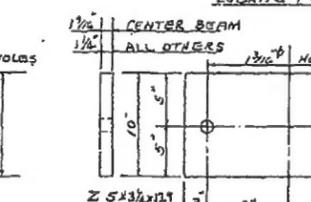
LUBRITE PLATE



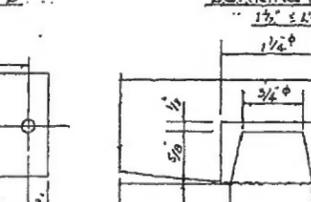
BEARING PLATE



BEARING PLATE BEARINGS - BENTS 1 & 5

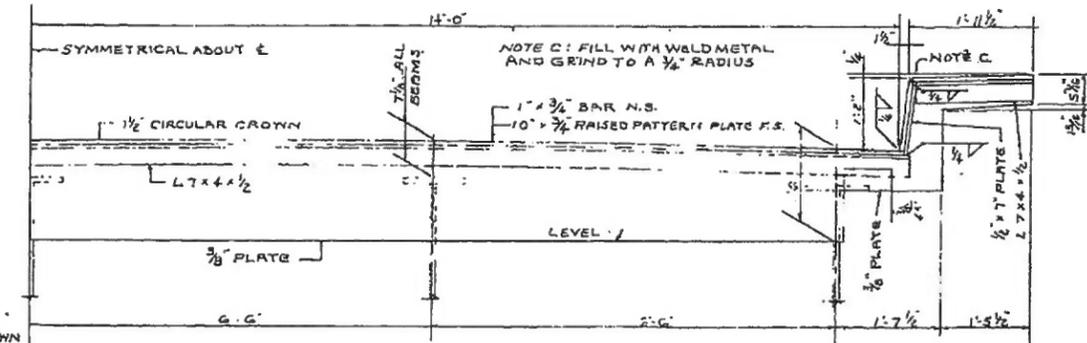


BEARING PLATE BEARINGS - PIERS 2 & 4

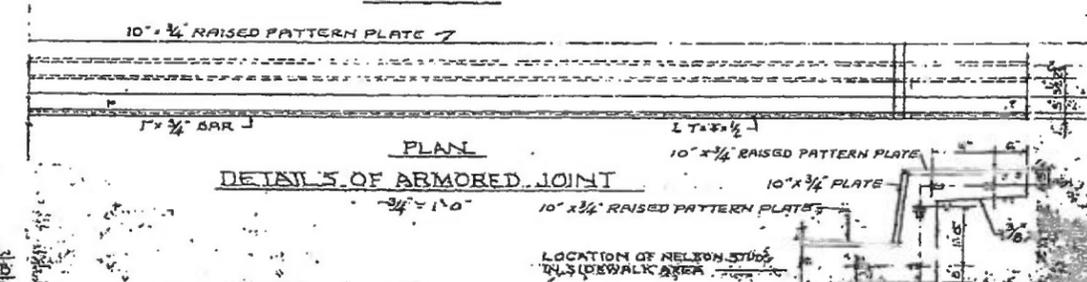


PINTLE DETAIL

BEARINGS - PIER 3



ELEVATION



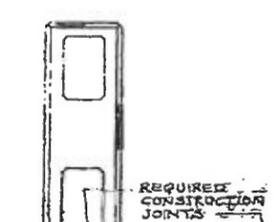
PLAN

DETAILS OF ARMORED JOINT

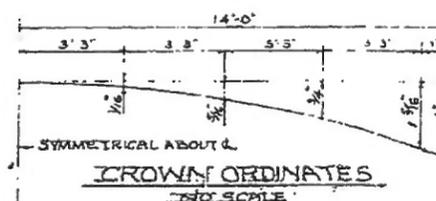
NELSON STUDS NOT SHOWN SEE SECTION A-A.

TYPICAL SECTION

SECTION THROUGH VERT. RAKE OF CURB



REQUIRED CONSTRUCTION JOINTS



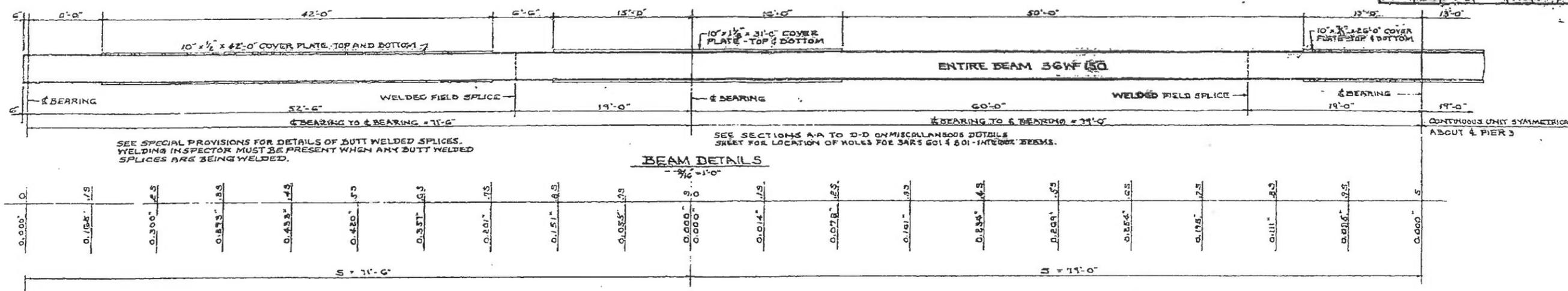
CROWN ORDINATES

NOTE: PAINT EDGES OF BEAM FLANGS AND SOLE PLATES BEFORE PLACING ZEE BARS

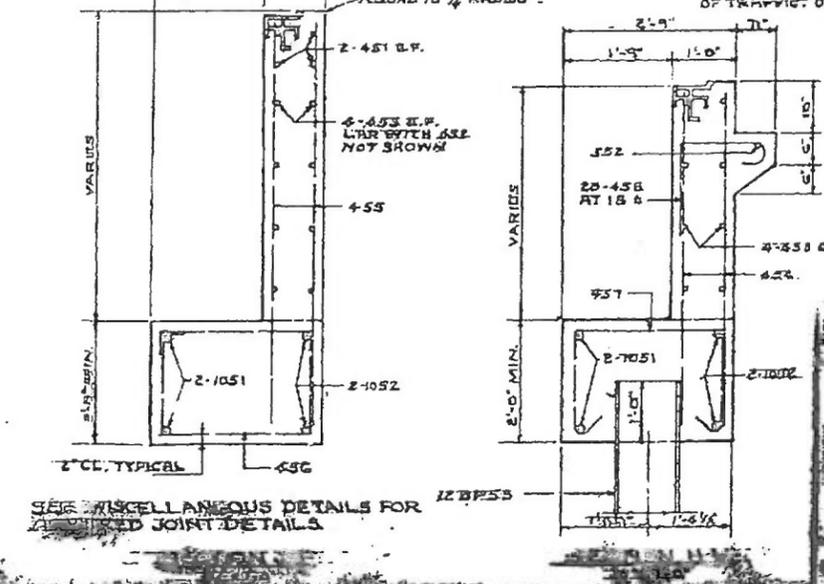
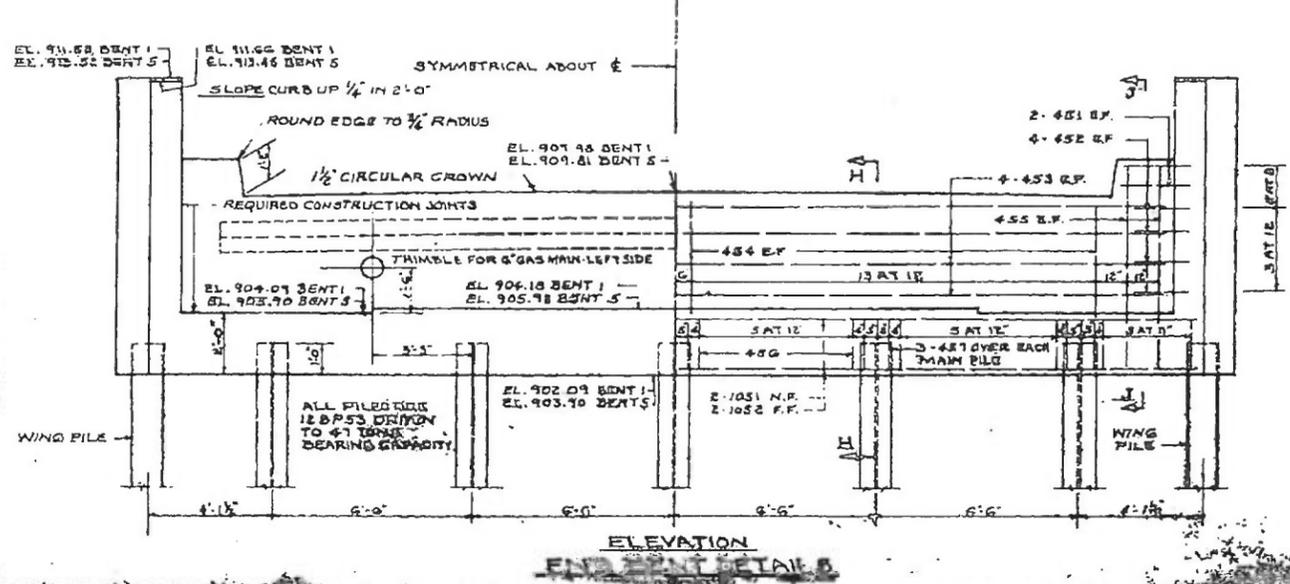
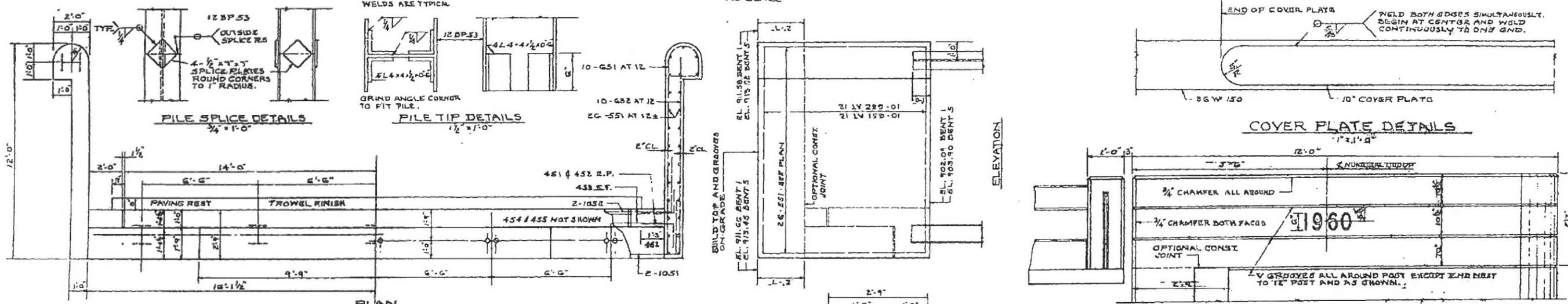
STATE HIGHWAY DEPARTMENT OF GEORGIA
BRIDGE DEPARTMENT

DETAILS OF BRIDGE
1950

MAY 1950



DEAD LOAD DEFLECTION DUE TO WEIGHT OF SLAB, CURBS & HANDRAIL
NO SCALE



INSIDE ELEVATION OF END BENT

END BENT QUANTITIES		
ITEM	QTY	UNIT
CURBS CONCRETE	21.48	CU. YD.
LB. REIN. STEEL	2773	LB.

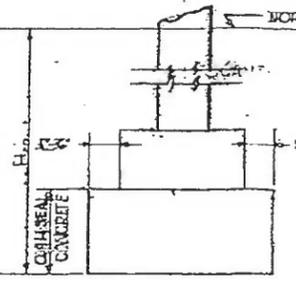
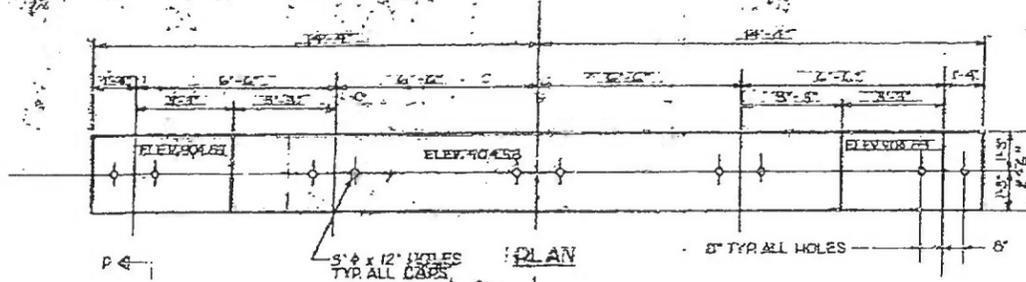
CONCRETE QUANTITY INCLUDES RAMP, END POST, END POSTS PAID FOR PER CU. YD. CLASS A CONCRETE

STATE HIGHWAY DEPARTMENT OF GEORGIA
BRIDGE DEPARTMENT

BEAM AND END BENT DETAILS
BRIDGE OVER CHATTAHOOCHEE RIVER
STA. 22 + 54.75 TO STA. 25 + 54.75
FULTON-GWINNETT COS. 506619

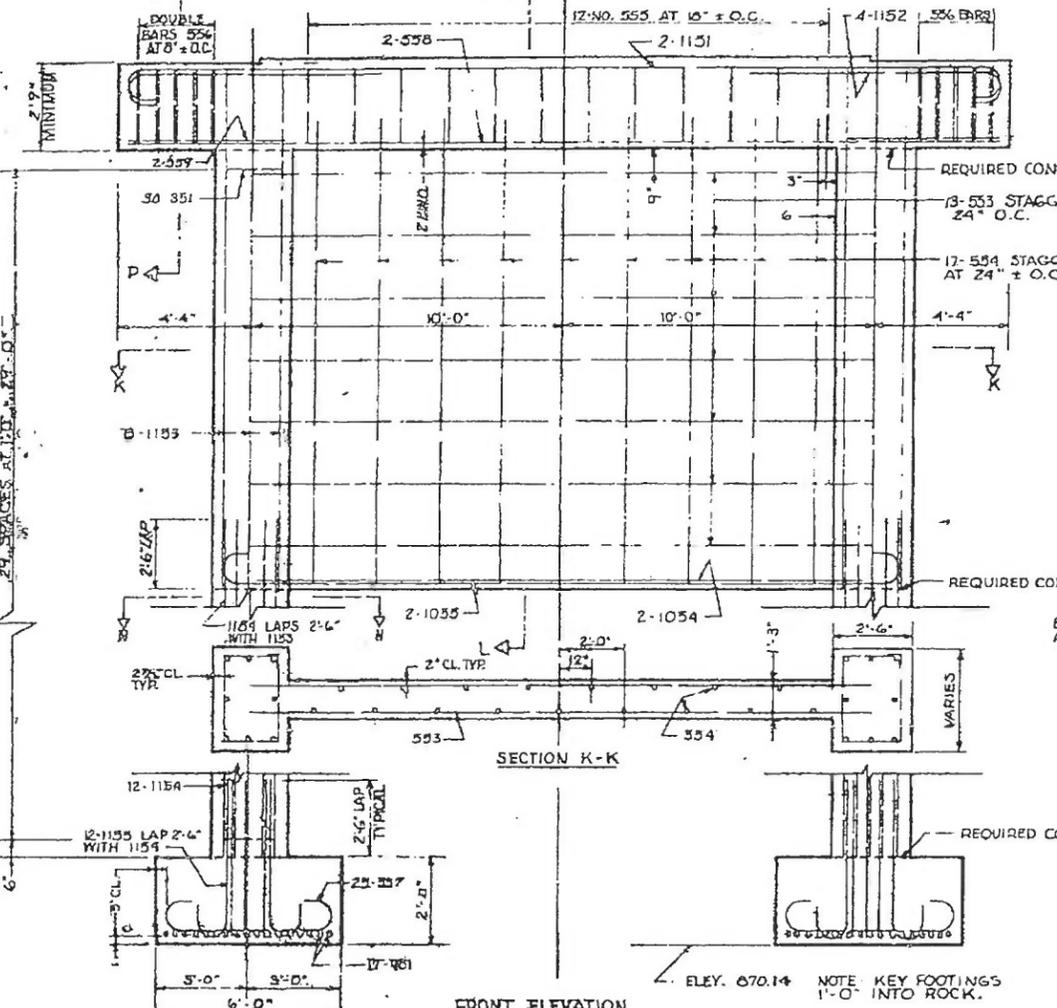
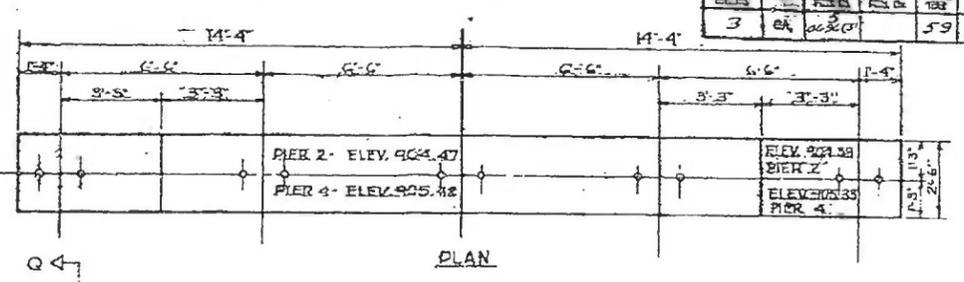
SCALE AS NOTED

3	EA	0020	59	14	31
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NOTE: THE CONTRACTOR WILL BE REQUIRED TO PROVIDE A MINIMUM PUMPING CAPACITY OF 2000 GAL PER MINUTE AND EVERY EFFORT SHALL BE MADE TO POUR FIFTEEN FEET WITHOUT SEAL. IN THE EVENT COFFER DAMS CANNOT BE UNWATERED, OR IN THE OPINION OF THE ENGINEER SEAL CONCRETE IS NECESSARY, THE FOOTINGS SHALL BE POURED AS SHOWN ABOVE.

