DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

Office of Innovative Program Delivery

TRANSPORTATION MANAGEMENT PLAN

P. I. Numbers: 110600
County: Gwinnett

DESIGN-BUILD PROJECT for

PI 110600 – The construction of Managed Lanes from Old Peachtree Road to Hamilton Mill Road for approximately 10 miles, and associated ITS improvements and advanced signage beginning 2 miles north and south of the project's limits on I-85.

Federal Route Number: I-85
State Route Number: SR 403

June 27, 2016

CWM CONTRACTING Co.

ARCADIS
Infrastructure - Water - Environment - Buildings

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LIST OF ABBREVIATIONS AND SYMBOLS

AASHTO – American Association of State Highway and Transportation Officials
AADT – Average Annual Daily Traffic
ADT – Average Daily Traffic
ARC – Atlanta Regional Commission
ATMS – Advanced Traffic Management System
ATSSA – American Traffic Safety Services Association
CBD – Commercial Business District
CD – Collector-Distributor
CFR – Code of Federal Regulations
CMAQ – Congestion Mitigation and Air Quality
CMS – Congestion Management System
DB – Design-Build
EML – Express Managed Lanes or Managed Lanes (ML)
FFPR – Final Field Plan Review
FHWA – Federal Highway Administration
FOS-Full Oversight
GDOT – Georgia Department of Transportation
GP – General Purpose
HERO – Highway Emergency Response Operators
HOV – High Occupancy Vehicle
IM – Interstate Maintenance
ITS – Intelligent Transportation Systems
LOS – Level of Service
LR – Long Range
MUTCD – Manual on Uniform Traffic Control Devices
NEPA-National Environmental Policy Act of 1969
NHS – National Highway System
PDP- Plan Development Process
PFPR – Preliminary Field Plan Review
PI – Public Information
PM- Project Manager
PS&Es – Plans, Specifications, and Estimates
RW – Right-of-Way
STP – Surface Transportation
TCP – Traffic Control Plan
TMA – Transportation Management Association
TMC – Transportation Management Center
TMP – Transportation Management Plan
TO – Transportation Operations
TOPPS – Transportation Online Policy & Procedure System
TTC – Temporary Traffic Control

VPD –Vehicles per Day
WTCS – Worksite Traffic Control Supervisor

TERMINOLOGY

Agency - A State or local highway agency or authority that receives Federal-aid highway funding.

Barriers - Guardrail, guiderail, cable barriers, median barriers, Jersey barriers (plus "F" shape, constant slope, vertical, and low profile barriers), barrier terminals, crash cushions, bridge rails, permanent water-filled barriers,* etc.

Breakaway devices: sign supports**, luminaire supports, motorist aid callboxes, (traffic signal poles and utility poles *when designed to be breakaway.)*

> * Water-filled barriers must redirect vehicles per NCHRP Report 350 barrier criteria. Longitudinal channelizing devices are tested like barriers and must meet the same test and evaluation criteria except vehicles may penetrate the line of channelizers. Some water-filled barriers are identical in appearance to longitudinal channelizing devices.
>
> ** Ground-mounted sign supports shall be crashworthy if within the clear zone whether they are permanent installations or only there for the duration of a construction project (or phase of a project.)

Engineering Study - The comprehensive analysis and evaluation of available pertinent information and the application of appropriate principles, Standards, Guidance, and practices as contained in the MUTCD and other sources, for the purpose of deciding upon the applicability, design, operation, or installation of a traffic control device. An engineering study shall be performed by an engineer, or by an individual working under the supervision of an engineer, through the application of procedures and criteria established by the engineer.

Exposure Control Measures = Traffic management strategies to avoid work zone crashes involving workers and motorized traffic by eliminating or reducing traffic through the work zone, or diverting traffic away from the work space.

Federal-aid Highway Project - Highway construction, maintenance, and utility projects funded in whole or in part with Federal-aid funds.

Highway Workers - Highway workers include, but are not limited to, personnel of the contractor, subcontractor, DOT, utilities, and law enforcement, performing work within the right-of-way of a transportation facility.

Mobility - For work zones, mobility pertains to moving road users efficiently through or around a work zone area with a minimum delay compared to baseline travel when no work zone is present, while not compromising the safety of highway workers or road users. The commonly used performance measures for the assessment of mobility include delay, speed, travel time and queue lengths.

Motorized Traffic - The motorized traveling public. This term does not include motorized construction or maintenance vehicles and equipment within the work space.

Other Traffic Control Measures - All strategies and temporary traffic controls other than Positive Protection Devices and Exposure Control Measures, but including uniformed law enforcement officers, used to reduce the risk of work zone crashes involving motorized traffic.

Positive Protection Devices - Devices that contain and/or redirect vehicles and meet the crashworthiness evaluation criteria contained in National Cooperative Highway Research Program (NCHRP) Report 350, Recommended Procedures for the Safety Performance Evaluation of Highway Features, 1993, Transportation Research Board, National Research Council.

Significant project - A significant project is one that, alone or in combination with other concurrent projects nearby is anticipated to cause sustained work zone impacts that are greater than what is considered tolerable based on agency policy and engineering judgment. All Interstate system projects within the boundaries of a designated Transportation Management Area (TMA) that occupy a location for more than three days with either intermittent or continuous lane closures shall be considered as significant projects.

TMA - A Transportation Management Area is an urbanized area with a population of more than 200,000 people. There are 5 TMAs in Georgia.

TMP - A Transportation Management Plan is comprised of a set of coordinated strategies to manage project work zone impacts and a description of how these strategies will be used to manage the work zone impacts of a project. The scope, content, and level of detail of a TMP may vary based on the anticipated work zone impacts of the project. The possible components of a TMP are TTC, TO, and PI. A TTC plan describes temporary traffic control measures and devices to be used for facilitating road users through a work zone or an incident area. The TTC plan shall either be a reference to specific TTC elements in the MUTCD, approved standard TTC plans, State transportation department TTC manual or be designed specifically for the project (specification 150, etc.). The TO component of the TMP includes the identification of strategies that will be used to mitigate impacts of the work zone on the operation and management of the transportation system within the work zone impact area. The PI component of the TMP includes communication strategies that seek to inform affected road users, the general public, area residences and businesses, and appropriate public entities about the project and the expected work zone impacts.

Visual barriers - Are barriers longitudinal to the roadway used to block the driver's view (e.g. the public's view) of work-zone activities that may distract from driving tasks or be a nuisance to the surrounding community. Installation of visual barriers depends on many factors such as accident experience, nighttime work requiring high-intensity lighting, or complaints from the public. Desirable characteristics of a work-zone visual barrier include: will not penetrate the passenger compartment or present undue risk to workers and other traffic when hit; performs in a predictable manner when hit; effectively blocks the driver's/public's view of work-zone activities; is resistant to vandalism and vehicle damage; and is easy to repair.

Work zone - The area of a roadway with construction, maintenance, or utility work activities. A work zone is typically marked by signs, channelizing devices, barriers, pavement markings, and/or work vehicles. It extends from the first warning sign or high-intensity rotating, flashing, oscillating, or strobe lights on a vehicle to the END ROAD WORK sign or the last TTC device.

Work zone impacts - A work zone impact is a deviation from the normal range of transportation system mobility and safety as a result of the presence of a work zone. The extent of the impacts may vary based on factors such as road classification, area type, and travel characteristics, type of work, temporal factors, and project complexity.

Work Zone Mobility - Work Zone is the ability to move road users efficiently through and around a work zone area with minimum delay compared to a baseline travel when no work zone is present.

Work Zone Safety - Safety is a representation of the level of exposure to potential hazards for users of transportation facilities and highway workers. For work zones, safety refers to minimizing potential hazards to travelers and highway workers in the vicinity of a work zone.

Work Zone Safety Management - The entire range of traffic management and control and highway safety strategies and devices used to avoid crashes in work zones that can lead to worker and road user injuries and fatalities, including Positive Protection Devices, Exposure Control Measures, and Other Traffic Control Measures.

EXECUTIVE SUMMARY

The I-85 Express Lanes project includes the construction of one dedicated northbound managed lane and one dedicated southbound managed lane from the end of the current HOT Lane system at Old Peachtree Rd. to Hamilton Mill Rd. in Gwinnett County. The project begins just north of Old Peachtree Road and extends to CR 134/Hamilton Mill Road for a total project length of approximately 10 miles. Intelligent transportation systems (ITS) infrastructure and advanced signage would extend approximately 2 miles both north and south of the project's limits. These proposed lanes will be adjacent to the existing general purpose lanes, following the same horizontal and vertical geometry throughout the most of the corridor. The northbound lane will diverge from the general purpose alignment as required to cross the I-985 interchange to eliminate the need for weaving of general purpose traffic with managed lane traffic. The managed lanes will be separated from the general purpose lanes by a paved buffer consisting of 2' or 2' plus a 12' future lane that will be striped out at completion of this project. Additional capacity improvements include the construction of one southbound auxiliary lane from SR 20 to SR 317 and one northbound auxiliary lane from SR 20 to the future Gravel Springs Rd. interchange exit ramp location.

The proposed lanes will be constructed in the median of the I-85 corridor. The current number of general purpose lanes will be maintained through construction and all proposed lanes will provide additional capacity to the corridor. From Old Peachtree Rd. to the I-985 interchange, the existing general purpose lanes will be shifted outward onto newly constructed pavement to allow the existing inside lanes to be converted to the managed lanes. From the I-985 interchange to Hamilton Mill Rd. the existing median has sufficient width to accommodate construction of the managed lanes, buffers and additional pavement required to accommodate the auxiliary lanes. Where auxiliary lanes are proposed, the existing general purpose lanes will be shifted towards the median onto newly constructed pavement to create the auxiliary lane adjacent to the current outside shoulder.

The following additional improvements are also proposed as part of the project:

- Replacement of the existing I-85 Southbound Bridge over I-985 to accommodate the existing 2 general purpose lanes, one added auxiliary lane and one added managed lane with a 2' buffer separation. This structure will also accommodate the future widening of I-985.
- A dedicated Northbound managed lane bridge crossing over I-985. This structure will also accommodate the future widening of I-985.
- Widening of the existing I-85 overpass bridges at SR 20 to accommodate the addition of one northbound managed lane and one southbound managed lane.
- Asphalt mill and overlay of the general purpose lanes to correct cross slope deficiencies.
- Installation of new ITS and tolling infrastructure.
- Installation of new signage.
- Installation of new sound barriers in accordance with the approved noise study.

SECTION 1 – TMP ROLES AND RESPONSIBILITIES

TMP Manager

John Hancock, State Construction Engineer

Stakeholder/Review Committee

Georgia Department of Transportation
Federal Highway Administration
Gwinnett County
C. W. Matthews Contracting Company, Inc.
ARCADIS

Approval Contact(s)

Harold Mull, District Construction Engineer

TMP Implementation Task Leaders

Will Cole, Project Engineer GDOT
Andrew Hoenig, Project Manager GDOT
Freddy Sumner, Construction Manager, C.W. Matthews Contracting Company, Inc.
Mike Nadolski, Traffic Engineering Manager, CWM
Julian Gibson, Worksite Traffic Control Supervisor, CWM
Traffic Control Foreman, Traffic Control Coordinator, CWM

TMP Monitors

Scott Frederick, Area 1 Engineer, Construction
Jason Dykes, Assistant District Construction Engineer
David Olson, District Traffic Engineer, District 1
Steve Kelly, District Traffic Operations Manager, District 1
Shane Giles, District Traffic Operations Manager, District 1[BT1]

Communications

Katie Strickland, District Communications Specialist

Emergency Contacts

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Harold Mull – District 1 Construction Engineer
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Katie Strickland – Government and Community Relations Manager
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Georgia Department of Transportation Traffic Management Center

HERO Unit Assistance for I-75 Only

Dial 511 and select option "1" to request HERO motorist assistance on I-75

Responsibilities

Traffic Engineering Manager

The DB Team will designate a qualified individual to serve as the Traffic Engineering Manager that will be responsible for the oversight and coordination of all components of the TMP. The position will also be responsible for preparing and any necessary revisions of the project TMP. The will oversee and review the creation of project specific traffic control plans and details. The Traffic Engineering Manager will be responsible for all coordination with GDOT and other members of the traffic management plan team.

Worksite Traffic Control Supervisor

The DB Team will designate a GDOT qualified individual as the Worksite Traffic Control Supervisor (WTCS) that will be responsible for safe and efficient passage of the traveling public through the project while under construction. The WTCS will have met all requirements specified in contract documents. The WTCS will be the single point of contact regarding traffic control issues for the project and will available at all requested times to address any traffic emergencies or concerns as they arise. Under the direct supervision of the Project Manager, the WTCS will have the responsibility of ensuring all aspects of the Traffic Management Plan as well as the corresponding detailed Traffic Control Plans implemented and maintained.

Traffic Control Coordinator

The Traffic Control Coordinator will be responsible for the work zone implementation of the project traffic control plan. This position will be under the direct supervision of the WTCS, and will assist in daily inspections of the worksite traffic control layout and devices. This position will be a GDOT certified work zone traffic control supervisor.

SECTION 2 - PROJECT DESCRIPTION

Project Background

As the northeastern Atlanta metropolitan area continues to grow, increased travel demands are placed on the existing roadway network. This trend is evident in the growing traffic volumes on the interstates. According to the ARC, 36% of the average daily vehicle miles traveled in the MPO was on interstates and freeways (*2010 Transportation Fact Book*, ARC, 2010). Travel demand is projected to increase throughout the northeastern portion of the Atlanta region as population and employment opportunities continue to increase over the next twenty years.

North of Old Peachtree Road, I-85 has a current (2014) AADT of 157,600 with four general purpose lanes in each direction. The volumes decrease to an AADT of 72,900 near Hamilton Mill Road and the typical section decreases to two general purpose lanes in each direction. North of Hamilton Mill the existing traffic drops 22% to 57,200 AADT. By 2038 traffic north of Old Peachtree Road is expected to increase to an AADT of 221,000; increase to 101,000 AADT near Hamilton Mill Road and 80,200 AADT north of Hamilton Mill Road.

In 2014, I-85 South at the SR 20 onramp is operating at LOS F in the AM. In the PM, I-85 northbound near the I-985 diverge operates at LOS E. By 2018 the southbound segment of I-85 from Hamilton Mill Road to Old Peachtree Road will function at a LOS D or worse in the morning (AM) and the northbound lanes from Old Peachtree Road to SR 20 will function at a LOS D or worse in the evening (PM). By 2038, the roadway segment between SR 317 to Old Peachtree Road will be at a D or worse in both directions for both the AM and PM.

Data provided from the State Road and Toll Authority (SRTA), operator of the adjacent HOT lane facility, for the existing HOT indicates that a majority of the trips in the existing HOT lane, both northbound and southbound, enter the lane at the starting point and exit at the ending point for the HOT lane. Approximately 57% of the drivers in the AM peak hour travel the full length of the HOT lane and 50% of the drives in the PM peak hour travel the full length of the HOT lane. These numbers suggest that there is a demand north of the existing HOT lane for current users of the HOT lane to enter and exit the HOT lane at a point north of the current lane's terminus.

This project will extend the Interstate 85 managed lanes from north of Old Peachtree Road to Hamilton Mill Road. The project is listed among the Tier 1 projects identified in the Atlanta Managed Lane System Plan (MLSP) and is included in the conforming Atlanta Regional Commission's Plan 2040 constrained Long-Range Transportation Plan and the FY2014-2019 Transportation Improvement Program (TIP). The project is also consistent with the December 10, 2009 State Transportation Board Resolution requiring new capacity on limited access facilities in the metro Atlanta area be managed lanes.