NOTE: IF SEAL CONCRETE IS USED SHORTEN LOWER COLUMN BARS BY DEPTH OF SEAL.



DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA

INTERDEPARTMENTAL CORRESPONDENCE

FILE: STP00-0189-01(010), Fulton County **OFFICE:** Bridge Maintenance Unit
P.I. No. 721000- **DATE:** April 21, 2014
Paul M. O'Daniel FOR
FROM: Andy Doyle, P.E., State Bridge Maintenance Engineer
TO: Albert Shelby, State Program Delivery Engineer
ATTN: Kimberly Nesbit
SUBJECT: Bridge Condition Survey

On February 14, 2014 our office received the request for a Bridge Condition Survey to be conducted. The Bridge Condition Survey has been completed for this project.

Structure ID 121-0079-0
SR 120 (Abbotts Bridge Road) over Chattahoochee River

This bridge is an HS-20 design and was constructed in 1960. The superstructure consists of a concrete deck, four (4) spans of continuous steel beams (five beams) on reinforced concrete caps and columns.

After conducting a field inspection of the structure our office recommends the following rehabilitation:

- **Deck:**
 - Replace the joints at the abutments with concrete headers and preformed silicon type joints.
 - Reseal all construction joints.
 - Seal the deck by using a two-part polymer overlay system. Wait a minimum of 60 days after completion of the deck on the widened section to overlay both the original and new widened portions of the deck.
 - As requested: the bridge deck is not grooved.
- **Superstructure:**
 - Clean and paint all steel beams.
 - Clean, paint and reset all bearings at both abutments.
 - Replace the anchor bolts at the following locations:
 - Abutment 1:
 - Beam 2 Right; Beam 4 Left and Right
 - Abutment 5:
 - Beam 2 Left; Beam 4 Left; Beam 5 Left

APP 22 2014

Bridge Condition Survey

December 21, 2012

Page 2

- **Substructure:**

- Repair the scour and undermining at abutment 5 under Beams 5 and 6. The impacted area is approximately 8' x 2.5' x 1'.
- Stabilize the bank under spans 1 and 4.

I see no reason why the project cannot proceed, as long as correction of the issues cited above are incorporated into the plans.

If you have any questions, please contact Clayton Bennett at (404) 635-2889.

JAD:kms

BRIDGE INVENTORY DATA LISTING GEORGIA DEPARTMENT OF TRANSPORTATION

Structure ID: 1-0079-0

Fulto. Area 9

SUFF. RATING

53.00

Location & Geography

* Structure I.D.No: 121-0079-0
 200 Bridge Information 06
 * 6A Feature Int: CHATTAHOOCHEE RIVER
 * 6B Critical Bridge: 0
 * 7A Route Number Carried: SR00120
 * 7B Facility Carried: ABBOTTS BRIDGE RD
 * 9 Location: 8 MI E OF ALPHARETTA
 2 DOT District: 7
 207 Year Photo: 2012
 * 91 Inspection Frequency: 24 Date: 09/17/2012
 92A Fract Crit Insp Freq: 00 Date: 02/01/1901
 92B Underwater Insp Freq: 60 Date: 06/21/2011
 92C Other Spc. Insp Freq: 00 Date: 02/01/1901
 * 4 Place Code: 42425
 * 5 Inventory Route (O/L): 1
 Type: 3
 Designation: 1
 Number: 00120
 Direction: 0
 * 16 Latitude: 34-01.7460 HMMS Pre SR
 * 17 Longitude: 84-10.0950 HMMS Suf 00 MP: 17.51
 98 Border Bridge: 000 %Shared: 00
 99 ID Number: 000000000000000
 * 100 STRAHNET: 0
 12 Base Highway Network: 1
 13A LRS Inventory Route: 1211012000
 13B Sub Inventory Route: 0
 * 101 Parallel Structure: N
 * 102 Direction of Traffic: 2
 * 264 Road Inventory Mile Post: 017.17
 * 208 Inspection Area: 09 Initials: WBR
 Engineer's Initial: JTB
 * Location I.D. No.: 121-00120D-017.51E

Signs & Attachments

* 104 Highway System: 0
 * 26 Functional Classification: 16
 * 204 Federal Route Type: F No.: 01891
 105 Federal Lands Highway: 0
 * 110 Truck Route: 0
 206 School Bus Route: 0
 217 Benchmark Elevation: 0000.00
 218 Datum: 0
 * 19 Bypass Length: 09
 * 20 Toll: 3
 * 21 Maintenance: 01
 * 22 Owner: 01
 * 31 Design Load: 6 *Hs 20+ mod*
 37 Historical Significance: 5
 205 Congressional District: 6
 27 Year Constructed: 1960
 106 Year Reconstructed: 0000
 33 Bridge Median: 0
 34 Skew: 00
 35 Structure Flared: 0
 38 Navigation Control: 0
 213 Special Steel Design: 0
 267 Type of Paint: 5
 * 42 Type of Service on: 1
 Under: 5
 214 Movable Bridge: 0
 203 Type Bridge: O-O-M-O
 259 Pile Encasement: 3
 * 43 Structure Type Main: 4 02
 45 No. Spans Main: 004
 44 Structure Type Appr: 0 00
 46 No. Spans Appr: 0000
 226 Bridge Curve Horz: 0 Vert: 0
 111 Pier Protection: 0
 107 Deck Structure Type: 1
 108 Wearing Surface Type: 1
 Membrane: 0
 Protection: 0
 225 Expansion Joint Type: 15
 242 Deck Drains: 1
 243 Parapet Location: 0
 Height: 0.00
 Width: 0.00
 238 Curb: 1.20 1
 239 Handrail: 1 1
 * 240 Median Barrier Rail: 0
 241 Bridge Median Height: 0.00
 Width: 0.00
 * 230 Guardrail Loc Dir Rear: 3
 Fwd: 3
 Oppo Dir Rear: 0
 Fwd: 0
 244 Approach Slab: 3
 224 Retaining Wall: 0
 233 Posted Speed Limit: 45
 236 Warning Sign: 0
 234 Delineator: 1
 235 Hazard Boards: 1
 237 Utilities Gas: 22
 Water: 00
 Electric: 00
 Telephone: 21
 Sewer: 00
 247 Lighting Street: 0
 Navigtion: 0
 Acrial: 0
 * 248 County Continuity No.: 00

BRIDGE INVENTORY DATA LISTING GEORGIA DEPARTMENT OF TRANSPORTATION

Structure ID: 121-0079-0

Fulton Area 9

SUFF. RATING

53.00

Programming Data

201 Project No.: S-0696 (3)
 202 Plans Available: 4
 249 Prop. Proj. No. STP00-0189-01(010)
 250 Approval Status: 0000
 251 P.I. No.: 721000-
 252 Contract Date: 02/01/1901
 260 Seismic No.: 00000
 75 Type Work: 00 0
 94 Bridge Imp. Cost: \$ 1,188
 95 Roadway Imp. Cost: \$ 119
 96 Total Imp Cost: \$ 1,782
 76 Imp. Length: 000000
 97 Imp. Year: 2013
 114 Future ADT: 027405 Year: 2032

Hydraulic Data

215 Waterway Data
 Highwater Elev.: 0000.0 Year: 1900
 Avg. Streambed Elev.: 0000.0 Freq.: 00
 Drainage Area: 01160
 Area Of Opening: 003100
 113 Scour Critical: U
 216 Water Depth: 07.5 Br. Height: 25.0
 222 Slope Protection: 1
 221 Spur Dikes Rear: 0 Fwd: 0
 219 Fender System: 0
 220 Dolphin: 0
 223 Culvert Cover: 000
 Type: 0
 No. Barrels: 0
 Width: 0.00 Height: 0.00
 Length: 0 Apron: 0
 * 265 U/W Insp. Area: 1 Diver: WS
 * Location I.D. No.: 121-00120D-017.51E

Measurements

* 29 ADT: 018270 Year: 2012
 109 % Trucks: 0
 * 28 Lanes On: 02 Under: 00
 210 No. Tracks On: 00 Under: 00
 * 48 Max. Span Length: 0079
 * 49 Structure Length: 304
 51 Br. Rwdy. Width: 27.80
 52 Deck Width: 34.20
 * 47 Tot. Horz. Cl: 27.80
 50 Curb/Sdewlk Width: 2.00/2.00
 32 Approach Rdwy Width: 028
 * 229 Shoulder Width:
 Rear Lt: 2.00 Type: 2 Rt: 2.00
 Fwd Lt: 2.00 Type: 1 Rt: 2.00
 Pavement Width:
 Rear: 24.00 Type: 2
 Fwd: 24.00 Type: 2
 Intersection Rear: 0 Fwd: 0
 36 Safety Features Br. Rail:
 Transition: 2
 App. G. Rail: 1
 App. Rail End: 1
 53 Minimum Cl.Over: 99 ' 99 "
 Under: N 00 ' 00 "
 * 228 Min. Vertical Cl
 Act. Odm Dir: 99 ' 99 "
 Oppo. Dir: 99 ' 99 "
 Posted Odm. Dir: 00 ' 00 "
 Oppo. Dir: 00 ' 00 "
 55 Lateral Undercl. Rt: N 0.00
 56 Lateral Undercl. Lt: 0.00
 * 10 Max Min Vert Cl: 99 ' 99 " Dir: 0
 39 Nav Vert Cl: 000 Horz: 0000
 116 Nav Vert Cl Closed: 000
 245 Deck Thickness Main: 7.50
 Deck Thick Approach: 0.00
 246 Overlay Thickness: 0.00
 212 Year Last Painted: Sup: 1994 Sub: 0000

Ratings

65 Inventory Rating Method: 1 LF
 63 Inventory Rating Method: 1 LF
 66 Inventory Type: 2 HS Rating: 42
 64 Operating Type: 2 HS Rating: 70
 231 Calculated Loads
 H-Modified: 21 0
 HS-Modified: 30 0
 Type 3: 33 0
 Type 3s2: 40 0
 Timber: 37 0
 Piggyback: 40 0
 261 H Inventory Rating: 28
 262 H Operating Rating: 46
 67 Structural Evaluation: 5
 58 Deck Condition: 5
 59 Superstructure Condition: 5
 * 227 Collision Damage: 0
 60A Substructure Condition: 6
 60B Scour Condition: 5
 60C Underwater Condition: 6
 71 Waterway Adequacy: 6
 61 Channel Protection Cond: 5
 68 Deck Geometry: 3
 69 UnderClr. Horz/Vert: N
 72 Appr. Alignment: 8
 62 Culvert: N
Posting Data
 70 Bridge Posting Required: 5
 41 Struct Open, Posted, Cl: A
 * 103 Temporary Structure: 0
 232 Posted Loads H-Modified: 00
 HS-Modified: 00
 Type 3: 00
 Type3s2: 00
 Timber: 00
 Piggyback: 00
 253 Notification Date 02/01/1901
 253 Fed Notify Date: 02/01/1901 0

GEORGIA DEPARTMENT OF TRANSPORTATION

Bridge Inspection Report

District: 7
Bridge Inspector: Lejalem Mergia
Location ID: 121-00120D-017.51E
Structure ID: 121-0079-0

Inspection Date: 9/17/2012
Over: CHATTAHOOCHEE RIVER
County: Fulton Area 9
Road Name: ABBOTTS BRIDGE RD

Inspection Area: 09
Bridge Status: 06

EVALUATION & DEFICIENCIES

SubStructure: Year Painted: 0000

Concrete caps at both abutments founded on steel piles.
Bents 2 through 4 have concrete caps on (2) concrete columns with web walls founded on spread footings.
Substructure = H-58 calculated May 2008 by Central Office (Load Factor).

06/21/2011 WSR Waterline to bottom of web wall is 5'. Moderate to heavy scale/abrasion form 4' above the bottom of web wall down.
Bent 2 has a spall on back face of cap, 2.5' from the edge, 1' wide by 1' high with rebar exposed, no section loss.

Minor cracking in both abutment caps.
Both abutments have vertical cracking in the cap.
Each unit has minor deterioration and cracking.
Bent 2 cap, under beam 5 has 10" x 14" x 3/4" spall with exposed rebar, moderate rust.
Erosion at abutment 5 is 2.5' deep, 5' long and 1' under the cap. Pile is exposed on the right side. Soil under cap is sloughing 1" beyond limits of noted erosion. A folding rule can be extended up to 2'-10" from face of cap. Bearing seat width = 1'-8".

04/24/2013 Specialized inspection.
No changes noted.

perStructure: Year Painted: 1994

4 Span continuous steel beam, (5-W36 X 150) beams per span.
Round end cover plates (Welded).
Superstructure = H-28 calculated May 2008 by Central Office (Load Factor).

Paint has failed with minor corrosion through-out the superstructure.

Beam 1 - small areas painted over pitting to web and top flange (1/16"), also to bottom flange (6" x 2").
Original flange 7/8", pitted is 9/16", painted over.

Beam 5 - random areas of pitting, typically 1/16" deep, all painted over.
All bearings have minor corrosion with some pack rust developing.
Minor movement in all bearings at both abutments.
Anchor bolts are missing at the following locations:

- Abutment 1, beams 2 and 4, left and right
Abutment 5, beams 2 and 4, left

Light to moderate bottom flange debris build-up at beam 5, bent 2.
Moderate debris with bent beam keeper plates at bent 3 bearings (see photo).

04/24/2013 Specialized inspection.
No changes noted.

GEORGIA DEPARTMENT OF TRANSPORTATION

Bridge Inspection Report

District: 7
Bridge Inspector: Lejalem Mergia
Location ID: 121-00120D-017.51E
Structure ID: 121-0079-0

Inspection Date: 9/17/2012
Over: CHATTAHOOCHEE RIVER
County: Fulton Area 9
Road Name: ABBOTTS BRIDGE RD

Inspection Area: 09
Bridge Status: 06

EVALUATION & DEFICIENCIES

Deck:

7 1/2" Concrete slab.
Armored joints at both abutments has been replaced with 8" Polymer Headers and Evazote joints.
Joints at bents 2 through 4 are evazote.

Exposed aggregate through-out the deck surface.
Minor cracking on the top and bottom.
Joints at both abutments have failed.
Special Note: The deck is slapping on beam 1 in spans 1 and 4.
Span 1 26' rear of bent 2 to the cold joint is the worse area.

Minor hairline map cracking, light wear, transverse cracks < 0.06"
Concrete diaphragms with hairline cracks with occasional light efflorescence. Few small incipient spalls on underside throughout.
Haunch spalls random throughout.
Left overhang at abutment 1 has a spall with exposed rebar.
Right overhang has fine transverse cracks and the occasional small spall throughout.
Span 2 has transverse cracks on the underside of the deck.
Span 4 has deck haunch spalls, 3 sq. ft.
Bent 2, beams 3 & 4, the deck haunch is spalling.
The top of the deck has map cracking throughout.
The asphalt overlay on both approach slabs is unraveling. The beginning approach slab is cracking and spalling at the joint.

04/24/2013 Specialized inspection.
No changes noted.

General:

GEORGIA DEPARTMENT OF TRANSPORTATION

Bridge Inspection Report

District: 7
 Bridge Inspector: Lejalem Mergia
 Location ID: 121-00120D-017.51E
 Structure ID: 121-0079-0

Inspection Date: 9/17/2012
 Over: CHATTAHOOCHEE RIVER
 County: Fulton Area 9
 Road Name: ABBOTTS BRIDGE RD

Inspection Area: 09
 Bridge Status: 06

EVALUATION & DEFICIENCIES

Built in 1960, Project # S-0696 (3).
 The inventory load capacity = HS-20+M. <-- Design.
 Calculations for this structure done by Central Office May 2008.

Divers report: 06/21/2011 WSR Waterline to bottom of web wall is 5'.
 Moderate to heavy scale/abrasion form 4' above the bottom of web wall down.
 Bent 2 has a spall on back face of cap, 2.5' from the edge, 1' wide by 1' high with rebar exposed, no section loss.
 Special Note: The deck is slapping on beam 1 in spans 1 and 4.
 Span 1 26' rear of bent 2 to the cold joint is the worse area. (MAINTENANCE SHOULD MONITOR THIS SITUATION)
 The asphalt overlay on both approach slabs is unraveling. The beginning approach slab is cracking and spalling at the joint.

11/15/2008 Inspection
 Witnessed deck movement on top of beams when traffic passed over. Lowered deck rating to a 5.

Abutment 1, left rail post has a spall with exposed rebar due to collision.
 Forward left guardrail has collision damage approximately 15' from bridge.
 Rear right guardrail connection to safety walk is loose.

04/24/2013 Specialized team B inspected bents 2-4 with hydra-platform.

Recommended Repairs:
 Repair erosion at abutment 5.
 Monitor deck movement.

Condition Rating

Component	Material	Rating
Substructure	Concrete	6
Superstructure	Steel	5
Deck	Concrete	5

Temp Shored: No

Truck Type	Gross/H-Mod	HSMOD	Tand	3-S-2	Log	Piggy
Calculated Posting	21	30	33	40	37	40
Posting Required	No	No	No	No	No	No
Existing Posting	00	00	00	00	00	00

Not a School Bus Route.

Structure Does Not Require Posting

GEORGIA DEPARTMENT OF TRANSPORTATION

Bridge Component Report

District: 7
 Bridge Inspector: Lejalem Mergia
 Location ID: 121-00120D-017.51E
 Structure ID: 121-0079-0

Inspection Date: 9/17/2012
 Over: CHATTAHOOCHEE RIVER
 County: Fulton Area 9
 Road Name: ABBOTTS BRIDGE RD

Inspection Area: 09

SubStructure Data

Bent#	Type	Foundation	Col	#Cols	Piling	#Piles	Sway	CAP	Remarks
1	A	DP		0		0		C	Only cap exposed
2	B	SF	C	2		2		C	Piles coded for divers
3	B	SF	C	2		2		C	Piles coded for divers
4	B	SF	C	2		2		C	Piles coded for divers
5	A	DP		0		0		C	Poor

SuperStructure Data

Span#	Beam Type	Spacing	Length	#Beams	Remarks
1	Steel	6.50	73.00	5	W36 X 150
2	Steel	6.50	79.00	5	W36 X 150
3	Steel	6.50	79.00	5	W36 X 150
4	Steel	6.50	73.00	5	W36 X 150

Bearing Data

Span#	Rear Type Bearing	FWD Type Bearing	Remarks
1	01 - Sliding Plate	10 - Continuous	Fair
2	01 - Sliding Plate	10 - Continuous	Fair
3	02 - Fixed Plate	10 - Continuous	Fair
4	01 - Sliding Plate	01 - Sliding Plate	Fair

GEORGIA DEPARTMENT OF TRANSPORTATION

Waterway Report

District: 7
 Bridge Inspector: Lejalem Mergia
 Location ID: 121-00120D-017.51E
 Structure ID: 121-0079-0

Inspection Date: 9/17/2012
 Over: CHATTAHOOCHEE RIVER
 County: Fulton Area 9
 Road Name: ABBOTTS BRIDGE RD

Inspection Area: 09

Skew: 00

Span #:	1	2	3	4
Length:	73.0	79.0	79.0	73.0

Upstream -

Upstream +		1	2	3	4	5
03/11/1999	RMO WSR		23.00	33.00	26.00	3.00
		6.00	26.00	32.00	25.00	
07/23/2002	RMO TSP		22.80	30.40	25.00	4.40
		4.50	26.00	30.30	24.50	
10/25/2006	JMC/WBR		23.00	30.60	25.30	4.70
		4.70	26.30	30.50	24.70	
11/15/2008	WKR		24.80	31.40	24.10	3.30
		3.00	25.90	29.40	23.70	
10/04/2010	AWB		24.40	33.10	25.90	6.20
		5.60	25.40	30.90	26.40	
09/17/2012	WBR/JEM		25.40	32.50	25.50	4.30
		5.00	26.30	32.00	25.00	

Downstream -

Downstream +		1	2	3	4	5
03/11/1999	RMO WSR		25.00	32.00	27.00	7.00
		6.00	27.00	31.00	25.00	
07/23/2002	RMO TSP		25.00	31.00	27.10	6.10
		5.50	26.00	29.20	25.00	
10/25/2006	JMC/WBR		25.30	30.90	27.20	6.30
		5.70	26.30	29.10	25.30	
11/15/2008	WKR		24.30	30.70	25.80	4.20
		3.60	24.80	29.70	25.00	
10/04/2010	AWB		26.60	30.90	27.10	7.10
		6.40	25.90	31.50	25.40	
09/17/2012	WBR/JEM		25.80	31.40	27.00	5.40
		5.00	26.40	31.50	25.50	

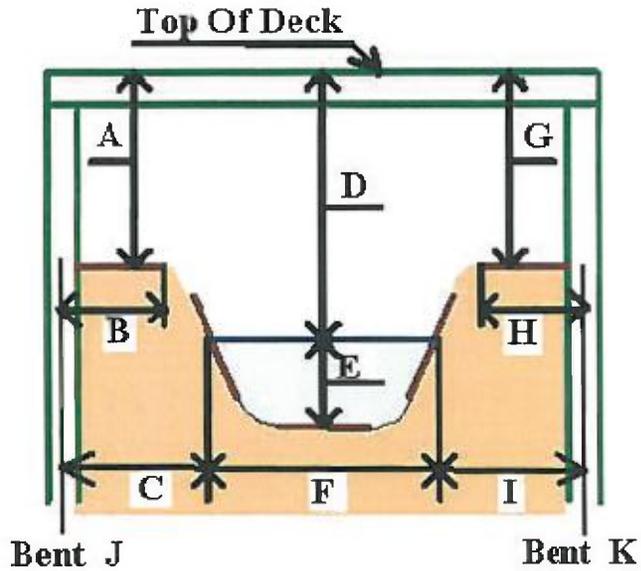
GEORGIA DEPARTMENT OF TRANSPORTATION

Waterway Report

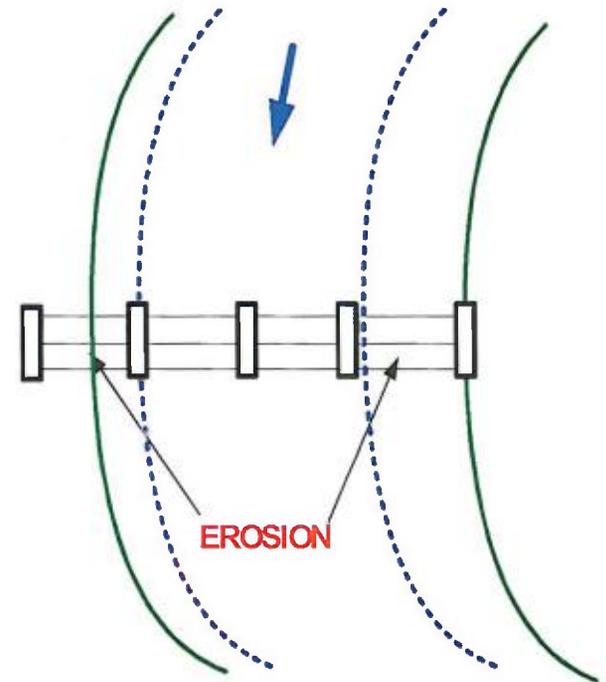
District: 7
 Bridge Inspector: Lejalem Mergia
 Location ID: 121-00120D-017.51E
 Structure ID: 121-0079-0

Inspection Date: 9/17/2012
 Over: CHATTAHOOCHEE RIVER
 County: Fulton Area 9
 Road Name: ABBOTTS BRIDGE RD

Inspection Area: 09
 Skew: 00



- A: 6
- B: 20
- C: 73
- D: 25.0
- E: 07.5
- F: 177
- G: 6
- H: 12
- I: 54
- J: 1
- K: 5



Side view at the Channel.

B, C, H, & I are measured to center of bent or B.F.P.R.

Location of Bridge Height 5' rear of bent #3

Scour Condition: 5 Waterway Adequacy: 6 Channel Protection: 5

Comments:

08/21/2006 Lateral bank erosion evident on both banks.

0 = SubStructure
 15 = Channel Skew
 15 = Stream Angle

GEORGIA DEPARTMENT OF TRANSPORTATION

UnderWater Report

District: 7
Bridge Inspector: Shon Reynolds
Location ID: 121-00120D-017.51E
Structure ID: 121-0079-0

Inspection Date: 9/17/2012
Over: CHATTAHOOCHEE RIVER
County: Fulton Area 9

Inspection Area: 09
Skew: 00

Bents Inspected: Bents 2 thru 4
Bent Construction: Concrete columns

* Boat Used: No
* Surface Air: No

Bridge Height: 25.0 Location of Bridge Height
Water Depth: 07.5

Condition Rating:

SubStructure: 6
Scour: 5
Waterway Adeq: 6

Channel Protection: 5
Underwater: 6

Detail Inspection:

8/21/2006 SCK Concrete has heavy scale from 7' above the web wall down. No footings found.

06/21/2011 WSR Waterline to bottom of webwall is 5'. Moderate to heavy scale/abrasion from 4' above the bottom of webwall down. Bent 2 has a spall on back face of cap, 2.5' from the edge, 1' wide by 1' high with rebar exposed, no section loss.

GEORGIA DEPARTMENT OF TRANSPORTATION

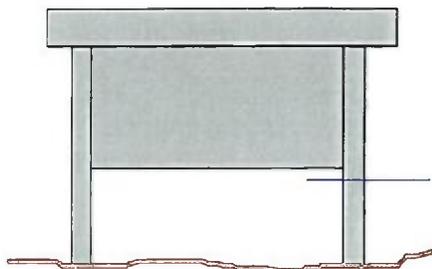
UnderWater Report

District: 7
 Bridge Inspector: Shon Reynolds
 Location ID: 121-00120D-017.51E
 Structure ID: 121-0079-0

Inspection Date: 9/17/2012
 Over: CHATTAHOOCHEE RIVER
 County: Fulton Area 9

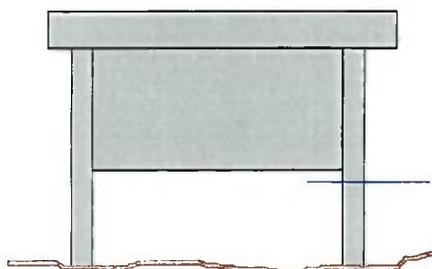
Inspection Area: 09
 Skew: 00

Bent #: 2
 Bent Type:
 Pic Type: 2 Column Footing



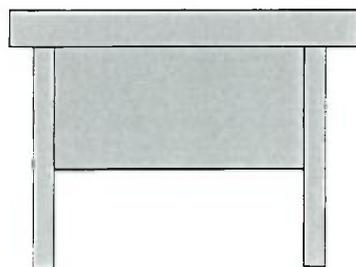
Col.	RTG	WD	FTG	FSX
1	6	1	na	0
2	6	1	na	0

Bent #: 3
 Bent Type:
 Pic Type: 2 Column Footing

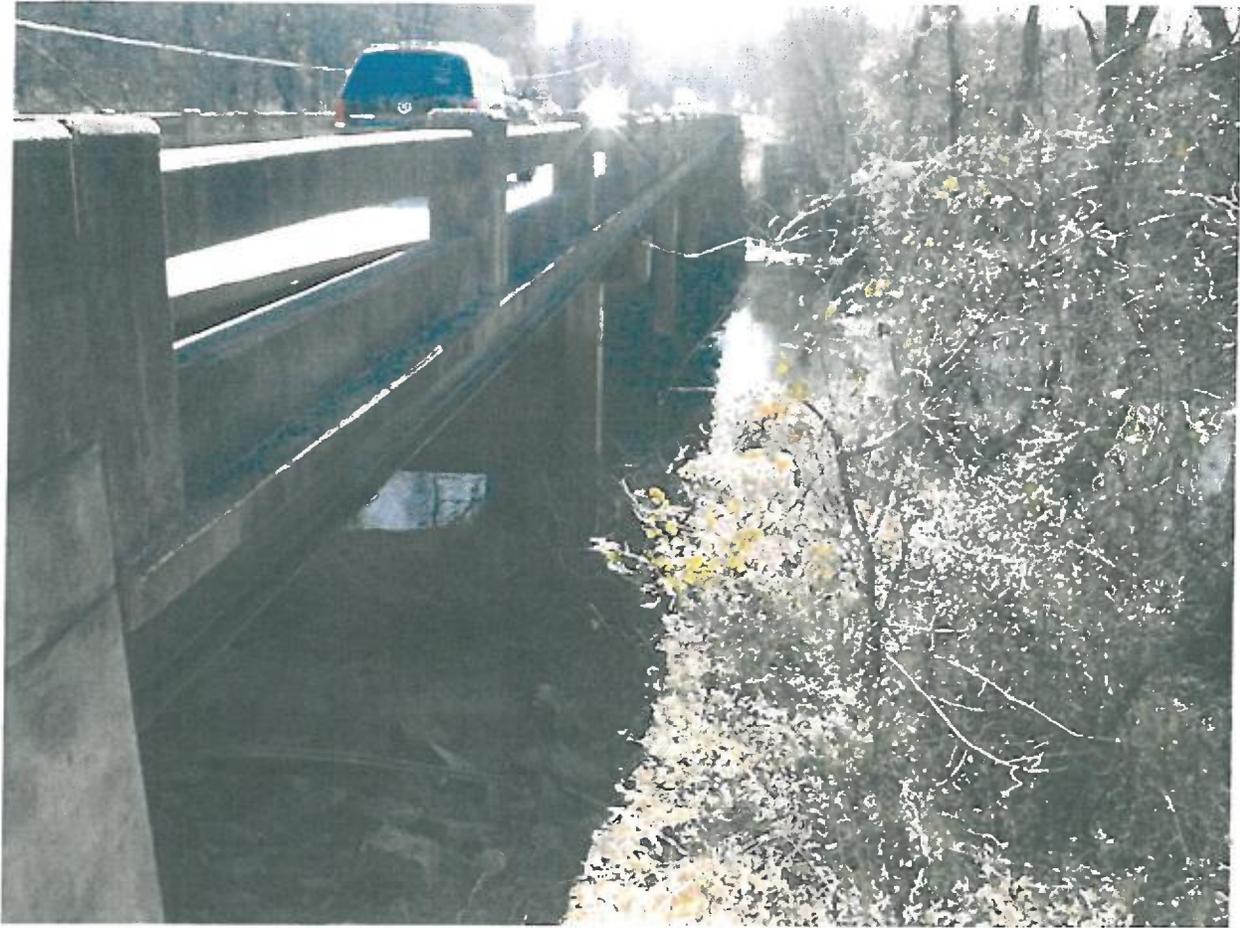


Col.	RTG	WD	FTG	FSX
1	6	5	na	0
2	6	8	na	0

Bent #: 4
 Bent Type:
 Pic Type: 2 Column Footing





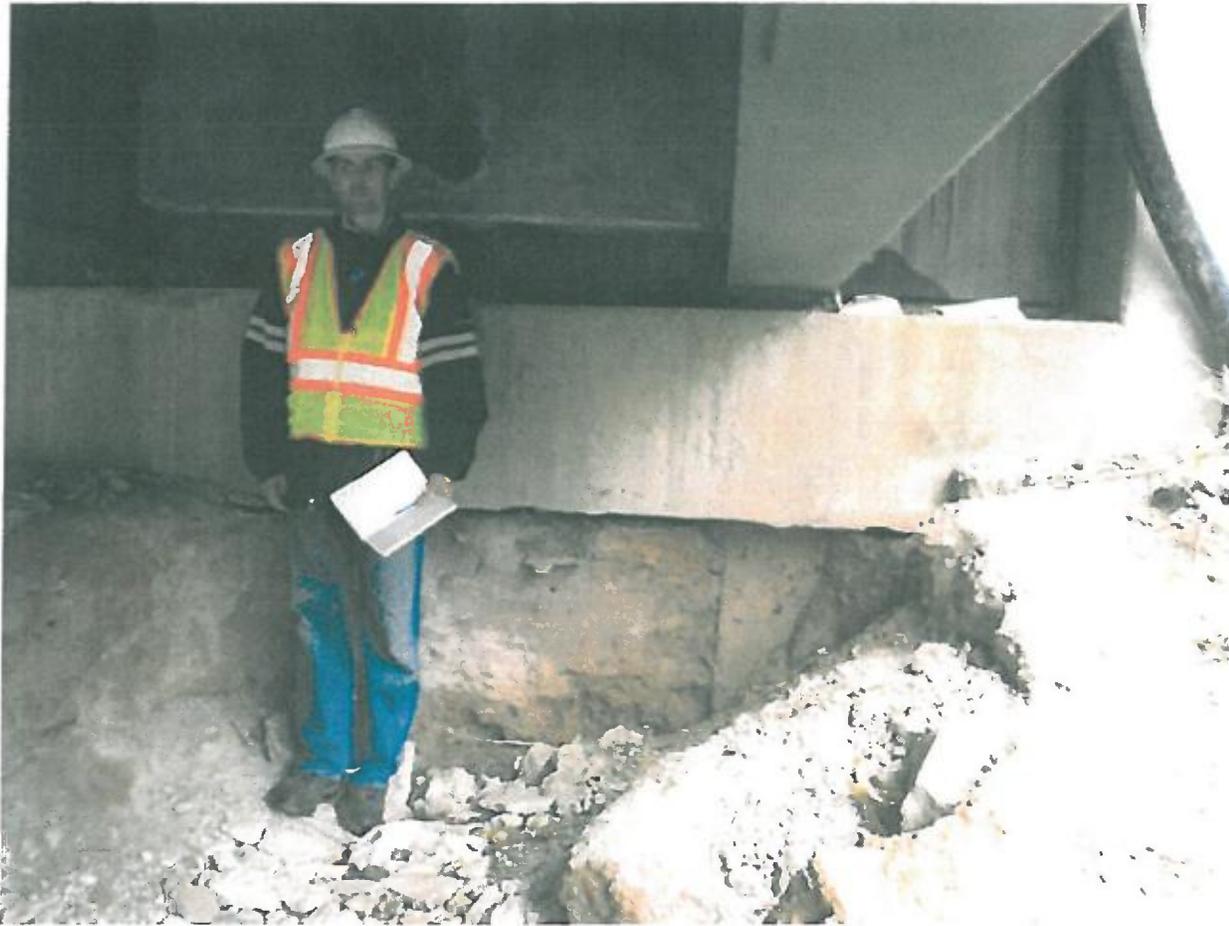














MS4 Compliance and Approach Memo

The proposed project is within a designated MS4 (Municipal Separate storm Sewer System) area and, as such, it is important that stormwater runoff from the project is evaluated to ensure that structures and systems are anticipated to minimize impacts and additional right of way take areas. The purpose of this memo is to present a preliminary assessment of the existing drainage basin features within the project limits and to provide a general approach to ensuring this project meets GDOT MS4 requirements. Although this project is located within the Cities of Johns Creek and Duluth, this is a GDOT funded project and, hence, GDOT MS4 guidelines will be followed for the design. That said, the details of the design will be coordinated with the City of Johns creek, the City of Duluth and GDOT as needed.