Project Type

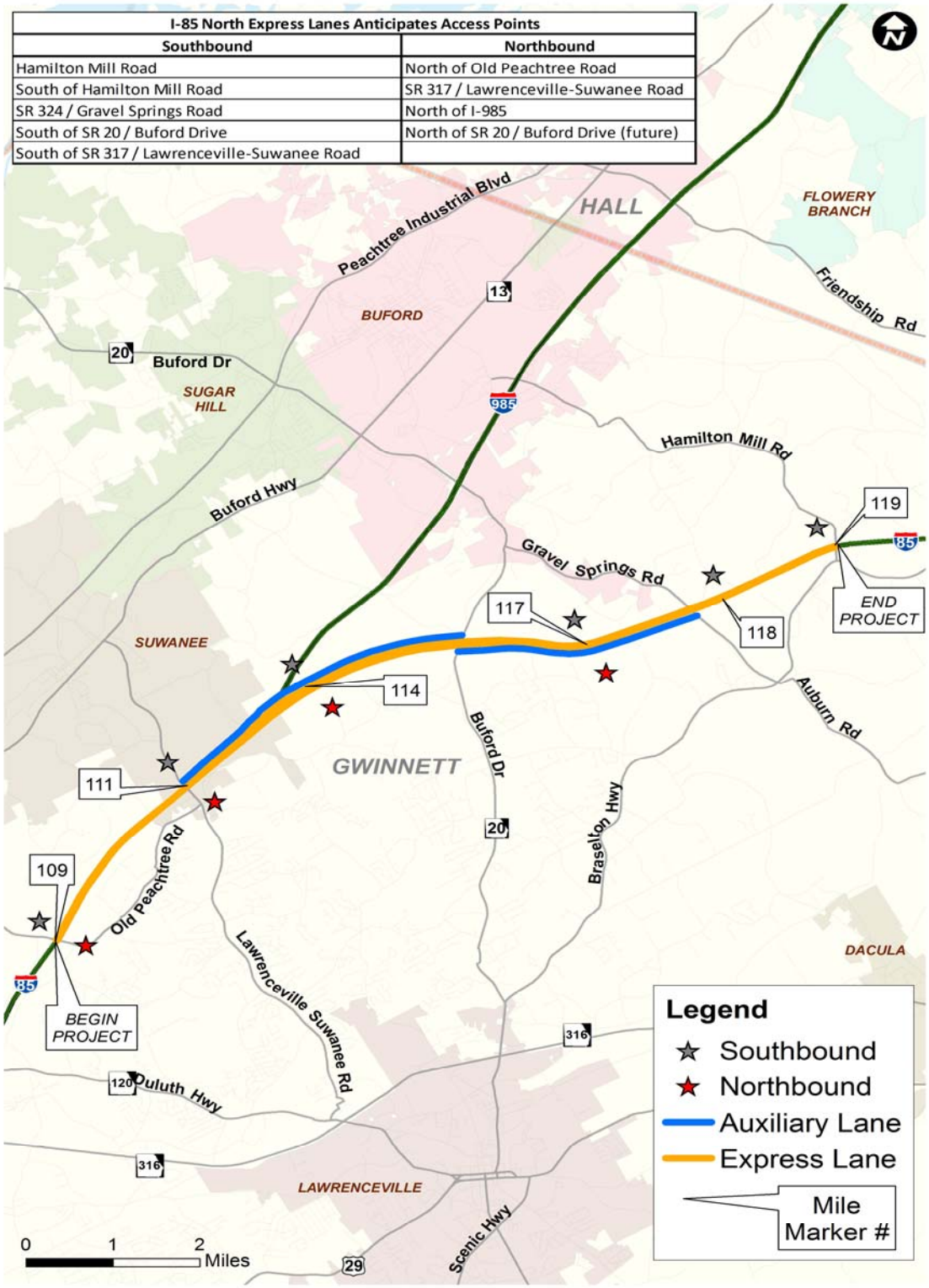
Construction of managed lane system and Intelligent Transportation System infrastructure along I-85 in Gwinnett County.

Project Area/Corridor

The proposed Project is located along I-85 in Gwinnett County from Old Peachtree Road to Hamilton Mill Road.

See Figure 1- Project Location Map.

Figure 1 Project Location Map.



Project Goals and Constraints

Limited financial resources, development and right-of-way restrictions make it impossible to completely eliminate congestion in the Atlanta Metro Area. Therefore, this project aims to mitigate the congestion along the I-85 corridor by providing a strategy to keep a portion of the corridor uncongested by managing the access to selected lanes. Managing the access to selected lanes will allow the roadway to operate in the selected lane(s) at speeds that are equivalent to or greater than the travel speeds in the general purpose lanes. This will improve mobility and provide an option for a reliable travel time. This project aims to reduce the impact of congestion and crash induced delays and thus improves travel time on a segment of the corridor in order to provide the public with an option that will provide a more reliable travel time. Additionally this project aims to provide additional relief to congested area by adding auxiliary lanes.

Constraints to implementing the planned project are as follows. The project is relatively standard construction to the outside and in the median. A temporary narrowing of lanes will allow all existing operational lanes to remain during the entire construction process. Several bridges will require beam placement over live traffic during traffic breaks at night. Milling and overlay sections will also require limited lane closures with much of the work performed at night. There are no extensive borrow or waste sites within the limits of the project, requiring haul-off. There are a number of streams adjacent to the project making preventative erosion control critical.

Proposed Construction Areas/Staging

AREA 1 – CONSTRUCTION

Construction in Area 1 primarily involves widening to the outside to allow the existing inside general purpose lanes to be converted to managed lanes. It also includes the transition of the northbound managed lane from being directly adjacent to the general purpose lane to an independent lane proceeding through the I-985 intersection. The existing outside shoulder northbound and southbound will be overlaid and converted to a new 12’ travel lane to be utilized as an auxiliary lane and a new 12’ shoulder will be constructed.

1. **STAGE 1** - Centerline Stations ±1005+00 to ±1105+00 – Advance warning signs will be installed in accordance with GDOT Special Provision 150 and the latest edition of the MUTCD. Traffic will remain in its present configuration for construction of the widening. Accelerated construction methods with limited continuous weekend closures described in ATC CWM-002A and ATC CWM-008A may be utilized to minimize daily lane closures, maintain current lane widths and avoid temporary striping and lane shifts. A directive from GDOT to retain the existing outside shoulder pavement will provide for further reduction in traffic disruptions.
2. **STAGE 2** - Existing northbound and southbound general purpose lanes will be shifted out to the new auxiliary lanes/outside widening to accommodate installation of tolling and ITS infrastructure in the existing median barrier and

to facilitate SRTA and Toll Integrator's installation and testing of tolling equipment.

3. **STAGE 3** - Lane closures will be installed area wide in accordance with the parameters outlined in Volume 2, Section 18 for construction of the milled and inlayed final surface, Express Lane striping, general purpose lane final striping and commissioning and testing of the SRTA tolling system.

AREA 2 – CONSTRUCTION

Construction in Area 2 includes removal of the existing I-85 over I-985 Bridge, construction of Bridge No. 2 to accommodate I-85 southbound and the southbound express lane over I-985 and Bridge No 1 which is dedicated to the northbound Express Lane over I-985. Also included is inside widening of I-85 southbound to accommodate an auxiliary lane, the existing general purpose lanes and the southbound managed lane and buffer. Construction of the northbound managed lane is also included in this Area.

1. **STAGE 1** - Southbound from Station ±2181+00 to ±2287+00 – To create space for the Express Lane construction, the travel lanes will be shifted 2' outside to accommodate temporary barrier wall on the inside shoulder. This shift results in the outside edge line being 2' outside of the current edge line. To facilitate the first stage of Bridge 2 construction, the existing travel lanes will be shifted outside from Station 2154+00 to 2181+00. OGFC will be installed on the outside shoulder to remove rumble strips and level the ride surface and temporary barrier wall will be installed on the newly created inside shoulder to separate the Stage 1 bridge demolition and construction. Shoulder closures will be staged to conform to the requirements of Vol. 2 18.3.11.
2. **STAGE 2** - Southbound from Stations 2153+00 to 2187+00 the travel lanes will be shifted to the newly constructed Stage 1 of Bridge 2 to allow space for Stage 2 construction.
3. **STAGE 3** - For the entire area northbound and southbound, lane closures will be installed as needed for final surface course paving and striping for placement of lanes in their final alignment. Also, lane closures for SRTA commissioning and testing will be used and temporary traffic signage will be removed.

AREA 3 – CONSTRUCTION

Construction in Area 3 includes continuation of construction of the barrier separated Express Lanes and buffer zone between the existing northbound and southbound general purpose lanes ending at Hamilton Mill Road.

1. **STAGE 1A** – Centerline Stations 560+00 to 660+00 – Advance warning signs will be installed in accordance with the GDOT Special Provision 150 and the latest edition of the MUTCD. From Stations 190+00 to 349+00 travel lanes will be shifted 2' to the outside and reduced to 11' lane widths to provide an additional 4' of workspace on the northbound and southbound median

shoulders. Temporary barrier wall will be installed along the inside shoulder and a minimum 8' outside shoulder will be maintained. Shoulder closures will be staged to conform to the requirements of Vol. 2 18.3.11.

2. **STAGE 1B** From Stations 349+00 to 454+00 travel lanes will be shifted 2' to the outside and reduced to 11' lane widths to provide an additional 4' of workspace on the northbound and southbound median shoulders. Temporary barrier wall will be installed along the inside shoulder and a minimum 8' outside shoulder will be maintained. Shoulder closures will be staged to conform to the requirements of Vol. 2 18.3.11.
3. **STAGE 2A** – Southbound traffic will be shifted 12' onto the newly constructed buffer from Station 245+00 to 270+00 for the construction of Sound Barrier on the outside shoulder. Temporary barrier wall will be installed along the outside shoulder and a minimum 8' inside shoulder will be maintained. Shoulder closures will be staged to conform to the requirements of Vol. 2 18.3.11.
4. **STAGE 2B** - Southbound traffic will be shifted 12' onto the newly constructed buffer from Station 405+00 to 435+00 for the construction of sound barrier on the outside shoulder. Temporary barrier wall will be installed along the outside shoulder and a minimum 8' inside shoulder will be maintained. Shoulder closures will be staged to conform to the requirements of Vol. 2 18.3.11.
5. **STAGE 3** - For the entire area, northbound and southbound, lane closures will be installed as needed for final surface course paving and striping for placement of lanes in their final alignment. Also lane closures for SRTA commissioning and testing will be used and temporary traffic control signage will be removed.

General Schedule and Timeline

- Time to complete final construction plans: 12 Months. (Design Phase)
- Time to completion construction: 22 Months. (Construction Phase)
- Time to completion of Design Build contract: 34 Months

Adjacent Projects

Adjacent to the northern terminus of this project, NH-IM0-0085-2(165) P.I. 110610 will widen I-85 to three lanes in each direction from Hamilton Mill Road to S.R. 211 in Barrow County. The southern terminus of this project is associated with at least one or more other projects: Projects CSMSL-0009-00(295), CSMSL-0009-00(296), CSMSL-0009-00(297), P.I. Numbers 0009295, 0009296, and 0009297, which are currently completed and operational and have converted the existing High Occupancy Vehicle (HOV) lanes along I-85 from Chamblee Tucker Road to just north of Old Peachtree Road to High Occupancy Toll (HOT) lanes. A full diamond interchange, PI No. 0012698, is under development along I-85 at SR 324/Gravel Springs Road. A half diamond interchange, PI No. 0013104, is under development along I-85 at McGinnis Ferry Road.

SECTION 3 – EXISTING AND FUTURE CONDITIONS

Data Collection and Modeling Approach

The analysis was completed for existing, No-Build, and Build Conditions. Traffic data was collected and typical Existing Conditions volumes were developed. The Atlanta Regional Commission's (ARC) Plan 2040 regional travel demand forecasting model was used to prepare future traffic volumes for the opening and design years of 2018 and 2038 for both the No-Build and Build Conditions. Capacity analysis and traffic simulation were performed for the existing, No-Build, and Build Conditions for freeway segments, ramp merge and diverge areas, and weaving segments, as well as intersections on the major cross roads within the project limits. This analysis was done using the VISSIM Model Development and Calibration. Also used was HCS and SYNCHRO Analysis.

Existing & Proposed design features:

Mainline – I-85 South of I-985

Feature	Existing	Standard*	Proposed
Typical Section			
- Number of Lanes	8 Thru Lanes		10 Thru Lanes
- Lane Width(s)	12'	12'	12'
- Median Width & Type	14.5' Urban (Paved)		14.5' Urban (Paved)
- Outside Shoulder Width & Type	14' (12' Paved)	14' (12' Paved)	14' (12' Paved)
- Outside Shoulder Slope	5%	5%	5%
- Inside Shoulder Width & Type	6' (6' Paved)	6' (6' Paved)	6' (6' Paved)
- Sidewalks	N/A	N/A	N/A
- Auxiliary Lanes	1 Lane NB		1 Lane NB & SB
- Bike Lanes	N/A	N/A	N/A
Posted Speed	65 MPH		65 MPH
Design Speed	65 MPH	65 MPH	65 MPH
Min Horizontal Curve Radius (Mainline)	5200'	1660'	5200'
Min Horizontal Curve Radius (Managed Lane)	N/A	1660'	5750'
Super elevation Rate (Mainline)	4% Max	6% Max	4% Max
Super elevation Rate (Managed Lane)	N/A	6% Max	6% Max
Grade (Mainline)	3.5% Max	4% Max	4% Max
Access Control	Limited	Limited	Limited
Right-of-Way Width	Varies		No Change
Maximum Grade – Crossroad	Not Impacted	Not Impacted	Not Impacted
Design Vehicle	HS20-44	HS20-44	HS20-44
Pavement Type	Asphalt	Asphalt	Asphalt

*According to current GDOT design policy if applicable

Mainline – I-85 between I-985 and SR 20/Buford Drive

Feature	Existing	Standard*	Proposed
Typical Section			
- Number of Lanes	4 Thru Lanes		6 Thru Lanes
- Lane Width(s)	12'	12'	12'
- Median Width & Type	Varies from 106' Rural (Grass) to 64' Rural (Grass)		Varies from 64' Rural (Grass) to Median Barrier Wall Type S-2
- Outside Shoulder Width & Type	14' (12' Paved)	14' (12' Paved)	14' (12' Paved)
- Outside Shoulder Slope	5%	5%	5%
- Inside Shoulder Width & Type	6' (4' Paved)	6' (4' Paved)	4' (4' Paved)
- Sidewalks	N/A	N/A	N/A
- Auxiliary Lanes	1 Lane NB		1 Lane NB and SB
- Bike Lanes	N/A	N/A	N/A
Posted Speed	70 MPH		70 MPH
Design Speed	65 MPH	65 MPH	70 MPH
Min Horizontal Curve Radius (Mainline)	5750'	1660'	5750'
Min Horizontal Curve Radius (Managed Lane)	N/A	1660'	4488'
Super elevation Rate	4% Max	6% Max	4% Max
Grade	3.5% Max	4% Max	4% Max
Access Control	Limited	Limited	Limited
Right-of-Way Width	Varies		No Change
Maximum Grade – Crossroad	Not Impacted	Not Impacted	Not Impacted
Design Vehicle	HS20-44	HS20-44	HS20-44
Pavement Type	Asphalt	Asphalt	Asphalt