As of this date, site visits have been conducted and initial survey data collected to begin a preliminary hydrology study. Existing drainage basins have been delineated and will be finalized once additional survey features have been finalized. This report presents our field observations as well as our general approach to the MS4 design. Once the survey is finalized and a concept roadway layout is selected, the hydrology study will be refined and presented along with the cost estimate.

Existing Conditions

The project corridor runs approximately 13,200 LF of SR120/Abbotts Bridge Road from Medlock Bridge Road to Peachtree Industrial Boulevard (PIB). The existing roadway varies from 2-lane to 4-lane along this corridor and with varying locations of additional lanes for turn and accel/decel purposes.

There are four (4) distinct watersheds long the existing project corridor containing multiple outfall basins within each watershed. The first basin begins at a high point that exists at the SR 120 and Medlock Bridge intersection and sheds water to the west to a low point at a crossing of a Tributary of Johns Creek. However, there is also an existing outfall higher up in this watershed that currently carries roadway drainage through and tying into the commercial development system before connecting to a residential drainage system and eventually outfalling into the detention facility of the Aylesbury residential development. In the second watershed, roadway drainage sheds to the southeast from Medlock Bridge Road to a roadway sag point near the Abbotts Mill/Glenbarr Drive intersection. This watershed has 5 separate outfalls, three of which tie directly into commercial development systems and drain into their individual detention facilities. The other two outfalls tie into residential systems that outfall into the residential detention pond. The third watershed begins at the high point at North Springs High School and flows to the south to the natural low point at the SR 120 Bridge crossing at the Chattahoochee River (FEMA Zone AE). There are four separate outfalls within this watershed all of which drain directly into the Chattahoochee without detention. The fourth watershed begins at a small roadway highpoint just to the west of PIB and outfalls directly into Rogers Creek which is also a FEMA Zone AE stream. Rogers Creek has a confluence with the Chattahoochee River approximately 4,400 feet downstream from this outfall.

Proposed MS4 Approach

The proposed roadway improvements call for additional impervious areas from additional lane build-outs and 5-10 ft. sidewalk installations. The SR120/Abbotts Bridge Road corridor is a heavily developed

corridor leaving very limited undeveloped areas for stormwater BMP installations in order to meet MS4 requirements. GDOT MS4 compliance requires all stormwater runoff from new pavement areas be effectively treated and directed into structures that not only provide stormwater quality but also control stormwater quantity. To this end, GDOT has stipulated a number of preferred stormwater BMPs that are suitable for GDOT projects and they are as follows:

1. Filter Strips
2. Grass Channels
3. Enhanced Swales (dry & wet)
4. Infiltration Trenches
5. Detention Basins (dry & wet)
6. Stormwater Wetlands

Preliminary Project Specific MS4

Looking at this project specifically, there are several points of approach that will generally be followed when possible. First, existing drainage patterns will be maintained when the specific area or outfall allows. For instance, many of the current outfalls drain into existing detention facilities that are part of a commercial or residential development. In these areas, the approach will be to conduct a pre and post analysis on the pond performance to determine what impacts the proposed conditions have on the pond and if any reasonable improvements/retrofits can be designed to enable the pond to perform adequately to meet MS4 requirements. In other areas where traditional ponds are not feasible due to limited buildable area or right-of-way, treatment trains will be investigated using a combination of filter strips, grassed channels, enhanced swales and infiltration trenches.

For all outfalls that currently discharge into the Chattahoochee River via existing roadside ditches, it is assumed, at this point, that detention will not be required due to the close proximity to the Chattahoochee River and the likely negative impacts of hydrograph peak coincidence of pond attenuation. However, BMPs for water quality will be needed. In these areas where detention is not designed, a downstream analysis will be performed to check for any downstream impacts.

GDOT analyzes stormwater on a basin by basin basis and has exemptions for MS4 compliance. Specifically, an exemption that will be applicable in some areas of this project is where sheet flow off the roadway can be generated.

Just southeast of the intersection of SR120/Abbotts Bridge and Abbotts Mill Drive/Glenbarr Drive, there exists an outfall which currently has no BMP treatment other than overland flow through small swales through residential backyards. Since this area is wooded and appears to have room for a conventional stormwater detention pond, this area will be investigated as a possible detention location.

The last outfall is a 60" RCP located to the northwest of the intersection of PIB and SR120. The area is challenging in that the existing roadway drainage system is tied into the pipe system of the QuikTrip filling station across SR120. It is likely that the drainage configuration will need to be reworked significantly and requiring some parcel acquisition for detention and water quality treatment. One possible location could be the area immediately adjacent to and behind the QuikTrip. Currently, there is a small detention pond located there which could be expanded to meet water quality and detention

volume requirements. An alternate location for a detention pond in this area would be natural area at the southwest corner of the SR120/PIB intersection directly across from the QuikTrip. Additional detention locations could be many of the parcel locations along the southwestern side of SR120 as several of these properties are underdeveloped area such as the Chattahoochee River Tubing parcel.

The Mulkey team proposes to layout and design MS4 structures within the existing landscape maintaining existing drainage patterns. See Concept Layout for possible locations for stormwater management infrastructure.

August 1, 2014

MULKEY ENGINEERING & CONSULTANTS
1255 Canton Street
Suite G
Roswell, Georgia 30075

Attention: Mr. Alex Stone

Subject: Preliminary Report of Pavement Evaluation Summary (PES)
SR 120 WIDENING & RECONSTRUCTION
GDOT Project STP00-0189-01(010) Fulton, Gwinnett Counties, PI No. 721000
NOVA Project Number 2014015

Dear Mr. Stone:

NOVA Engineering and Environmental, LLC (NOVA) has completed the authorized preliminary Pavement Evaluation Summary for the SR 120 widening project within Fulton and Gwinnett counties and incorporated GDOT OMAT's review comments of our draft report in to this submittal. The following report discusses our understanding of the project, summarizes our scope of work, describes the findings of the preliminary evaluation, and presents our conclusions and recommendations.

When submitting this letter to GDOT, we recommend addressing the letter directly to Albert Shelby, the OPD Project Manager. This letter report should also be copied to the following recipients: Rachel Brown, District Engineer in Chamblee; Bayne Smith, District Engineer in Thomaston; Persephone Goodwin, the Area Engineer in Atlanta; Sheila Hines, the State Bituminous Construction Engineer in Forest Park; and James Page, the State Concrete Engineer in Forest Park.

If additional information is needed, please contact Matthew Wells at 678-898-3565. We appreciate being given the opportunity to serve you.

Sincerely,
NOVA ENGINEERING AND ENVIRONMENTAL LLC

Matthew Wells

Matt Wells, E.I.
Project Engineer

Attachments:

- Project Location Maps
- Site photos
- Preliminary Flexible Pavement Design Analysis (Fulton & Gwinnett Counties)

Randall L. Bagwell, P.E.
Principal
GA Reg. No. 26477



EMPLOYEE OWNED – CLIENT DRIVEN:

Environmental Consulting – Geotechnical Engineering – Construction Materials Testing – Inspection Services
Facility Engineering – Building Envelope/Roofing Consulting – Loss Prevention – Code Compliance
Municipal & Government Support/Outsourcing – Private Provider Services™

PRELIMINARY PAVEMENT EVALUATION SUMMARY

For
STP00-0189-01(010) Fulton, Gwinnett Counties
PI No. 721000

Preliminary Flexible Pavement Design Analysis (Fulton & Gwinnett Counties)

1. LOCATION / DESCRIPTION

This project is for the widening of SR 120/ Abbotts Bridge Road from SR 141/ Medlock Bridge Road in Fulton County to Peachtree Industrial Boulevard in Gwinnett County for a distance of approximately 2 miles. The stations were provided by Mulkey Engineering and are provided for preliminary purposes only. The project location maps displaying the station numbers are included as attachments in this report. On SR 120, the project begins at station 10+00 and ends at 157+00. The existing roadway for SR 120 is primarily 2-lane highway, but includes numerous intersections, turn lanes, and increases to multiple lanes approaching SR 141 and Peachtree Industrial Boulevard intersections. The project will include widening the alignment to a 4-lane, divided highway with curb and gutter.

This project will also include road improvements for major side roads in each direction for SR 141, Parsons Road, Boles Road, and Peachtree Industrial Boulevard.

SR 141 improvements begin at station 53+00 and ends at 73+00. Parsons Road improvements begin at 30+00 and ends at 40+00. Boles Road will extend approximately 1,000 feet east from the SR-120/Boles Road intersection. Peachtree Industrial Blvd improvements will start at 20+00 and end at 40+00.

2. EVALUATION LIMITATIONS

Please note that assessment of distress noted in the report are based on a limited visual evaluation of the project's pavements in general accordance with Section 9.1 of the Georgia Department of Transportation's Pavement Design Manual, revision date 12/07/05. No field or laboratory testing was performed for this project. This preliminary pavement evaluation is for the concept of project scope phase of the project. A more in-depth evaluation including a Soil Survey will be required during project design/plans development.

3. PAVEMENT CONDITION SUMMARY

On Parsons Road from station 32+00 to 40+00 and on SR 141/Medlock Bridge Road from station 63+00 to 73+00, the existing pavement is in generally poor condition. Cores will be obtained during our field investigation to further examine these sections and determine the extent of pavement distress.

The existing pavement for the remainder of the project appears to be in generally good condition based on the findings of our preliminary field observations. However, since the SR 120 section within Fulton County was recently overlaid, we cannot determine the underlying pavement condition based on visual assessment.

PRELIMINARY PAVEMENT EVALUATION SUMMARY

For
STP00-0189-01(010) Fulton, Gwinnett Counties
PI No. 721000

4. PAVEMENT RECOMMENDATION SUMMARY

The entire roadway section of SR 120 within Fulton County from the SR 141 intersection to the Chattahoochee River was being overlaid with new asphalt during our site visit. Also, according to the maintenance project M003962, SR 120 within Gwinnett County was milled and resurfaced in 2011 from stations 107+00 to 157+00.

According to GDOT plans, current as-built pavement sections are provided for the following roads intersecting with SR 120: SR 141, Boles Road, and Peachtree Industrial Boulevard. GDOT was unable to provide as-built pavement sections for the majority of SR 120, but available plans indicate that this road was originally constructed in the 1950s.

Intersection improvements were made at SR 120/SR 141 in 2011, at SR 120/Peachtree Industrial Boulevard in 2008, and at SR 120/ Boles Road in 1994. The following table summarizes the proposed pavement sections after these improvements based on GDOT plans:

Intersection	Surface	Intermediate Binder	Base	Subbase
⁽²⁾ SR120/ SR 141 dated 3-2-2011	12.5 mm Superpave polymer modified (1.5")	19.5 mm Superpave (2")	25 mm Superpave (7")	12" graded aggregate base (GAB) course
⁽¹⁾ SR 120/ Boles Rd dated 7/15/1993	173 lb/sq. yd Asphalt Conc. "E" (est. 1.5")	234 lb/sq. yd Asphalt conc. (est. 2")	468 lb/ sq. yd Asphalt concrete base (est. 4")	10" GAB course
SR 120/ Peachtree Ind. Blvd dated 5/2/2008	12.5 mm Superpave, Type II polymer modified (1.5")	19 mm Superpave (3")	25 mm Superpave (4")	12" GAB course

1) Only spread rates were provided for this intersection and thicknesses were estimated. Since the typical spread rate for this particular asphalt mix indicates that the actual thicknesses may be greater than estimated, the data provided by GDOT Typical Section plans (1993) should be confirmed through coring during the actual Pavement Evaluation

2) This typical section was used in our preliminary pavement calculations

Average daily traffic (ADT) values were provided by Wilburn Engineering, LLC in a document titled "Design Traffic Memorandum", dated March 17, 2014 and addressed to the GDOT Office of Planning. These values have not been approved by GDOT at the time of this report and are included only for preliminary design purposes.

PRELIMINARY PAVEMENT EVALUATION SUMMARY

For
STP00-0189-01(010) Fulton, Gwinnett Counties
PI No. 721000

GDOT count station 1210318 is located on SR 120 between Northview High School and Parsons Road. GDOT count data was used in accordance with the procedure in Figure 13.2 of the GDOT policy Manual to determine future growth rates. Growth rates used to project volumes for the Base or Construction Year (2022) and the Design Year (2042) were established by comparing 15, 10, and 5 year trend analysis.

TREND METHOD	2022 PROJECTED ADT	2042 PROJECTED ADT
15-year	20750	25975
10-Year	17150	17025
5-Year	23250	33250

Using the 5-year trend 2042 projected ADT of 33250 and assuming a 20-year design life, we performed preliminary calculations with the pavement section implemented for intersection improvements at SR 120 with SR 141, as shown in the previous table. We performed two calculations for the SR 120 widening for Fulton and Gwinnett Counties using the average Soil Support Values (SSV) referenced from Appendix G from the GDOT Pavement Design Manual. According to our analysis, the existing pavement section within the Fulton County portion is under designed by approximately 13.2%. The existing pavement section within Gwinnett County is under designed by 8.2%. Therefore, the entire SR 120 roadway may require reconstruction for the pavement to achieve its full design life, and new lanes to be constructed for widening will require a thicker pavement section.

Once projected traffic volumes have been approved by GDOT and asphalt cores have been obtained, we can provide more specific recommendations.

5. PAVEMENT DISTRESSES

The following distresses were encountered during the field investigation of this project:

Load Cracking On Parsons Road, Levels 2 and 3 load cracking was observed from station 32+00 to 40+00.

On SR 141, Levels 2 and 3 load cracking was observed from station 63+00 to 73+00.

Block/ Transverse Cracking On SR 120, within Gwinnett County, Level 1 block/ transverse cracking was observed within this entire section, station 107+00 to 157+00. Level 2 cracking was observed from 128+00 to 132+00.

On Parsons Road, Level 2 cracking was observed from station 32+00 to 40+00.

PRELIMINARY PAVEMENT EVALUATION SUMMARY

For
STP00-0189-01(010) Fulton, Gwinnett Counties
PI No. 721000

On SR 141, Levels 2 and 3 cracking was observed from 63+00 to 73+00. Level 1 cracking was observed from 53+00 to 63+00.

Level 1 block/transverse cracking was observed on Boles Road.

Edge Distress On SR 141 near the intersection of Bell Road, Level 3 edge cracking was observed where trucks appear to have pulled off the road. These truck movements can lead to edge cracking or shoulder drop-offs and may contribute to further deterioration of the pavement. There may also be potential base failure occurring in this area.

Level 1 edge cracking was observed on Parsons Road from station 36+00 to 40+00.

6. CORES

Cores will be obtained at a future date and are not included in this preliminary report.