*According to current GDOT design policy if applicable

Mainline – I-85 North of SR20/Buford Drive

Feature	Existing	Standard*	Proposed
Typical Section			
- Number of Lanes	4 Thru Lanes		6 Thru Lanes
- Lane Width(s)	12'	12'	12'
- Median Width & Type	64' Rural (Grass)		Median Barrier Wall Type S-2
- Outside Shoulder Width & Type	14' (12' Paved)	14' (12' Paved)	14' (12' Paved)
- Outside Shoulder Slope	5%	5%	5%
- Inside Shoulder Width & Type	6' (4' Paved)	6' (4' Paved)	4' (4' Paved)
- Sidewalks	N/A	N/A	N/A
- Auxiliary Lanes			1 Lane NB (ends at SR 324/Gravel Springs Rd)
- Bike Lanes	N/A	N/A	N/A
Posted Speed	70 MPH		70 MPH
Design Speed	65 MPH	65 MPH	70 MPH
Min Horizontal Curve Radius (Mainline)	5750'	1660'	5750'
Min Horizontal Curve Radius (Managed Lane)	N/A	1660'	4500'
Superelevation Rate	4% Max	6% Max	4% Max
Grade	3.5% Max	4% Max	4% Max
Access Control	Limited	Limited	Limited
Right-of-Way Width	Varies		No Change
Maximum Grade – Crossroad	Not Impacted	Not Impacted	Not Impacted
Design Vehicle	HS20-44	HS20-44	HS20-44
Pavement Type	Asphalt	Asphalt	Asphalt

*According to current GDOT design policy if applicable

Major Structures

Structure	Existing	Proposed
135-5239-0	416.5'x90' Six-lane bridge on McGinnis Ferry Road over I-85; Suff. Rating 99.86; Design Loading HS-20+	No change
135-0133-0	215'x90.5' Seven-lane bridge on SR 317/Lawrenceville Suwanee Road over I-85; Suff. Rating 66.0; Design Loading N/A	No change
135-0054-0	209'x58' Two-lane bridge on I-85 Southbound over I-985 Northbound; Suff. Rating 68.98; Design Loading HS-15	Replace with 161'-0" x 71'-3" four-lane bridge
135-5179-0	304'x112' Four-lane bridge; Two lanes are for I-85 Northbound and two lanes are for CD Road over SR 20/Buford Highway; I-85 and CD Road are separated by barrier wall; Suff. Rating 96.73 & 98.0; HS-20+	Widened to centerline to combine with Structure 135-5180-0 to form a bridge consisting of 2 thru-lanes, 2 CD lanes, and 1 buffer separated managed lane in each direction. New structure name will be 135-5179-0.
135-5180-0	304'x112' Four-lane bridge; Two lanes are for I-85 southbound and two lanes are for CD Road over SR 20/Buford Highway; I-85 and CD Road are separated by barrier wall; Suff. Rating 98.0 & 96.73; Design Loading HS-20+	Widened to centerline to combine with Structure 135-5179-0 to form a bridge consisting of 2 thru-lanes, 2 CD lanes, and 1 buffer separated managed lane in each direction. New structure name will be 135-5179-0.
135-5244-0	466'x102.5' Four-lane bridge with 32' raised median on SR 324/Gravel Spring Road over I-85; Suff. Rating 85; Design Loading HS-20+	No change
135-5192-0	221'x89' Five-lane bridge on CR 134/Hamilton Mill Road over I-85; Suff. Rating 92.97; Design Loading HS-20+	No change
NEW LOCATION	N/A	Provide new 163'-6 1/2" x 31'-3" one-lane bridge for the new I-85 Northbound managed lane over I-985 Northbound
135-0057-0	3 Barrel 8'x8' Culvert under I-85 at Little Ivy Creek; Suff. Rating 85.0; Design Loading N/A	No Change
135-0058-0	3 Barrel 7'x4' Culvert under I-85 at Little Ivy Creek; Suff. Rating 98.0; Design Loading N/A	No Change
Retaining Wall near McGinnis Ferry Road	I-85 Northbound retaining wall near McGinnis Ferry Bridge; Soil Nail System	No change

Major Interchanges / Intersections

I-85 intersects I-985 within the limits of this project and the following major arterial ramps: SR 317 (Lawrenceville Suwanee Road); SR 20 (Buford Drive); and Hamilton Mill Road. Impacts to the ramps are only anticipated at I-985 (southbound connection to I-85 southbound) and SR 317 (Lawrenceville Suwanee Road) (all four ramps) because of the addition of an auxiliary lane in both directions.

- **Traffic control during construction:** Traffic will be maintained on the existing roadway as described in the Executive Summary.

- **Approved Design Exceptions:** [BT2]

(APPROVED – 1/11/2013) Outside Shoulder Width – there is a short section of mainline (approximately 1200 feet in length) where an existing retaining wall (soil nail wall) with concrete barrier creates a shoulder width of 4 feet. Removing the soil nail wall and installing a new wall or fill slope that provides an adequate shoulder will cause right-of-way impacts and increase the project cost by approximately $2,000,000. Right-of-way impacts would also delay the project schedule.

(APPROVED – 1/11/2013) Vertical Alignment – several existing sag curves north of I-985 along I-85 do not meet current AASHTO sag curve requirements. Accident rates surrounding these sag curves do not indicate there to be an increased accident frequency resulting from the substandard sag vertical curve.

(APPROVED) Inside Shoulder Width – In areas along I-85 that contain existing or proposed median barrier, the existing and proposed inside shoulder will have less than the required AASHTO inside shoulder of ten feet (10'). The proposed inside shoulder in these areas varies from four feet (4') to six feet (6'). While not meeting the AASHTO Policy on Geometric Design of Highways and Streets, the proposed inside shoulder does meet the requirements of both the AASHTO HOV Design Guide and the FHWA Priced Managed Lanes Guide.

- **Design Variances:** N/A
- **Environmental concerns:** There is a conservation easement located in the I-95/I-985 split. The conservation easement located in the I-85/I-985 split has been completely avoided. No impacts or changes to the area are anticipated.
- **Level of environmental analysis:**
  - Are Time Savings Procedures appropriate? Yes (X), No (),
  - Categorical exclusion (X),
  - Environmental Assessment/Finding of No Significant Impact(FONSI) ( ),or
  - Environmental Impact Statement (EIS) ( ) Not required.
- **Utility involvements:** Communications, power, gas, water and sewer. Following is a list of utility owner along the corridor:
  - AGL Resources
  - AT&T

- Charter Communication
- GDOT Traffic Control
- City of Buford - Gas
- Georgia Power Distribution
- Georgia Power Transmission
- Georgia Transmission Corporation
- Gwinnett County Water & Sewer
- Jackson EMC
- Williams Pipeline
- Zayo Fiber Systems

Existing and Historical Traffic Data

The methodology used for evaluating traffic operations is based on criteria set forth in the HCM 2010. Highway Capacity Software (HCS) 2010 software, which emulates HCM 2010 methodology, was used for freeway and arterial analyses. There are some types of freeway configurations where HCM 2010 does not define procedures to determine density and/or level of service. For example, a major merge area is the freeway configuration where two primary roadways, each having multiple lanes, merge to form a single freeway segment. For major merge areas, HCS states: "There are no effective models of performance for a major merge area. Therefore, analysis is limited to checking capacities on the approaching legs and the downstream freeway segment." For freeway configurations where density and level of service are not calculated, the capacity analysis results report either "Under Capacity" or "Over Capacity" instead of density and level of service.

The following are freeway configurations where under or over capacity are reported:

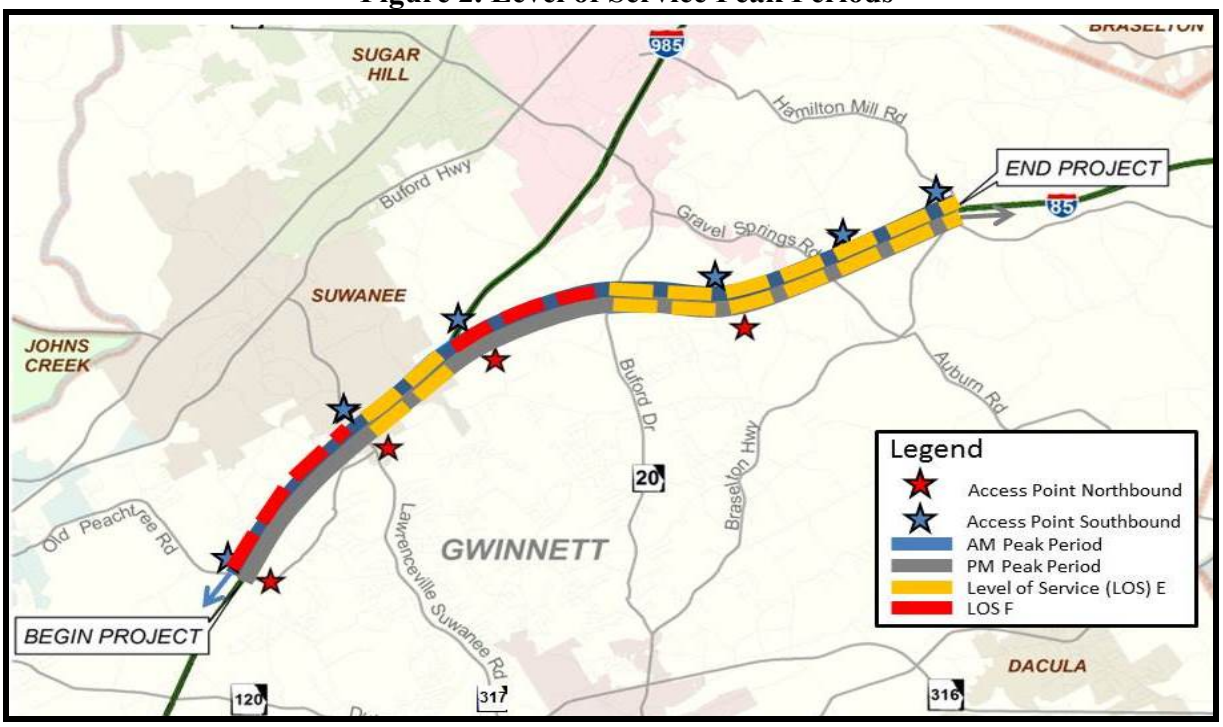
- Major merge areas
- Off-ramps with lane drops
- On-ramps with lane additions

The HCS results for the existing traffic operation conditions for the AM and PM peak hour periods along I-85 and I-985 are summarized below in **Table 1**. Based on the HCS results, the I-85 freeway segments operate at between LOS B and LOS F in the AM and LOS B and LOS E in the PM peak hours, respectively. Figure 3 shows the segments that have capacity limitations (LOS E/F), which include:

- I-85 southbound from Hamilton Mill Road to SR 20 (LOS E);
- I-85 southbound from SR 20 to I-985 (LOS F);

- I-85 southbound from I-985 to SR 317 (LOS E);
- I-85 southbound from SR 317 to Old Peachtree Road (LOS F);
- I-85 northbound from SR 317 to I-985 (LOS E); and I-85 northbound from SR 20 to Hamilton Mill Road (LOS E).

Figure 2. Level of Service Peak Periods



The HCS ramp level of service results indicate the most severe congestion is located along I-85 southbound between SR 20/Buford Drive and Old Peachtree Road in the AM peak hour and along I-85 northbound at the I-985 split in the PM peak hour. The HCS level of service (LOS) on a freeway segment is defined by density in passenger cars per mile per lane (pc/mi/ln). As a measure to indicate how well traffic is being accommodated, the HCS LOS results indicate the most severe congestion is located along I-85 southbound between SR 20/Buford Drive and Old Peachtree Road in the AM peak hour and along I-85 northbound at the I-985 split in the PM peak hour. According to the HCM, for a basic freeway segment, a LOS F is determined when density exceeds 45 pc/mi/ln, the maximum density at which sustained flows at capacity are expected to occur. For both weaving and ramp merge/diverge segments, a LOS F is determined when demand exceeds capacity and queues are expected.

Table 1. Existing (2014) HCS Freeway Analysis

Facility	AM Peak Hour		PM Peak Hour	
	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
Mainline				
I-85 NB, between Old Peachtree Rd off-ramp and on-ramp	15.9	B	24.1	C
I-85 NB, between Old Peachtree Rd and SR 317/Lawrenceville Suwanee Road	15.9	B	30.1	D
I-85 NB, between SR 317/Lawrenceville Suwanee Road off-ramp and on-ramp	16.6	B	32.9	D
I-85 NB, between SR 317/Lawrenceville Suwanee Road and I-985	19.3	B	40.4	**E**
I-85 NB, between I-985 and SR 20/Buford Drive	14.0	B	27.1	D
I-85 NB, between SR 20/Buford Drive off-ramp and on-ramp	15.7	B	27.9	D
I-85 NB, between SR 20/Buford Drive and Hamilton Mill Road	20.9	C	36.8	**E**
I-85 NB, between Hamilton Mill Road off-ramp and on-ramp	14.4	B	19.0	C
I-85 NB, between Hamilton Mill Road and SR 211	17.9	B	24.3	C
I-85 SB, between SR 211 and Hamilton Mill Road	24.3	C	17.9	B
I-85 SB, between Hamilton Mill Road off-ramp and on-ramp	19.0	C	14.4	B
I-85 SB, between Hamilton Mill Road and SR 20/Buford Drive	36.8	**E**	20.9	C
I-85 SB, between SR 20/Buford Drive off-ramp and on-ramp	27.9	D	15.7	B
I-85 SB, between SR 20/Buford Drive and I-985	66.0	**F**	22.0	C
I-85 SB, between I-985 and SR 317	40.4	**E**	19.3	C
I-85 SB, between SR 317 off-ramp and on-ramp	32.9	D	16.6	B
I-85 SB, between SR 317 and Old Peachtree Road	47.1	**F**	20.5	C
I-85 SB, between Old Peachtree Rd off-ramp and on-ramp	24.1	C	15.9	B
I-985 NB, between I-85 and SR 20	16.7	B	27.0	D
I-985 SB, between I-85 and SR 20	27.0	D	16.7	B
Collector-Distributor Roads				
I-85/Sugarloaf Pkwy-Old Peachtree Road NB CD (after OPR on-ramp merge)	7.1	A	16.1	B

Facility	AM Peak Hour		PM Peak Hour	
	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
I-85/Sugarloaf Pkwy-Old Peachtree Road SB CD (before OPR off-ramp diverge)	16.1	B	7.1	A
Ramps				
I-85 NB, on-ramp from Old Peachtree Road CD, merge	18.1	B	32.6	D
I-85 NB, off-ramp to SR 317, lane drop	Under Capacity		Under Capacity	
I-85 NB, on-ramp from SR 317, merge	21.9	C	34.0	D
I-85 NB, off-ramp to I-985 NB, lane drop plus optional lane	24.8	C	40.2	**E**
I-85 NB, off-ramp to SR 20/Buford Drive, lane drop	Under Capacity		Under Capacity	
I-85 NB, on-ramp from SR 20/Buford Drive, merge	23.7	C	34.3	D
I-85 NB, off-ramp to Hamilton Mill Road, diverge	22.3	C	34.0	D
I-85 NB, on-ramp from Hamilton Mill Road, merge	20.5	C	26.4	C
I-85 SB, off-ramp to Hamilton Mill Road, diverge	25.4	C	19.1	B
I-85 SB, on-ramp from Hamilton Mill Road, merge	33.4	D	23.4	C
I-85 SB, off-ramp to SR 20/Buford Drive, diverge	38.0	**E**	26.3	C
I-85 SB, on-ramp from SR 20/Buford Drive, merge	43.6	**F**	26.2	C
I-85 SB/I-985 SB major merge (Upstream I-85 SB)	**Over Capacity**		Under Capacity	
I-85 SB/I-985 SB major merge (Upstream I-985 SB)	Under Capacity		Under Capacity	
I-85 SB/I-985 SB major merge (Downstream I-85 SB)	Under Capacity		Under Capacity	
I-85 SB, off-ramp to SR 317/Lawrenceville Suwanee Road, diverge	36.7	**E**	20.7	C
I-85 SB, on-ramp from SR 317/Lawrenceville Suwanee Road, merge	36.5	**F**	23.9	C
I-85 SB, off-ramp to Old Peachtree Road CD, diverge	10.4	**F***	6.9	A
Weaves				
I-85 NB, between end of managed lane, north of Old Peachtree Rd CD & off-ramp to SR 317, two-sided weave	Weave distance exceeds the maximum weave length, L_{MAX}			
I-85 NB, between on-ramp from SR 317 & off-ramp to I-985, two-sided weave	27.6	C	X	**F**