7. COPACES

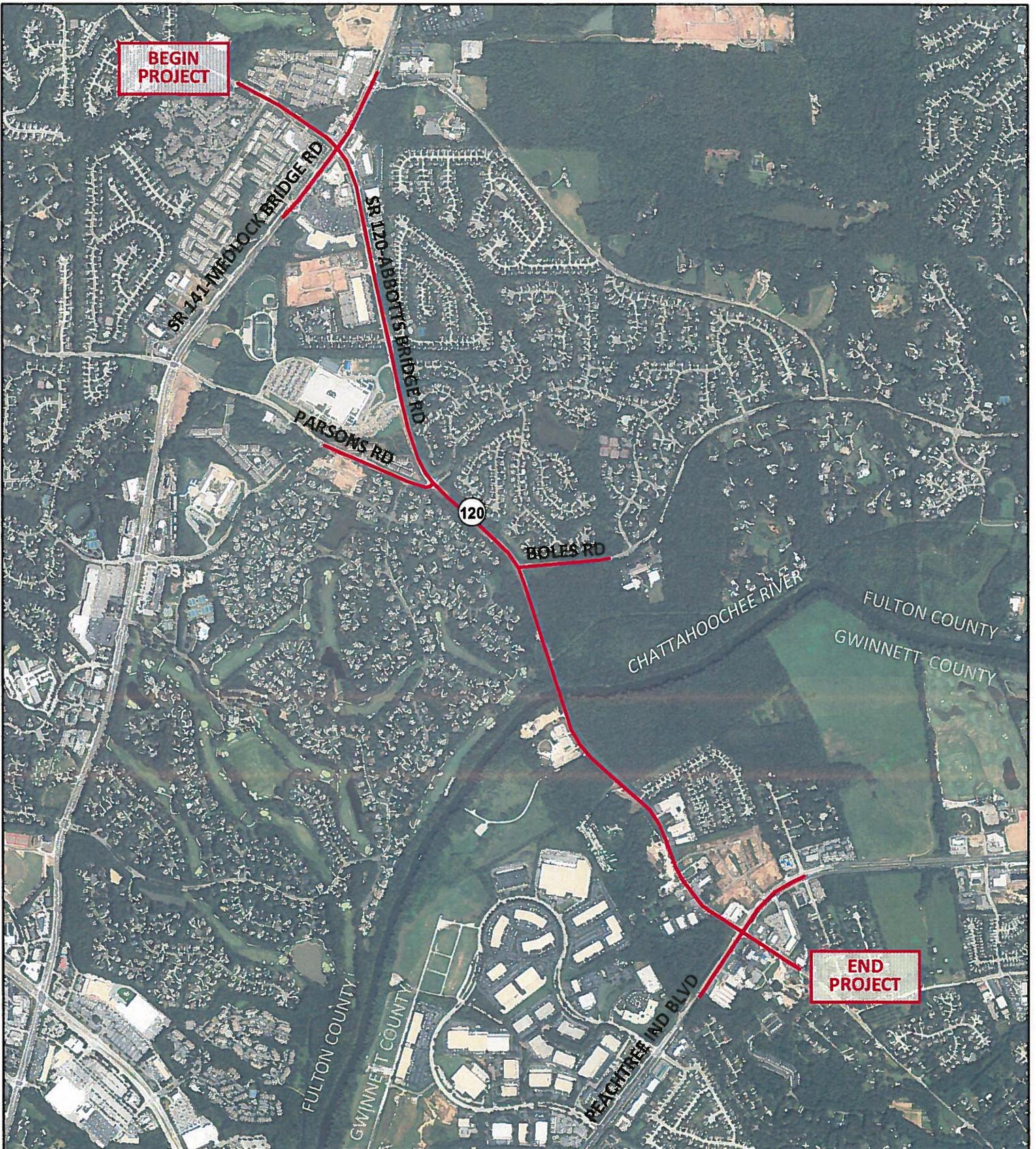
COPACES ratings are based on a visual survey of surface distresses of the pavement. In 2013, the average rating for SR 120 within Fulton County was 52. This information was provided by Tony Addis of District 7 Maintenance.

COPACES data is not available for County roads, and we do not have access to the ratings for the remaining state roads. Therefore, this information is not included with this report.

Matthew Wells
Prepared By: Matthew Wells, EIT

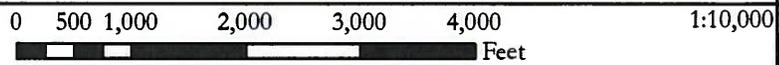
Reported By: Randall L. Bagwell, P.E.





Project Location Map

SR 120 Improvements
 GDOT Project STP00-0189-01(010), P.I. No. 721000
 Fulton and Gwinnett counties, Georgia



NRCS: USDA Topographic map, Fulton County, GA

Figure

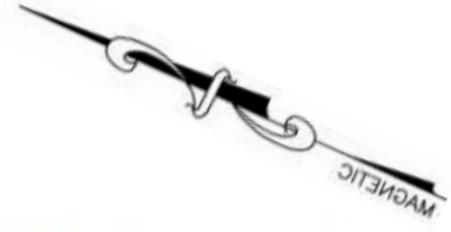
1



MULKEY ENGINEERING & CONSULTANTS
 SR 120 Widening and Reconstruction
 Fulton and Gwinnett Counties, Georgia
 NOVA Project Number 2014015



SITE LOCATION PLAN A



SCALE: 1" = 100'

SR 120



MULKEY ENGINEERING & CONSULTANTS
SR 120 Widening and Reconstruction
Fulton and Gwinnett Counties, Georgia
NOVA Project Number 2014015



SITE LOCATION PLAN B

MULKEY ENGINEERING & CONSULTANTS
SR 120 WIDENING & RECONSTRUCTION
Fulton and Gwinnett Counties, Georgia
NOVA Project 2014015



Photograph 1: Level 1 block/transverse cracking on SR 120, observed from 107+00 to 157+00.



Photograph 2: Level 1 block/transverse cracking on SR 120, observed from 107+00 to 157+00.

MULKEY ENGINEERING & CONSULTANTS
SR 120 WIDENING & RECONSTRUCTION
Fulton and Gwinnett Counties, Georgia
NOVA Project 2014015



Photograph 3: Level 2 block/transverse cracking on SR 120, observed from 128+00 to 132+00.



Photograph 4: Level 1 edge cracking observed on Parsons Road.

MULKEY ENGINEERING & CONSULTANTS
SR 120 WIDENING & RECONSTRUCTION
Fulton and Gwinnett Counties, Georgia
NOVA Project 2014015



Photograph 5: Level 3 load cracking observed on Parsons Road.



Photograph 6: Level 2 block/transverse cracking observed on Parsons Road.

MULKEY ENGINEERING & CONSULTANTS
SR 120 WIDENING & RECONSTRUCTION
Fulton and Gwinnett Counties, Georgia
NOVA Project 2014015



Photograph 7: New HMA overlay observed, near SR 141/ Medlock Bridge Parkway intersection.



Photograph 8: Level 3 load cracking observed near SR 120/ SR 141 intersection.

MULKEY ENGINEERING & CONSULTANTS
SR 120 WIDENING & RECONSTRUCTION
Fulton and Gwinnett Counties, Georgia
NOVA Project 2014015



Photograph 9: Level 3 block/ transverse block cracking observed on SR 141.



Photograph 10: Level 3 edge distress and potential base failure observed near intersection of SR 141 and Bell Road.

Flexible Pavement Design Analysis

PI Number	7210000	County(s)	Gwinnett & Fulton (north)
Project Number	STP00-0189-01(010)	Design Name	SR 120 widening, Fulton Co.
Project Description	SR 120 Widening from Medlock Bridge Road to Chatt. River (Fulton Co. portion)		

Traffic Data (AADTs are one-way)					Miscellaneous Data		
Initial Design Year	2022	Initial AADT, VPD	23,250	24 Hour Truck %	6.00	Lanes in one direction	2
Final Design Year	2042	Final AADT, VPD	33,250	SU Truck %	3.50	Curb & Gutter/Barrier	Yes
		Mean AADT, VPD	28,250	MU Truck %	2.50		

Design Data					
Lane Distribution Factor (%)	80.00	Soil Support Value	2.00	Single Unit ESAL	0.40
Terminal Serviceability Index	2.50	Regional Factor	1.80	Multiple Unit ESAL	1.50
		User Defined 18-KIP ESAL	0.00	Calculated 18-KIP ESAL	0.86
Non-Standard Value Comment					

Design Loading (Calculated 18-KIP ESAL)					
Mean AADT, VPD	LDF (%)	Vehicle Type	Volume (%)	ESAL Factor	Daily ESAL
28,250	80.00	Single Unit Truck	3.50	0.40	317
		Multi Unit Truck	2.50	1.50	848
Total Daily ESALs					1,165
Total Design Period ESALs					8,504,500

Proposed Flexible Full Depth Pavement Structure				
Course	Material	Thickness (inches)	Structural Coefficient	Structural Value
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
		6.00	0.3000	1.80
Course 4	Graded Aggregate Base	12.00	0.1600	1.92
Required SN	6.57	Proposed pavement is 13.24% Underdesigned		Proposed SN
				5.70

Design Remarks	
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Prepared By Matthew Welb / JW 6/30/2014 12:34 PM
NOVA Engineering: Staff Engineer **Date**

Recommended By _____ **Date**
Consultant Design Phase Leader

Approved By _____ **Date**
State Pavement Engineer

Flexible Pavement Design Analysis

PI Number	7210000	County(s)	Gwinnett & Fulton (north)
Project Number	STP00-0189-01(010)	Design Name	SR 120 widening, Gwinnett Co
Project Description	SR 120 Widening from Medlock Bridge Road to Chatt. River (Gwinnett Co. portion)		

Traffic Data (AADTs are one-way)					Miscellaneous Data		
Initial Design Year	2022	Initial AADT, VPD	23,250	24 Hour Truck %	6.00	Lanes in one direction	2
Final Design Year	2042	Final AADT, VPD	33,250	SU Truck %	3.50	Curb & Gutter/Barrier	Yes
		Mean AADT, VPD	28,250	MU Truck %	2.50		

Design Data					
Lane Distribution Factor (%)	80.00	Soil Support Value	2.50	Single Unit ESAL	0.40
Terminal Serviceability Index	2.50	Regional Factor	1.80	Multiple Unit ESAL	1.50
		User Defined 18-KIP ESAL	0.00	Calculated 18-KIP ESAL	0.86
Non-Standard Value Comment					

Design Loading (Calculated 18-KIP ESAL)					
Mean AADT, VPD	LDF (%)	Vehicle Type	Volume (%)	ESAL Factor	Daily ESAL
28,250	80.00	Single Unit Truck	3.50	0.40	317
		Multi Unit Truck	2.50	1.50	848
Total Daily ESALs					1,165
Total Design Period ESALs					8,504,500

Proposed Flexible Full Depth Pavement Structure				
Course	Material	Thickness (inches)	Structural Coefficient	Structural Value
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
		6.00	0.3000	1.80
Course 4	Graded Aggregate Base	12.00	0.1600	1.92
Required SN	6.21	Proposed pavement is 8.21% Underdesigned		Proposed SN
				5.70

Design Remarks	
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Prepared By Matthew Wells  6/30/2014 12:42 PM
NOVA Engineering: Staff Engineer **Date**

Recommended By _____ **Date**
Consultant Design Phase Leader

Approved By _____ **Date**
State Pavement Engineer

Flexible Pavement Design Analysis

PI Number	7210000	County(s)	Fulton (north) & Gwinnett
Project Number	STP00-0189-01(010)	Design Name	Concept Overlay Design
Project Description	SR 120 Widening from SR 141 / Medlock Bridge Road to Peachtree Industrial Blvd.		

Traffic Data (AADTs are one-way)						Miscellaneous Data	
Initial Design Year	2022	Initial AADT, VPD	23,250	24 Hour Truck %	6.00	Lanes in one direction	2
Final Design Year	2042	Final AADT, VPD	33,250	SU Truck %	3.50	Curb & Gutter/Barrier	Yes
		Mean AADT, VPD	28,250	MU Truck %	2.50	Milling Depth (inches)	1.50

Design Data					
Lane Distribution Factor (%)	80.00	Soil Support Value	2.00	Single Unit ESAL	0.40
Terminal Serviceability Index	2.50	Regional Factor	1.80	Multiple Unit ESAL	1.50
		User Defined 18-KIP ESAL	0.00	Calculated 18-KIP ESAL	0.86
Non-Standard Value Comment					

Design Loading (Calculated 18-KIP ESAL)					
Mean AADT, VPD	LDF (%)	Vehicle Type	Volume (%)	ESAL Factor	Daily ESAL
28,250	80.00	Single Unit Truck	3.50	0.40	317
		Multi Unit Truck	2.50	1.50	848
Total Daily ESALs					1,165
Total Design Period ESALs					8,504,500

Proposed Flexible Overlay Pavement Structure					
Course	Material	Thickness (inches)	Structural Coefficient	Structural Value	
Overlay 1	12.5 mm Superpave	1.50	0.4400	0.66	
Overlay 2	19 mm Superpave	3.00	0.4400	1.32	
		1.00	0.3000	0.30	
Existing 1	Asphaltic Concrete	7.00	0.3000	2.10	
Existing 2	Graded Aggregate Base	12.00	0.1600	1.92	
Required SN	6.57	Proposed pavement is 4.10% Underdesigned		Proposed SN	6.30

Design Remarks	
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Prepared By	Alexander Stone, PE	1/28/2015 4:19 PM
	_____	Date
Recommended By	Consultant Design Phase Leader	Date
	_____	Date
Approved By	State Pavement Engineer	Date
	_____	Date

Flexible Pavement Design Analysis

PI Number	7210000	County(s)	Fulton (north) & Gwinnett
Project Number	STP00-0189-01(010)	Design Name	Concept Overlay Design
Project Description	SR 120 Widening from SR 141 / Medlock Bridge Road to Peachtree Industrial Blvd.		

Traffic Data (AADTs are one-way)						Miscellaneous Data	
Initial Design Year	2022	Initial AADT, VPD	23,250	24 Hour Truck %	6.00	Lanes in one direction	2
Final Design Year	2042	Final AADT, VPD	33,250	SU Truck %	3.50	Curb & Gutter/Barrier	Yes
		Mean AADT, VPD	28,250	MU Truck %	2.50	Milling Depth (inches)	1.50

Design Data					
Lane Distribution Factor (%)	80.00	Soil Support Value	2.00	Single Unit ESAL	0.40
Terminal Serviceability Index	2.50	Regional Factor	1.80	Multiple Unit ESAL	1.50
		User Defined 18-KIP ESAL	0.00	Calculated 18-KIP ESAL	0.86
Non-Standard Value Comment					

Design Loading (Calculated 18-KIP ESAL)					
Mean AADT, VPD	LDF (%)	Vehicle Type	Volume (%)	ESAL Factor	Daily ESAL
28,250	80.00	Single Unit Truck	3.50	0.40	317
		Multi Unit Truck	2.50	1.50	848
Total Daily ESALs					1,165
Total Design Period ESALs					8,504,500

Proposed Flexible Overlay Pavement Structure				
Course	Material	Thickness (inches)	Structural Coefficient	Structural Value
Overlay 1	12.5 mm Superpave	1.50	0.4400	0.66
Overlay 2	19 mm Superpave	3.00	0.4400	1.32
		1.00	0.3000	0.30
Existing 1	Asphaltic Concrete	9.50	0.3000	2.85
Existing 2	Graded Aggregate Base	8.00	0.1600	1.28
Required SN	6.57	Proposed pavement is 2.43% Underdesigned		Proposed SN 6.41

Design Remarks	
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Prepared By	Alexander Stone, PE	1/28/2015 4:20 PM
	_____	Date
Recommended By	Consultant Design Phase Leader	Date
	_____	Date
Approved By	State Pavement Engineer	Date
	_____	Date

DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

DATE Mar 5, 2015

FROM District Utilities Engineer

TO State Utilities Engineer

SUBJECT Utility Risk Management Plan

Project Number STP00-0189-01(010)

PI Number 721000

County FULTON & GWINNETT

Check the Recommendation that Applies:

- Recommendation from Concept Team Meeting
- Recommendation from Preliminary Field Plan Review Team Meeting
- Recommendation from Final Field Plan Review Meeting

From the above noted Team Meeting, the Subject Matter Experts have utilized the Public Interest Determination Policy on the referenced project and recommend the following Utility Risk Management Plan:

Check the Risk Management Plan that Applies:

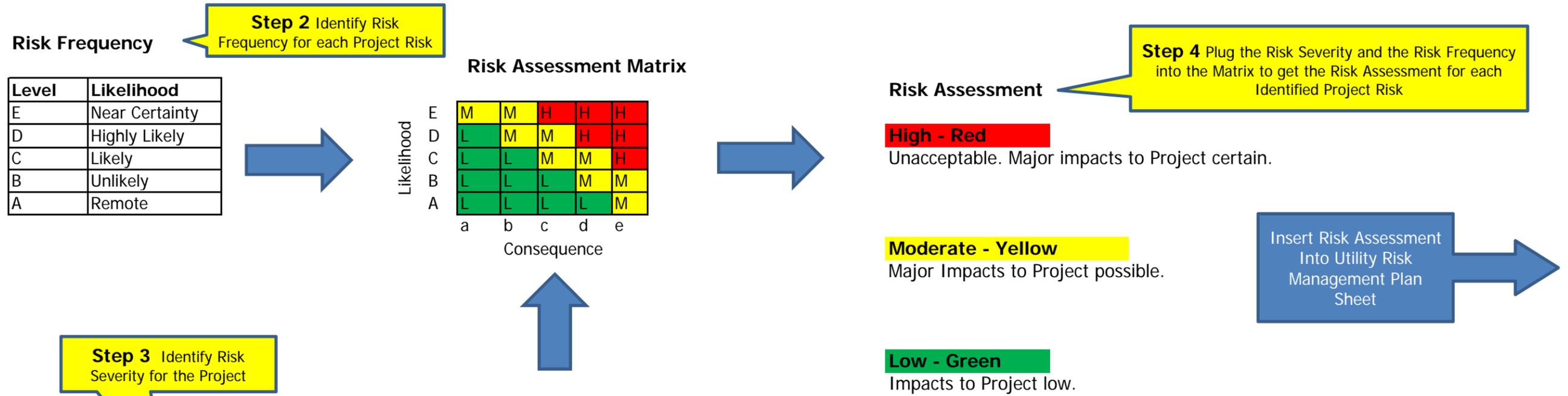
- Through risk identification, analysis, and assessment, the Team has established that there is a high risk assessment associated with the project and 3rd Party involvement and recommends that, in the best interest of the public and in order to expedite the staging of the project, the Department participate in the costs associated with the relocation, removal, and adjustment of the utility facilities and to include the work in the construction project. The Team's recommended Utility Risk Management Plan is Risk Avoidance. **Therefore, please review and forward this request as a Public Interest Determination Recommendation to the Office of the Chief Engineer for its review and action.**
- Through risk identification, analysis, and assessment, the Team has established that there is a moderate risk assessment associated with the project and 3rd Party involvement and recommends that, in the best interest of the public and in order to expedite the staging of the project, the Department consider participating in the costs associated with the relocation, removal, and adjustment of the utility facilities and to consider including the work in the construction project. This recommendation may also include considerations for addressing certain utility facilities on the project that may present higher risks than other utility facilities. The Teams recommended Utility Risk Management Plan is Risk Avoidance. **Therefore, please review and forward this request as a Public Interest Determination Recommendation to the Office of the Chief Engineer for its review and action.**

- Through risk identification, analysis, and assessment, the Team has established that there is a moderate risk assessment associated with the project and 3rd Party involvement, and recommends that the Department accept the identified risks and not participate in the costs associated with the relocation, removal, and adjustment of the utility facilities and not include the work in the construction project. The Teams recommended Utility Risk Management Plan is Risk Acceptance.