Facility	AM Peak Hour		PM Peak Hour	
	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
I-85 SB, between on-ramp from I-985 & off-ramp to SR 317, two-sided weave	51.4	**E**	27.7	C
I-85 SB, between on-ramp from SR 317 and beginning of managed lane, north of Old Peachtree Rd CD &, two-sided weave	Weave distance exceeds the maximum weave length, L_{MAX}			
I-85 NB CD at SR 20, between loop ramps	10.0	A	13.4	B
I-85 SB CD at SR 20, between loop ramps	11.3	A	4.6	A
SR 20 EB at I-85, between loop ramps, arterial weave	19.5	B	19.8	B
SR 20 WB at I-85, between loop ramps, arterial weave	30.1	C	25.4	C

Note: X denotes volume that exceeds capacity, LOS F
F denotes that the ramp demand exceeds capacity based on "Flow Entering Influence Area"*
Source: Traffic Report for I-85 Express Lanes, October 2014

No Build / Build Data:

Freeway Segments (2018)

Table 2 summarizes the AM and PM peak periods HCS analysis results for the No-Build and Build conditions in Opening Year 2018 along I-85. The analyses show significant improvements in LOS between the 2018 No-Build and Build models along several segments. These improvements are primarily due to the new managed lanes which would attract some traffic out of the general purpose lanes and thus lower their density. The new auxiliary lanes northbound (SR 20 to SR 324) and southbound (SR 20 to SR 317) also provide improvement to the LOS. Twelve of the 29 segments would see a LOS improvement of at least one letter grade in the Build condition. The LOS for the AM peak hour for I-85 southbound between SR 20 and I-985 improves from LOS F to LOS C and I-85 between I-985 and SR 317 improves from LOS E to LOS C. The LOS for the PM peak hour for I-85 northbound between I-985 and the end of the managed lane would improve at least one letter grade.

Table 2. Opening Year (2018) Freeway HCS Operational Analysis

Facility	No-Build				Preferred Alternative			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
Mainline								

Facility	No-Build				Preferred Alternative			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
I-85 NB, between Old Peachtree Rd off-ramp and begin ML Opening for SR 317/ Lawrenceville Suwanee Rd	16.4	B	25.0	C	16.2	B	25.0	C
I-85 NB, between end ML Opening for SR 317/ Lawrenceville Suwanee Rd and Old Peachtree Rd CD on-ramp	16.4	B	31.7	D	16.2	B	28.1	D
I-85 NB, between Old Peachtree Rd and SR 317/Lawrenceville Suwanee Road ♦	16.4	B	31.7	D	16.2	B	28.1	D
I-85 NB, between end ML Opening for I-985 and SR 317/ Lawrenceville Suwanee Rd on-ramp	17.1	B	34.7	D	16.4	B	29.8	D
I-85 NB, between SR 317/Lawrenceville Suwanee Road and I-985	20.0	C	43.2	**E**	19.5	C	36.3	**E**
I-85 NB, between I-985 off-ramp and begin ML Opening for SR 20	14.4	B	28.3	D	13.8	B	23.0	C
I-85 NB, between end ML Opening for SR 20/Buford Dr and SR 20/Buford Dr off-ramp	16.2	B	29.1	D	14.0	B	23.8	C
I-85 NB, between SR 20/Buford Dr off-ramp and on-ramp	16.2	B	29.1	D	14.9	B	21.2	C
I-85 NB, between SR 20/Buford Drive and future SR 324 off-ramp ♦	21.6	C	38.9	**E**	13.4	B	17.3	B
I-85 NB, between future SR 324 off-ramp and end of ML	21.6	C	38.9	**E**	19.9	C	27.5	D
I-85 NB, between end of ML and Hamilton Mill Road off-ramp ♦	21.6	C	38.9	**E**	20.6	C	36.1	E
I-85 NB, between Hamilton Mill Road off-ramp and on-ramp	14.8	B	19.7	C	14.8	B	19.7	C
I-85 NB, between Hamilton Mill Road and SR 211	18.5	C	25.3	C	18.5	C	25.3	C
I-85 SB, between SR 211 and Hamilton Mill Road	25.3	C	18.5	C	25.3	C	18.5	C

Facility	No-Build				Preferred Alternative			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
I-85 SB, between Hamilton Mill Rd off-ramp and Managed Lane Begin	19.7	C	14.8	B	19.7	C	14.8	B
I-85 SB, between Hamilton Mill Road on-ramp and ML Opening for Hamilton Mill Road	19.7	C	14.8	B	19.7	C	14.8	B
I-85 SB, between ML Opening for Hamilton Mill Road and begin ML Opening for SR 20	38.9	**E**	21.6	C	29.1	D	20.2	C
I-85 SB, between end ML Opening for SR 20 and SR 20/Buford Drive off-ramp	38.9	**E**	21.6	C	29.2	D	20.8	C
I-85 SB, between SR 20/Buford Drive off-ramp and on-ramp	29.1	D	16.2	B	22.3	C	15.5	B
I-85 SB, between SR 20/Buford Drive on-ramp & begin ML Opening for SR 317/ Lawrenceville Suwanee Road ♦	73.7	**F**	22.8	C	23.8	C	14.0	B
I-85 SB, between end ML Opening for SR 317/ Lawrenceville Suwanee Road and I-985 ♦	73.7	**F**	22.8	C	23.0	C	13.8	B
I-85 SB, between I-985 and SR 317/Lawrenceville Suwanee Road ♦	43.2	**E**	20.0	C	25.2	C	15.2	B
I-85 SB, between end ML Opening for Old Peachtree Rd CD and SR 317/ Lawrenceville Suwanee Rd on-ramp	34.7	D	17.1	B	28.7	D	16.2	B
I-85 SB, between SR 317/ Lawrenceville Suwanee Rd on-ramp and Old Peachtree Rd CD off-ramp	50.9	**F**	21.2	C	42.4	**E**	20.4	C
I-85 SB, between end ML Opening for SR 120 and Old Peachtree Road on-ramp	25.0	B	16.4	B	25.0	B	16.2	B
I-85 CD NB, between Old Peachtree Road on-ramp and I-85	7.3	A	16.6	B	7.3	A	16.6	B
I-85 CD SB, between I-85 and Old Peachtree Road off-ramp	16.6	B	7.3	A	16.6	B	7.3	A
I-985 NB, between I-85 & SR 20/Buford Dr	17.3	B	28.3	D	17.3	B	28.3	D

Facility	No-Build				Preferred Alternative			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
I-985 SB, between I-85 & SR 20/Buford Dr	28.3	D	17.3	B	28.3	D	17.3	B

Note: X denotes volume that exceeds capacity, LOS F
♦ denotes change in general purpose lane geometry between No-Build and Build conditions
Source: Traffic Report for I-85 Express Lanes, October 2014

Table 3 summarizes the AM and PM peak periods HCS analysis results for No-Build and Build conditions in Opening Year 2018 along the I-85 and I-985 ramps. Out of sixteen merge and diverge ramp locations studied, fifteen ramps showed some improvement in density between No-Build and Build. The most significant improvements were the I-85 southbound on-ramps from SR 20 and SR 317 in the AM peak period. The SR 20 on-ramp merge improved from F to under capacity. The SR 317 on-ramp merge LOS improved from E (37.8 veh/mi/ln) to C (24.2 veh/mi/ln). These operational improvements at the SR 20 on-ramp would result from the addition of the auxiliary lane as well as some traffic shifting into the managed lanes. The improvements at the SR 317 on-ramp would primarily due to the shift of traffic to the managed lanes.