- Through risk identification, analysis, and assessment, the Team has established that there is a low risk assessment associated with the project and 3rd Party involvement, and recommends that the Department accept the identified risks and not participate in the cost associated with the relocation, removal, and adjustment of the utility facilities and not to include the work in the construction project. The Team's recommended Utility Risk Management Plan is Risk Acceptance.

Attachment - Utility Risk Management Plan

RISK MATRIX



Level	Budget, Schedule, Scope & Staging			*Increase (%)
a	Very Low	No Impacts	No utility relocation/adjustment required, complexity of project is low	0
b	Low	Minimal Impacts	Some utility relocation/adjustment required, complexity of project is low	1-5
c	Medium	Moderate Impacts	Moderate amount of utility relocation/adjustment required, complexity of project is medium	6-10
d	High	Major Impacts	Moderate amount of utility relocation/adjustment required, complexity of project is high	11-25
e	Very High	Severe Impacts	Major amount of utility relocation/adjustment required, complexity of project is high	26 +

**Negative Impact (%) to Project's Objectives - Budget, Schedule, Scope, and Staging*

The Process

Step 1 - Risk Identification

The Subject Matter Experts (SME) on the Team brainstorm to identify and build a list of Risks to the Project's Scope, Schedule, Budget, and Staging. These risks should be documented on the Risk Summary Page under the corresponding headings. If needed, use the Extra Risk Summary Sheet. Remember, these are risks to the Project if the third party (utility) performs the utility relocation work.

Step 2 - Risk Frequency

The SME's identify the risk frequency of each identified risk -Identify the likelihood of the Risk occurring. This is documented on the Risk Summary Sheet.

Step 3 - Risk Severity

The SME's identify the Risk Severity for the Project and then document for each identified risk on the Risk Summary Sheet. Typically, this level will remain constant for a given project. This is the potential consequence and impact to a project's budget, schedule, scope, and staging if a 3rd party (utility) performs the utility relocation work.

Step 4 - Risk Assessment

The SME's will plug the Risk Frequency from Step 2 and Risk Severity from Step 3 into the Risk Assessment Matrix to get the Risk Assessment for each identified Risk. The Risk Assessment for each identified risk is documented on the Risk Summary Sheet.

Step 5 - Risk Management Plan

The SME's will summarize all of the Risk Assessments from Step 4 and will collaborate to recommend a Utility Risk Management Plan for the Project. The Utility Risk Management Plan will be either Risk Avoidance (Moderate to High Assessments) or Risk Acceptance (Low to Moderate Assessments). The number and type of assessments should be considered and weighed, depending on category, to determine the Utility Risk Management Plan. A majority of high assessments should yield a Utility Risk Management Plan of Risk Avoidance. A majority of low assessments should yield a Utility Risk Management Plan of Risk Acceptance. A Project with a range of assessments will require consideration by the SME's of the risks, assessments, and category weights.

UTILITY RISK MANAGEMENT PLAN

*Project Information **STP00-0189-01(010) Fulton/Gwinnett County 721000 - SR 12**

(*Proj No, County, PI No.)

1. Risk Identification

Project Scope - **10%** (Consider Specific Risks to the Project's Scope if the 3rd Party Performs the Utility Relocation Work)

Delay in Project Feature Implementation (i.e. Typical Section, Drainage, Structures)
Delay in Change Order Implementation
Project Location (Urban or Rural)
Utility Scope of Work (incl number and type of utilities)
Other Risks:

Risk Analysis and Assessment		
2. Risk Frequency	3. Risk Severity	4. Risk Assessment
Remote - Near Certainty	Very Low - Very High	High, Moderate, or Low

Team Comments to Support Assessment

LIKELY	MEDIUM	MODERATE	
UNLIKELY	MEDIUM	LOW	
UNLIKELY	MEDIUM	LOW	
LIKELY	MEDIUM	MODERATE	13 UTILITY COMPANIES BELIEVED TO HAVE FACILITIES WITHIN THE PROJECT

Project Schedule - **20%** (Consider Specific Risks to the Project's Schedule if the 3rd Party Performs the Utility Relocation Work)

Delays to Construction Schedule (Overall and Intermediate Completion Dates)
Delay Claim by Contractor
Delay in 3rd Party Material/Equipment/Labor
3rd Party Responsibility during Force Majeure Events
Different, or Change in, Site Conditions
Past History of 3rd Party (Delays to Past GDOT Projects?)
Other Risks:
Seasonal limitations

HIGHLY LIKELY	MEDIUM	MODERATE	SEVERAL AERIAL COMPANIES - SCHEDULING TRANSFERS & SERVICE OUTAGES
HIGHLY LIKELY	MEDIUM	MODERATE	SEVERAL AERIAL COMPANIES - SCHEDULING TRANSFERS & SERVICE OUTAGES
LIKELY	MEDIUM	MODERATE	
UNLIKELY	MEDIUM	LOW	
UNLIKELY	MEDIUM	LOW	
LIKELY	MEDIUM	MODERATE	AT&T/BELLSOUTH
UNLIKELY	MEDIUM	LOW	

Project Budget - **20%** (Consider Specific Risks to the Project's Budget if the 3rd Party Performs the Utility Relocation Work)

Damage or Delay Costs to GDOT or Contractor
Delay Claim by Contractor
Delay in 3rd Party Material/Equipment/Labor and Force Majeure
Different, or Change in, Site Conditions
Past History of 3rd Party (Overruns to Past GDOT Projects?)
Other Risks:

LIKELY	MEDIUM	MODERATE	
LIKELY	MEDIUM	MODERATE	
LIKELY	MEDIUM	MODERATE	
UNLIKELY	MEDIUM	LOW	
UNLIKELY	MEDIUM	LOW	

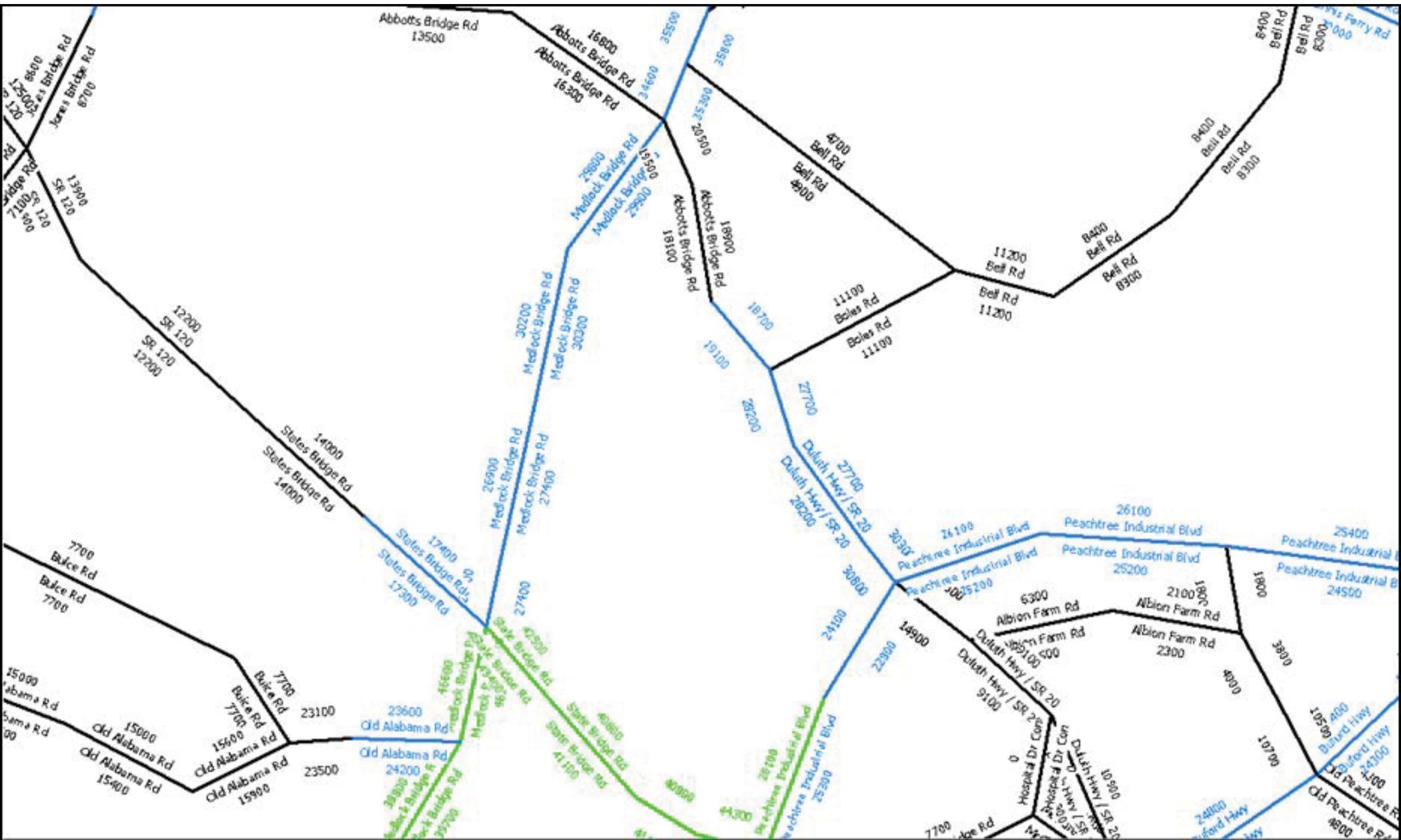
Project Staging - **50%** (Consider Specific Risks to the Project's Staging if the 3rd Party Performs the Utility Relocation Work - Consider Scope/Complexity of the Project)

Delay to Staging Implementation
3rd Party Delays due to Force Majeure and Material/Equipment/Labor Availability
Other Risks:

LIKELY	MEDIUM	MODERATE	NUMBER OF UTILITY COMPANIES ON PROJECT
LIKELY	MEDIUM	MODERATE	

5. UTILITY RISK MANAGEMENT PLAN: RISK AVOIDANCE OR RISK ACCEPTANCE

RISK ACCEPTANCE	MAKING THE ASSUMPTION THAT PROFILE CHANGES WILL BE HELD TO A MINIMUM AND STAGING FOR CONSTRUCTION WILL NOT BE COMPLEX, THE PRE CONCEPT MEETING ASSESSMENT IS RISK ACCEPTANCE
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Abbotts Bridge Rd
13500

Abbotts Bridge Rd
16800
Abbotts Bridge Rd
16300

Medlock Bridge Rd
78800
Medlock Bridge Rd
79200

Abbotts Bridge Rd
18100
Abbotts Bridge Rd
18600

Bell Rd
4700
Bell Rd
4900

Bales Rd
11100
Bales Rd
11100

Bell Rd
11200
Bell Rd
11200

Bell Rd
8400
Bell Rd
8300

Bell Rd
8400
Bell Rd
8300

Bell Rd
8400
Bell Rd
8300

Bell Rd
8300
Bell Rd
8300

SR 120
12200
SR 120
12200

States Bridge Rd
14000
States Bridge Rd
14000

States Bridge Rd
17400
States Bridge Rd
17300

Medlock Bridge Rd
30200
Medlock Bridge Rd
30300

Medlock Bridge Rd
26900
Medlock Bridge Rd
27400

States Bridge Rd
17400
States Bridge Rd
17300

States Bridge Rd
40200
States Bridge Rd
40800

States Bridge Rd
41100
States Bridge Rd
40800

Peachtree Industrial Blvd
28700
Peachtree Industrial Blvd
28200

Duluth Hwy / SR 20
27700
Duluth Hwy / SR 20
28200

Peachtree Industrial Blvd
30300
Peachtree Industrial Blvd
30800

Duluth Hwy / SR 20
24100
Duluth Hwy / SR 20
23900

Peachtree Industrial Blvd
26100
Peachtree Industrial Blvd
25200

Albion Farm Rd
6300
Albion Farm Rd
500

Albion Farm Rd
2100
Albion Farm Rd
2300

Peachtree Industrial Blvd
25400
Peachtree Industrial Blvd
24500

Peachtree Industrial Blvd
1800
Peachtree Industrial Blvd
1800

Bulce Rd
7700
Bulce Rd
7700

Old Alabama Rd
15600
Old Alabama Rd
15900

Old Alabama Rd
23100
Old Alabama Rd
23500

Old Alabama Rd
23600
Old Alabama Rd
24200

Medlock Bridge Rd
46600
Medlock Bridge Rd
47200

States Bridge Rd
40800
States Bridge Rd
41100

Peachtree Industrial Blvd
28700
Peachtree Industrial Blvd
28200

Peachtree Industrial Blvd
28700
Peachtree Industrial Blvd
28200

Duluth Hwy / SR 20
9100
Duluth Hwy / SR 20
9100

Duluth Hwy / SR 20
14900
Duluth Hwy / SR 20
14900

Albion Farm Rd
6300
Albion Farm Rd
500

Albion Farm Rd
2100
Albion Farm Rd
2300

Peachtree Industrial Blvd
25400
Peachtree Industrial Blvd
24500

Peachtree Industrial Blvd
1800
Peachtree Industrial Blvd
1800

Old Peachtree Rd
10700
Old Peachtree Rd
10700

Old Peachtree Rd
4800
Old Peachtree Rd
4800

Meeting Notes

SR 120 Improvements from Medlock Bridge Rd to Peachtree Industrial Blvd STP00-0189-01(010), P.I. No. 721000, Fulton and Gwinnett Counties

Meeting with City of Johns Creek

Location: Johns Creek City Hall

Date: March 12, 2014

Attendees:

Cindy Jenkins	City of Johns Creek	678.512.3269	Cindy.Jenkins@johnscreekga.gov
Tom Udell	City of Johns Creek	678.512.3200	tom.udell@johnscreekga.gov
Thomas Black	City of Johns Creek	678.512.3200	thomas.black@johnscreekga.gov
Chris Haggard	City of Johns Creek	678.512.3253	chris.haggard@johnscreekga.gov
Azimeye Abu	GDOT	404.631.1540	aabu@dot.ga.gov
Alex Stone	Mulkey	678.795.3615	astone@mulkeyinc.com
Britt Hennessey	Mulkey	678.795.3610	bhennessey@mulkeyinc.com

Alex Stone opened the meeting and said that the purpose of the meeting was to allow the City to voice their priorities and reiterate any issues from previous meetings.

Cindy Jenkins mentioned that the City is updating their Future Trail and Sidewalk Network Plan this summer to include multi-use trails / enhanced sidewalks on both sides of SR 120. They are in the process of updating their design on the SR 120 project from Jones Bridge to Parsons Road (west). These paths / sidewalks would include a larger buffer where feasible. The design is also using landscaping to soften the look of improvements along this corridor. There was a public meeting on the project 2 weeks ago – the City will provide the minutes from that meeting, as well as any public comments.

The City is in the process of getting Wolverton under contract for the SR 120 section between Parsons and SR 141. Alex stated that he would coordinate with Wolverton once they are under contract.

The City is procuring the design for the expansion of their ITS infrastructure. The City plans on finishing the design and having the interconnect constructed in the next two years. This system will cross the River and tie to the Gwinnett County ITS at Peachtree Industrial Blvd. They are concerned that this project would involve the demolition / relocation of these lines. The Mulkey team will need to coordinate with the City in order to minimize the amount of re-work.

Another City priority is to include boat ramp access to the west (Johns Creek) side of the river. As of right now, the north side would be a preferable spot to include a driveway and parking.

The City would also like to see a proposed bridge width that would not preclude a future widening to 6-lane facility. Alex stated that the project is not programmed for 6 lanes, but that GDOT would

Meeting Notes

SR 120 – GDOT PI No. 721000

Stakeholder meeting with City of Duluth and Gwinnett County

March 12, 2014

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discuss with FHWA regarding the additional bridge width. Considering the amount of traffic projected by the ARC model, it would make sense to at least discuss.

Alex stated that Wilburn Engineering is close to finishing their traffic counts. Based on the existing data and the projected yearly traffic increase, it can be assumed that the Logical Termini will be at Medlock Bridge and the argument should be straightforward.

Alex asked if there were any issues regarding additional access or signals that are necessary along the project corridor. The City did not think there were any additional signals necessary. However, Mr. Black mentioned that Mulkey should study whether it is feasible to design another entrance for St. Ives across from the Boles Road intersection. Alex said that they would use their mapping to determine if it was feasible.

Alex presented the proposed schedule and the programmed dates that would be updated in the next TIP revision. These dates were 2017 Right of Way and 2019 Construction. Mr. Black was concerned that this project needed to be completed as soon as possible as the existing conditions are unsafe and cannot handle the current traffic demands.

ACTION ITEMS:

City of Johns Creek will forward any public comments and meeting minutes from the SR 120 Public Meeting from early March.

Mulkey would investigate the feasibility of an additional St. Ives entrance across from Boles, and also meet with FHWA and GDOT to discuss the possibility of a bridge that would not preclude a 6-lane facility.

Meeting Notes**SR 120 Improvements from Medlock Bridge Rd to Peachtree Industrial Blvd
STP00-0189-01(010), P.I. No. 721000, Fulton and Gwinnett Counties**

Meeting with City of Duluth and Gwinnett County

Location: Duluth City Hall

Date: March 13, 2014

Attendees:

Melissa Muscato	City of Duluth	678.957.7284	mmuscato@duluthga.net
John Ray	Gwinnett County	770.822.7464	john.ray@gwinnettcountry.com
Azimeye Abu	GDOT	404.631.1540	aabu@dot.ga.gov
Alex Stone	Mulkey	678.795.3615	astone@mulkeyinc.com
Meredith Tredeau	Mulkey	678.795.3604	mtredeau@mulkeyinc.com

Alex Stone opened the meeting and provided an overview of the proposed project, which includes widening SR 120 from Medlock Bridge Road to Peachtree Industrial Boulevard. Alex explained that the project is currently programmed with Parsons Road as the western terminus, but that the terminus will be changed to Medlock Bridge Road in the next TIP modification. The project is programmed as widening from two to four lanes with a median, with right-of-way in 2017. An environmental assessment is being prepared. Alex stated that the project will tie into the recent Peachtree Industrial Boulevard improvements if possible.

Melissa Muscato asked what types of improvements are planned on SR 120 south of Peachtree Industrial Boulevard. The city is planning a multiuse trail on the north side of 120 from the new Hospital Parkway to Peachtree Industrial Boulevard. Alex indicated that the proposed project's scope includes complete streets with pedestrian and bicycle facilities. Melissa stated that extending north on 120 on the north side would tie into the city's trail. Alex stated improvements south of Peachtree Industrial Boulevard may include a median, and improved shoulders to accommodate the multiuse trail, noting that the GDOT standard shoulder is 16 feet. Alex also noted that John's Creek has expressed interest in having trail on both sides of the road.

Alex asked about the central city bikeway and if the project corridor was on a bike route. Melissa explained that the central city bikeway runs along Rogers Creek. As part of the county SPLOST program, they plan to add a bikeway on SR 120, and would like to fill in sidewalk gaps. Melissa indicated that curb and gutter exists on SR 120 all the way to Albion Farm.

Melissa mentioned that a developer had applied for a land disturbance permit for a new residential development (gated community with approx. 90 homes) at the corner of Peachtree Industrial Boulevard and SR 120 (currently a "pipe farm."). There are also several "dirt farms" along 120, such as the "\$10 tubing" across from the proposed residential development, as well as one right on the river, causing a stream buffer violation.

Meeting Notes

SR 120 – GDOT PI No. 721000

Stakeholder meeting with City of Duluth and Gwinnett County

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John Ray asked whether or not a PAR would be required since the maps show potential wetlands being impacted. Alex indicated that the Regional Permit (RP 96) limits have changed, now allowing a total of 3 acres of wetland impacts and 1500 feet if intermittent stream or 1000 feet of perennial stream impact.

John also asked whether or not the floodplain would be spanned. Alex stated that that would be determined during the hydraulics study.

Alex discussed the previous stakeholder meeting with the National Park Service, and that the main NPS concerns were maintaining access to the boat launch during the summer months, and treatment of the bridge. Melissa mentioned that the bridge on the NPS access road over Rogers Creek is failing, and that the city is considering replacement.

Melissa asked about the pipe coming from the Quicktrip under 120. Alex indicated the culvert may be extended, and that it is a state buffered water. Melissa also pointed out the AdCo property on the corner, and the severe erosion it's caused on Rogers Creek.

Alex asked if site plans are available for the planned gated community. Melissa said she will provide them. Meredith Tredeau asked if there are any other planned developments in the corridor, and Melissa indicated there are none. Meredith stated that noise contours for the undeveloped parcels will be provided from the noise study for compatible land use planning purposes.

John asked about erosion control measures and whether ponds will be necessary for water quality. Alex said it's possible. Alex noted that he thinks GDOT projects are exempt from the Metropolitan River Protection Act requirements. Melissa mentioned that the stormwater manual is currently being rewritten.

Melissa asked how wide the median will be, and whether not it would be green/grassed. Alex stated that the GDOT standard median width is 20 feet. Melissa indicated that the 120 corridor is one of Duluth's gateways, and they apply for gateway grants to landscape medians where possible. Alex stated it could likely be grassed.

Melissa also discussed how all new lights in the county have red left arrows, and that blinking yellow arrows are preferred where feasible. Mulkey will discuss this with our traffic lead.

Alex discussed locations of median openings, most likely at the park, Abbott's Pointe subdivision, and the new gated community. On the Johns Creek side of the project, median breaks are less of an issue because there are signals. Median breaks will be evaluated during concept development.

Melissa asked about plans for public meetings. Meredith stated that the public information open house is scheduled for sometime this fall; stakeholder meetings are underway now, and informal meetings with neighborhood groups may occur over the next few months depending on level of interest in the project. Melissa said she would check to see if there is an HOA for the Abbott's

Meeting Notes

SR 120 – GDOT PI No. 721000

Stakeholder meeting with City of Duluth and Gwinnett County

March 13, 2014

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Pointe subdivision, and offered use of City Hall for community meetings if needed. She also stated that the city's Korean task force is available to translate materials if needed.

Alex provided an overview of upcoming schedule milestones. Field teams will continue with resource surveys (Alex will provide copy of right of entry letter) and we will continue to engage stakeholders. The initial concept team meeting will be held within the next month. Alternatives development will focus on typical section, complete streets, medians, bike/ped, etc.

ACTION ITEMS:

City of Duluth will provide site plans for the planned residential development at the corner of PIB and SR 120.

City of Duluth will check to see if there is an HOA for the Abbott's Pointe subdivision.

Mulkey will provide a copy of the ROE letter to the city and county.

Mulkey will send a pdf of the project map to the county.



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MEETING MINUTES

STP00-0189-01(010)

Fulton/Gwinnett Counties

P.I. No.: 721000

SR 120 From SR 141/Medlock Bridge Road
to Peachtree Industrial Blvd.

File: 2006146.00

DATE: April 16, 2014 2:00 pm

SUBJECT: Initial Concept Team Meeting for the widening of SR 120

LOCATION: District Seven Office: Conference Room #144

Attendees:

- Melissa Muscato – City of Duluth
- Harold Mull – District 1 Design
- Steve Kelly – District 1 Traffic Operations
- Pete Hughes – Sawnee EMC
- Masood Shabazaz – Heath and Lineback
- Glenn Williams – So Deep
- Mac Cranford – District 7 Design
- Rachel Brown – District 7 Engineer
- Dan Moody – District 6 State Transportation Board
- James Harry – GDOT Construction
- Matt Sanders – GDOT Engineering Services
- Steve Adewale – GDOT Program Delivery
- Speedy Boutwell – Wilburn Engineering
- Vern Wilburn – Wilburn Engineering
- Drew Ritter – Wilburn Engineering
- Alex Stone – Mulkey Engineers – Consultant PM
- Austin Fuller – Mulkey Engineers
- Tish Stultz – Mulkey Engineers
- Cindy Jenkins – City of Johns Creek
- John Gay – Georgia Power
- Iris Hernandez – GDOT Office of Environmental Services
- Mike Lobdell – GDOT District 7 Traffic
- Scott Lee – GDOT District 7
- Barry Murray – GDOT District 7
- Adrienne Wise – GDOT District 7 ROW
- John Ray – Gwinnett DOT
- Shun Pringle – GDOT District 7
- Charles Ross - Comcast

- 1) **INTRODUCTIONS :** Azimeye announced the project and started introductions for the attendees. He stated that Mulkey is the Prime Consultant on the project and that their team members and subconsultants were in attendance to discuss the project. Alex Stone, Mulkey PM, then led the discussion.
- 2) **Project Description/ History** – Alex described the project as PI 721000, State Route 120 Abbotts Bridge Road, from Medlock Bridge Road in Johns Creek, east and south to

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Peachtree Industrial Boulevard, in Duluth / Gwinnett County. Currently the project in the TIP does not have the correct project description, and GDOT Planning is working to get the TIP amended. The programming dates are 2017 Right of Way and 2019 Construction. The original PI 721000 was a larger project running from Old Milton Parkway to PIB back in 1991, but over time the project is currently split into 4 different projects now, all sponsored by the City of Johns Creek. Cindy Jenkins with Johns Creek said that the City residents, as a whole, have been supportive of the current projects along the corridor.

- 3) **Project Justification** – Alex stated that the Revised Project Justification is included in the informational packet. This has been revised from the original Justification that was created by GDOT Planning.
- 4) **DESIGN CRITERIA** – Alex discussed the design criteria for the project.
 - a) Design Criteria –
 - (1) Functional Classification: Urban Minor Arterial
 - (2) Design Speed: 45 mph
 - (3) Emax: 4%
 - (4) R/W Width: Approx. 150 feet. District 7 Right-of-Way was concerned about if there were any possible Right-of-Way relocations. Alex responded that it was a good possibility, considering the scope of the project that there would be at least one relocation.
 - b) Typical Section – Alex stated there would be two-12-foot lanes in each direction and a raised median with curb and gutter and enhanced sidewalks / multi-use trails on one or both sides. Median width will vary as most intersections will have a double left turn in one or both directions. District Design was concerned about median width from SR 141 to the High School, as this area is fully developed and there could be significant property impacts, depending on the width of the typical section. Engineering Services was concerned also about the width of the section, if there are wide sidewalks / paths on both sides.
 - c) Bike / Pedestrians / Complete Streets:
 - i) Johns Creek – The City would prefer both sides of roadway to have multi-use trail or enhanced sidewalk. City would like to have boat ramp access on their side of the river. They also prefer decorative wall facing and fencing.
 - ii) Duluth – City would prefer north side of roadway to include multi-use trail, at a minimum. Western Gwinnett Bikeway (Multi-use trail) is partly complete (remaining under construction), along the west side of Peachtree Industrial Blvd, and Gwinnett County requested that the design incorporates this facility.
 - iii) Route is not a state bike route.
 - iv) Transit – GRTA Xpress Route on SR 141.
- 5) **Current Project Status and Discussion** – Alex summarized the work to date
 - a) Aerial Photos and mapping – complete
 - b) Mapping - complete



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SR 120 From SR 141/Medlock Bridge Road
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- c) SUE – Level D SUE is 85% complete
- d) Survey – Survey Control is complete. Will be submitted for approval this month. Property Database is 65% complete.
- e) Environmental – Alex presented the environmental progress to date and outstanding items that will be a challenge on the project. Steve said that it would be very important to ensure that ALL environmental resources are identified along the project corridor.
 - i) History – field surveys are complete and HRSR work is underway.
 - ii) Ecology – stream and wetland delineations will be completed later this month. See project layout maps (displayed) for current delineations and screening.
 - iii) PAR – Due to new Regional Conditions, a PAR / Individual Permit will not be necessary.
 - iv) Archaeology – will wait for preliminary design or final concept alignment.
 - v) UST's - will wait for preliminary design or final concept alignment.
 - vi) Public Involvement: Public Involvement Plan (PIP) – submitted to GDOT. Met with Stakeholders and National Park Service.
 - vii) Coordination with National Park Service
- f) Traffic Counts and Methodology – Speedy Boutwell with Wilburn Engineering (sub to Mulkey) presented a summary of their work to date: He is ready to submit their Traffic Methodology Memorandum to GDOT Planning this week. This will include traffic counts, existing and projected traffic diagrams, as well as accident data and tables. He summarized the overall traffic data, and stated that the volumes are very high for a 4-lane facility, and they are working on preliminary modeling to ensure the proposed intersections will be able to handle / improve compared to the 2040 no-build. He discussed the traffic shown on the sideroads. Parsons Road and Wilson Road is a major cut-through in lieu of travelling on SR 120 west to SR 141, and vice versa. Tom Udell confirmed that these roadways are used for this purpose. However, the City is not concerned about this as they have not received any negative feedback from residents along those roads. The high school and elementary school depend heavily on these roadways. Speedy stated that half the overall high school traffic uses Parsons Road and the other half uses SR 120. Alex mentioned that we will review alternatives for Boles and Parsons Road intersections – it is possible that the Parsons / SR 120 intersection will be adjusted to the west in order to reduce the skew of the intersection and the skew of the EB right turn onto SR 120. Tom Udell with Johns Creek mentioned that once their roundabout is completed, they would ask to have the speed limit on Boles reduced from 45 to 35.
- g) Bridge Design – Existing bridge data has been collected. Existing bridge deck survey has been requested. Masood Shabazaz stated that he will completed a Bridge Type Study for the project and that several factors will go into the analysis: Constructability, construction staging, maintenance of traffic, existing bridge conditions, coordination with National Park Service, existing foundations, impacts to the river and river boating traffic,

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and cost considerations. He said that having the deck survey in hand will help make the decision on whether to keep and widen the existing bridge or demolish the existing bridge and construct a new structure. Tish Stultz with Mulkey mentioned that it is possible to obtain a de minimis 4(f) if we only obtain easements from the NPS at the bridge; if there is Right of Way required, the 4(f) could be elevated and result in delays.

h) Utilities: Utility Owners along the project:

- i) AT&T
- ii) Comcast
- iii) Atlanta Gas Light
- iv) Georgia Power
- v) Sawnee EMC
- vi) Time Warner
- vii) Verizon Business
- viii) Zayo
- ix) Charter
- x) Fulton County Water and Sewer
- xi) Gwinnett County (water and sewer)

- i) Glenn Williams with So Deep (subconsultant to Mulkey) discussed the utilities on the project. He stated that he will be in charge of Utility Coordination, and Mulkey will handle the SUE for the project. He stated that the project is a candidate for the Public Interest Determination process, and that a meeting will need to be scheduled before the Concept Team Meeting to discuss further.

6) **COORDINATION / OUTSTANDING ISSUES** – Alex presented the coordination and meetings to date.

a) Meetings to date –

- (1) GDOT Kick Off Mtg – 12/3/14
- (2) GDOT SUE Kick Off Mtg - 4/17/14
- (3) Johns Creek Initial Stakeholder Meeting - 3/12/14
- (4) Duluth / Gwinnett Co. Initial Stakeholder Meeting - 3/13/14

b) Public Involvement –

- i) Stakeholder meetings with local municipalities held.
- ii) Meetings with local stakeholders will be commenced once we have developed some initial alternatives.
- iii) Initial meeting with National Park Service held 2/28/14.

7) Schedule – Alex presented the proposed schedule for the project:

- a) Concept Team Meeting – August 2014
- b) PIOH – October 2014
- c) Concept Approval – October 2014
- d) Begin Preliminary Plans – May 2015
- e) PFPR – May 2016
- f) EA Approved – January 2017



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- g) R/W Authorization – April 2017
- h) FFPR – February 2018
- i) Let – April 2019
- 8) General Discussion – Steve Adewale asked the group for feedback / comments:
 - a) Stakeholders – City of Duluth and Johns Creek reiterated their requests for enhanced sidewalks and multi-use trails, as well as miscellaneous aesthetic improvements to walls, mast arm poles, signage and fencing. Lighting has not been requested but they will review to see if this is something they would like to include.
 - b) Engineering Services – Matt Sanders was concerned about the width of the typical section, resulting in increased costs and impacts. Also he stated that he recommends that some hydrology analysis is completed in Concept in order to determine the proposed height of the bridge.
 - c) District Design – Stated that it will be difficult to keep the existing bridge, due to the age of the bridge, constructability, etc.
 - d) Utilities – Stated that if mast arms are used, this would preclude the use of joint use poles and cause more utility relocation work. Proposed lighting and multi-use paths could push utilities farther away from the urban shoulder.
 - e) Environmental – No comments.
 - f) Right of Way – District stated that coordination / acquisition of National Park Service land will be a challenge and will require additional time.
 - g) Construction – Ensure proposed Right of Way includes enough width to stage construct the project.



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MEETING MINUTES

STP00-0189-01(010)

Fulton/Gwinnett Counties

P.I. No.: 721000

SR 120 From SR 141/Medlock Bridge Road
to Peachtree Industrial Blvd.

File: 2013026.00

DATE: September 4, 2014 9:00 am
SUBJECT: SR 120 Widening – Alternatives Analysis Discussion
LOCATION: GDOT Room 407

Attendees:

- Kim Nesbitt – GDOT OPD – District 7 Program Manager
- Azimeye Abu – GDOT OPD – Project Manager
- Alex Stone - Mulkey
- Mike Lobdell – GDOT District 7 Traffic Engineer
- Scott Zehngraff – GDOT Assistant State Traffic Engineer
- Christina Barry – GDOT Traffic Operations
- Speedy Boutwell – Wilburn Engineers
- Vern Wilburn - Wilburn Engineers
- Drew Ritter – Wilburn Engineers
- Cindy Jenkins – City of Johns Creek
- Tom Black – City of Johns Creek
- Tom Udell – City of Johns Creek
- Neil Davis – Mulkey
- Tish Stultz – Mulkey

Minutes:

- Kim introduced the project and stated the purpose of the meeting and background. Traffic analysis would not support a passing LOS at the SR 120 intersections with PIB and SR 141, and thus the Mulkey team is here to summarize the intersection alternates, cost estimates, and benefit / cost results that have been developed to date.
- The attendees introduced themselves.
- Alex restated the purpose of the project in more detail and Mulkey's work to date.
- Vern Wilburn introduced the traffic projections and analysis results for each alternate considered in the Benefit / Cost Memorandum.
- Alex described each alternate considered, including the costs and impacts of each.
 - Tom Udell questioned whether the quadrant intersection took into account the economic losses of the Super H Mart and other retail developments that would be impacted by the project. Alex and Vern stated that only ROW acquisition costs were factored into the B/C memo.
 - Tom Udell also asked if Utility costs were factored into the B/C, in particular the transmission lines along SR 141. Alex stated that he thought that the utility costs would be similar for all alternatives.

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- Vern then discussed the Benefit / Cost Memorandum in detail.
 - Single-Point Urban Interchanges with grade separation are the only ones that provide acceptable LOS in the design year period.
 - The B/C Memo shows that the Quadrant intersection provides the best ratio at the SR 141 intersection, while the Continuous Flow Intersection (CFI) provides the best ratio at the PIB intersection.
 - Kim asked how Wilburn specifically calculated the travel times, and during which times it was calculated.
 - Vern stated that a network was developed for the AM, Midday, and PM Peak Hour for each alternative. The network was simulated using the *SimTraffic Program*. Each simulation was run five times for a 60-minute period. The travel times for the entire network were recorded during each run. The travel times were then averaged for the five runs.
- Kim stated asked City of Johns Creek what their original project justification was. If the City wants to solve the capacity issues, the project will need additional funding. However, if the justification is more than just capacity, and is more about safety, access control, complete streets, etc., then it could be possible to update the Justification statement and move forward with the base alternatives.
- Tom Udell – concerns about Parsons and Wilson traffic, and did this analysis take those corridors into account. Kim stated that Mulkey is scoped to handle the SR 120 corridor, and that they cannot expand past those limits to handle Wilson and Parsons downstream to SR 141. Tom stated that access / capacity across the river is a priority, and that the capacity of the bridge crossing is a big part of the need of the project regardless of the capacity of the intersection.
- Alex and Kim stated that updating the Justification statement to include more needs is a possible solution to avoid having to meet the intersection's capacity.
- Tom Udell mentioned that the peak hour is spreading into historical non-peak hours, and we need to show that this will improve congestion during non-peak hours as well. Kim said that we can show FHWA that we improve the intersections, although not to an acceptable LOS, but better than if we did nothing.
- Alex mentioned that even if we 6-laned PIB and SR 141, this would not solve the capacity issues. Tom Black said that they are trying to program a project to widen to six-lane SR 141. His main goal is to help his residents get to/from work, school, and other errands within the City limits. His concern is from a regional perspective and to give as many E/W commute options as possible.
- Alex said that his main concern is to make sure we have a viable project that we can get a NEPA document approved by the FHWA.
- Tom Black said that he is not that interested in these large intersection alternatives, he wants a project that can provide benefit without overrun of the programmed funding. He



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MEETING MINUTES

STP00-0189-01(010)

Fulton/Gwinnett Counties

P.I. No.: 721000

**SR 120 From SR 141/Medlock Bridge Road
to Peachtree Industrial Blvd.**

will continue to pursue funding along SR 141 to deal with the capacity issues along that corridor, as a separate project.

- Kim asked if the quad is a viable alternate. Tom Black said that we probably cannot sell this kind of alternative to the public. Kim suggested we show all the alternatives, but we go with the base alternative. Tom Black said that it would be good to show them to get positive feedback for the base alternate.
- Tom Udell stated that Parsons / Wilson act as a quadrant roadway if we improve that corridor as part of this project. He said that those corridors should be a part of this project. Kim said that if we adjust the project scope, we would have to reprogram this project, or the City would need to add a project, and it would set back the project by at least a year.
- The City is going to add a double left from Wilson Road to SR141 as a local project.
- The group decided that the scope of work will include the Wilson and Parsons Road intersection, thus mitigating the City's concerns about dealing with traffic on these side roads.
- Kim stated PI 721000 will use the base alternates, which will fail, but will justify the project for several other needs so that it minimizes capacity at the intersections.
- Alex then showed the group all the layouts for all the alternatives.
- Scott had concerns about the CFI layouts not having separated the right turn movements. By not showing the separate right turns, this could cause wrong-way safety issues. Thus, the concepts should show the separated right turns so as to not minimize the right of way impacts.
- The City had concerns about the CFI and Quadrant intersections, as these would be confusing to local drivers and would involve a lot of overhead signing.
- Scott said that he would like to see the base alternates that have the maximum turning movements, including triple lefts and double rights where warranted.
- Kim asked the group how the Public Involvement should proceed going forward. The consensus is that the team should show the public the concepts as a whole, and not to individual stakeholders. Options are to have one PIOH or have two separate ones, split by either business / residents, or Johns Creek / Duluth.
- Kim and Alex stated that a meeting with FHWA is first before we meet with the public.



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SR 120 From SR 141/Medlock Bridge Road
to Peachtree Industrial Blvd.

File: 2013026.00

DATE: March 5, 2015 9:00 am
SUBJECT: Concept Team Meeting for the widening of SR 120
LOCATION: District Seven Office : Conference Room #144

AGENDA:

- 1) **INTRODUCTIONS -**
- 2) **ROLES AND RESPONSIBILITIES –**
 - a) **GDOT Project Manager – Azimeye Abu**
 - b) **GDOT OES Project Manager – Aaron Burgess**
 - c) **Consultant Project Manager - Alex Stone – Mulkey Engineers and Consultants**
- 3) **DRAFT CONCEPT REPORT – QUESTIONS/COMMENTS**
 - a) Mac Cranford (GDOT District 7) asked why the transit standard warrants are not being met. Investigate whether a design variance will be required. Alex stated that he would check “yes” to meeting the transit warrants, since the project is not located along a transit corridor, and the existing GRTA Xpress bus stops along SR 141 are not being affected.
 - b) Alex Stone (Mulkey) advised NOVA completed preliminary pavement cores. The preliminary pavement cores recommend the use of asphalt. In areas where overlay is warranted, preliminary pavement designs recommend a 5 ½” asphalt overlay.
 - c) Masood Shabazaz (Health and Lineback) advised that Health and Lineback completed a Bridge Type Study with five bridge alternates. The preferred alternate (Alternate #4) is to construct a new bridge in two stages and remove the existing bridge after Stage 1 of the proposed bridge is constructed. The Bridge Type Study is included in the concept report.
 - d) Kim Nesbitt (GDOT) advised that a bridge condition survey has been completed and is included in the concept report.
 - e) Steve Sander (GDOT Engineering Services) recommended that dam water releases be carefully studied and incorporated into the use of any work bridges or other temporary structures needed to construct the new bridge. Careful study should be taken to ensure that temporary structures will not be washed away by dam water releases. Kim stated that these issues would be addressed in the Constructability Review during preliminary design.



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- f) Aaron Burgess (GDOT) was concerned about avoidance of 4(f), per Alex's comment regarding avoidance of environmental resources. He stated that it would be difficult to avoid 4(f) due to the National Park Service. Alex said that he would minimize impacts to the NPS but that there is no way to fully avoid their property and 4(f). Aaron also asked if there would be an off-site detour and it was stated that the project will be stage constructed and no off site detour will be required.
- g) Tom Black (City of Johns Creek) asked if the bridge could be designed to allow the addition of future utilities. The US Park Service may be more receptive to the new bridge if a water line could be added to the bridge. The old Rogers Bridge Rd truss bridge, located north of the proposed bridge, currently carries a 30" water line. Masood Shabazaz (Heath and Lineback) stated it should not be a problem to design the new bridge with the ability to carry future utilities.
- h) Ken Werho (GDOT TO) strongly advised to be consistent in the concept report regarding the use of "multi-trail" versus "enhanced sidewalk". Mulkey will coordinate with the City of Johns Creek and the City of Duluth on this issue, as well as research alternates on the proposed bridge to meet design requirements for each facility.
- i) John Ray (Gwinnett DOT) requested that Gwinnett County DOT ITS be added to the list of utility involvements. Mulkey to add City of Johns Creek and Gwinnett County as utility owners as they have ITS facilities within the project limits.
- j) Mac Cranford (GDOT District 7) asked that the concept report be revised to include lighting. A Roundabout Lighting Agreement/Commitment Letter has been received from the City of Johns Creek and Mulkey will include the letter in the concept report. The City of Johns Creek will request pedestrian lighting for the project.
- k) Ken Werho (GDOT TO) requested that an investigation be done to include a 4th leg to the roundabout to provide access to the high school. Tom Black mentioned that the grades are steep in this area and it might be difficult. Mulkey to investigate.
- m) Cindy Jenkins (City of Johns Creek) requested extending the multi-use trail to the US Park entrance on the south/east side of the Chattahoochee River.
- n) Glenn Williams (So-Deep) provided an overview of the Utility Risk Matrix. It is estimated that there are currently 13 utilities on the project. No major staging issues are anticipated. The risk assessment is moderate. The concept team concurred with the moderate risk assessment. It is recommend that the project proceed and allow utility owners to relocate with a permit. The project may include the relocation of a major transmission pole at the intersection of SR 120 and SR 141 but it may still be rated moderate. Rarely, only one pole is involved in a relocation. The transmission poles are on GDOT R/W. However, it is anticipated that Georgia Power will claim prior rights. There are no reimbursable utility costs at this time.
- o) Alex Stone (Mulkey) stated that the utility matrix will be revisited as part of preliminary plans.
- p) Kimberly Nesbitt (GDOT) stated utilities shall be placed on permanent easement, with the right to place utilities.



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- q) Alex Stone (Mulkey) stated that the roundabout at Parsons Rd/Wilson Road is feasible based on GDOT's Roundabout Analysis Tool. A peer review is required but will be done during preliminary design (the draft concept report has the no box checked).
- r) Kimberly Nesbitt (GDOT) anticipated a time frame of two months for the concept report to be approved.
- s) Alex Stone (Mulkey) stated that the traffic volumes warrant a median on SR 120 in front the string of businesses located on the south side of SR 120 approaching PIB. No parcel connectivity is planned as this would adversely impact the parking capacity of the businesses.
- t) Tom Black (City of Johns Creek) recommended that the Boles Road alignment be shifted east to avoid R/W impacts to the individual property owners located to the west of Boles Road. He advised it would be easier to deal with the one property owner, Woodward Academy, in this situation. Also it was advised by Tom Udell (City of Johns Creek) to adjust the intersection to remove the existing skew. Mulkey to investigate.
- u) Ken Werho (GDOT TO) suggested that work begin on coordinating construction times for Special Provision Section 150 (bus routes schedules, allowable contract work hours including night work times, etc.)
- w) Alex Stone (Mulkey) provided a brief overview of different intersection alternates for the Medlock Bridge and PIB/SR 120 intersections. The traffic study has not been sent to GDOT for approval; Mulkey will ensure that it is submitted.
- x) Alex Stone (Mulkey) stated that MS4 Mitigation areas are preliminary and that meeting MS4 requirements for this project may be challenging. The City of Johns Creek expressed concerns about a few of the proposed MS4 pond / infrastructure locations shown on the concept layout.
- y) Glenn Williams (So-Deep) stated that Mast Arm poles are proposed at intermediate signalized intersections between SR 141 and Peachtree Industrial Blvd. Traditional span wire is proposed for the SR 141 and PIB/SR 120 signalized intersections. Joint-use poles could be used in combination with utilities for the span wire intersections.
- z) Mac Cranford (D7 Preconstruction) said that the costs shown for the preferred alternate on Page 18 should match the cost information on Page 17.
- aa) Tom Udell (City of Johns Creek) stated concerns that the Right of Way estimate was low based on the \$250,000 per acre used for commercial property was lower than the \$400 to \$800,000 estimate in the first two rows of the calculation sheet.
- bb) The City of Johns Creek, as a follow up to the meeting, had these additional comments:
 - The new intersection at SR 141 / Medlock Bridge Road should evaluate the median noses to allow sufficient movement for double left movements; the current intersection is deficient, and the noses need to be pulled back.
 - This project is a Tier 1 Priority project as part of the North Fulton Comprehensive Transportation Plan, listed as VH101 on p.35.
 - Include the rock facing on the bridge parapet, see PI #0008751 Parsons Road over Johns Creek and PI #0008750 for examples.



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- 4) **PROJECT STATUS** –
- a) SUE – Level D SUE is 100% complete; Level B SUE is 35% complete.
 - b) Survey –Property Database is 100% complete. Survey database is at 85% complete.
 - c) Environmental –
 - i) History – field surveys are complete and HRSR work is complete. Surveys are waiting for approved concept before submitting for review and approval.
 - ii) Ecology – stream and wetland delineations completed. See Concept Layout for current delineations and screening.
 - iii) Permitting – NW 14 is applicable. Walls will be necessary to keep impacts under thresholds.
 - iv) Archaeology – will wait for preliminary design or final concept alignment.
 - v) UST's - will wait for preliminary design or final concept alignment.
 - vi) Public Involvement – Coordination with City of Duluth, Gwinnett County, National Park Service and City of Johns Creek to date. PIOH and additional public coordination will be scheduled after this meeting.
 - d) Traffic Data – Traffic Methodology has been approved, TE Report is complete, included in the Draft Concept Report.
 - e) Bridge Design – Bridge Type Study is complete and included in the Draft Concept Report.

Concept Team Meeting
3/5/15

Project
721000
SR 120 Widening

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January 28, 2015

Meg Pirkle
Chief Engineer
Georgia Department of Transportation
600 West Peachtree St. NW
Atlanta, GA 30308

Re: **P.I. #721000 SR 120 from Medlock Bridge to Peachtree Industrial**

Dear Ms. Pirkle,

State Route 120 corridor is an important east west regional corridor through the City of Johns Creek. There are four projects programmed along this corridor. These projects were initiated by the City of Johns Creek based on the North Fulton Comprehensive Transportation Plan, supported by the public and are a priority for our Council.

As part of PI#721000, the City would like to request that vehicular and pedestrian lighting be included along SR120 from Medlock Bridge to Peachtree Industrial Boulevard and that a roundabout be considered at the intersection Parson Road and Wilson Road. This intersection has a bad skew angle and is a bypass route for travelers heading from SR120/Abbotts Bridge Road south to SR141/ Medlock Bridge Road.

The City of Johns Creek agrees to participate in a formal Local Government Project Lighting Agreement for lighting along SR120/Abbotts Bridge from Medlock Bridge Road to the Chattahoochee River and any lighting needed along Parson Road / Wilson Road in the event that the roundabout is selected as the preferred concept alternative. The City would cover the electricity and the future maintenance for any lighting installed as part of PI#721000 within the city limits.

We appreciate all your hard work and effort to help keep the traffic moving. Thank you for considering our needs.

Sincerely,



Tom Black
Director of Public Works

Public Works