Table 3. Opening Year (2018) Ramp HCS Operational Analysis

Facility	No-Build				Preferred Alternative			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
Ramps								
I-85 NB, on-ramp from Old Peachtree Road CD, merge ♦	18.6	B	33.2	D	N/A		N/A	
I-85 NB at Old Peachtree Rd CD Major Merge								
Upstream I-85 NB at Old Peachtree Rd CD NB merge ♦	N/A		N/A		Under Capacity		Under Capacity	
Upstream Old Peachtree Rd CD NB at I-85 NB merge ♦	N/A		N/A		Under Capacity		**Over Capacity**	
Downstream I-85 NB at Old Peachtree Rd CD NB merge ♦	N/A		N/A		Under Capacity		Under Capacity	
I-85 NB, off-ramp to SR 317, lane drop	Under Capacity		Under Capacity		Under Capacity		Under Capacity	
I-85 NB, on-ramp from SR 317, merge ♦	22.5	C	35.0	D	12.5	B	20.4	C

Facility	No-Build				Preferred Alternative			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
I-85 NB, off-ramp to I-985 NB, lane drop plus optional lane	25.5	C	41.4	**F**	25.0	C	38.1	**E**
I-85 NB, off-ramp to SR 20/Buford Drive, lane drop	Under Capacity		Under Capacity		Under Capacity		Under Capacity	
I-85 NB, on-ramp from SR 20/Buford Drive, merge ♦	23.6	C	34.1	D	Under Capacity		Under Capacity	
I-85 NB, off-ramp to Hamilton Mill Road, diverge ♦	17.4	B	29.4	D	Under Capacity		Under Capacity	
I-85 NB, on-ramp from Hamilton Mill Road, merge	21.1	C	26.8	C	21.1	C	26.8	C
I-85 SB, off-ramp to Hamilton Mill Road, diverge	29.5	D	22.9	C	26.3	C	19.7	B
I-85 SB, on-ramp from Hamilton Mill Road, merge	34.4	D	24.2	C	27.5	C	21.0	C
I-85 SB, off-ramp to SR 20/Buford Drive, diverge	35.0	**F***	27.1	C	33.4	D	26.3	C
I-85 SB, on-ramp from SR 20/Buford Drive, merge, downstream ♦	46.0	**F**	27.6	C	Under Capacity		Under Capacity	
I-85 SB, on-ramp from SR 20/Buford Drive, upstream	N/A		N/A		Under Capacity		Under Capacity	
SR 20/Buford Drive, upstream of I-85 SB, on-ramp	N/A		N/A		Under Capacity		Under Capacity	
I-85 SB at I-985 Major Merge								
Upstream I-85 SB at I-985 merge ♦	**Over Capacity**		Under Capacity		**Over Capacity**		Under Capacity	
Upstream I-985 SB at I-85 merge	Under Capacity		Under Capacity		Under Capacity		Under Capacity	
Downstream I-85 SB at I-985 merge♦	Under Capacity		Under Capacity		Under Capacity		Under Capacity	
I-85 SB, off-ramp to SR 317/ Lawrenceville Suwanee Road, diverge ♦	37.8	**F***	23.2	C	Under Capacity		Under Capacity	
I-85 SB, on-ramp from SR 317/ Lawrenceville Suwanee Road, merge ♦	37.8	**F***	23.5	C	24.2	C	11.4	B

Facility	No-Build				Preferred Alternative			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
I-85 SB, off-ramp to Old Peachtree Road CD, diverge	13.0	**F***	6.2	A	8.6	A	6.9	A

Note: X denotes volume that exceeds capacity, LOS F
F denotes that the ramp demand exceeds capacity based on "Flow Entering Influence Area"*
♦ denotes change in general purpose lane geometry between No-Build and Build conditions
Source: Traffic Report for I-85 Express Lanes, October 2014

At the locations of roadway improvements, there were corresponding traffic operational improvements. Most of the highly congested areas would improve significantly with the **Preferred Alternative**. The HCS results indicated that all sections of I-85 within the limits of the proposed managed lane extension would experience improvement in traffic operations with the **Preferred Alternative**.

Weaving Areas (2018)

Table 4 summarizes the 2018 HCS operating analyses for the AM and PM peak hour periods for the study area weaving areas. The weave results are divided between weaving movements for general purpose lane users and weave movements for managed lane users.

The proposed intermediate managed lane opening areas along I-85 within the project limits would be located between every interchange from Old Peachtree Road to Hamilton Mill Road. These movements were analyzed as both one-sided and two sided weaves. The managed lane vehicles that were weaving across the double skip line between the managed lanes and general purpose lanes were evaluated as one-sided weaves. The managed lane vehicles that were weaving across the general purpose lanes to access the managed lanes after entering the freeway or that were weaving across the general purpose lanes after exiting the managed lanes were evaluated as two-sided weaves.

No locations would experience LOS F in 2018 under the Build conditions.

Two locations would experience LOS E in 2018 under the Build conditions:

- I-85 NB Opening for I-985 (PM peak hour); and
- I-85 SB Opening for SR 317 (AM peak hour).

Table 4. Design Year (2018) HCS Weaving Analysis

Facility	No-Build				Preferred Alternative			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
General Purpose Lane Weave Areas								
I-85 NB, between on-ramp from Old Peachtree Road CD & off-ramp to SR 317 ♦	Weave distance exceeds the maximum weave length, L_{MAX}							
I-85 NB, between on-ramp from SR 317 & off-ramp to I-985, two-sided weave	27.8	C	X	**F**	27.2	C	45.5	**E**
I-85 SB, between on-ramp from I-985 & off-ramp to SR 317, two-sided weave ♦	X	**F**	27.9	C	47.6	**E**	25.5	C
I-85 NB CD at SR 20, between loop ramps	9.8	A	13.1	B	9.8	A	13.1	B
I-85 SB CD at SR 20, between loop ramps	10.3	A	4.3	A	10.6	A	4.3	A
SR 20 EB at I-85, between loop ramps, arterial weave	20.1	B	20.4	B	20.1	B	20.4	B
SR 20 WB at I-85, between loop ramps, arterial weave	31.4	**E**	26.8	C	31.4	C	26.8	C
Managed Lane Weave Area								
I-85 NB, between ML Opening for SR 317 and SR 317 off-ramp, two-sided weave	Weave distance exceeds the maximum weave length, L_{MAX}							
I-85 NB, between Old Peachtree Rd CD on-ramp and ML Opening for I-985, two-sided weave	Weave distance exceeds the maximum weave length, L_{MAX}							
I-85 NB, ML Opening for I-985, one-sided weave	N/A		N/A		16.8	B	29.5	D
I-85 NB, between SR 317 on-ramp and ML Opening for SR 20, two-sided weave	Weave distance exceeds the maximum weave length, L_{MAX}							
I-85 NB, ML Opening for SR 20, one-sided weave	N/A		N/A		12.2	B	21.9	C

Facility	No-Build				Preferred Alternative			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
I-85 NB, between ML Opening for SR 20 and SR 20 off-ramp, two-sided weave	N/A		N/A		16.2	B	29.3	D
I-85 NB, between End of ML and Hamilton Mill Rd off-ramp, two-sided weave	N/A		N/A		15.3	B	23.5	C
I-85 SB, between Hamilton Mill Rd on-ramp & ML Opening for Hamilton Mill Rd, two-sided weave	N/A		N/A		32.4	D	23.5	C
I-85 SB, between ML Opening for SR 20 and SR 20 off-ramp	N/A		N/A		19.9	B	15.5	B
I-85 SB, between SR 20 on-ramp and ML Opening for SR 317	N/A		N/A		29.0	D	16.2	B
I-85 SB, between ML Opening for SR 317 and SR 317 off-ramp, two-sided weave	Weave distance exceeds the maximum weave length, L_{MAX}							
I-85 SB, ML Opening for SR 317, one-sided weave	N/A		N/A		21.8	C	12.2	B
I-85 SB, between I-985 on-ramp and ML Opening for Old Peachtree Rd CD, two-sided weave	Weave distance exceeds the maximum weave length, L_{MAX}							
I-85 SB, ML Opening for Old Peachtree Rd CD, one-sided weave	N/A		N/A		33.4	D	19.6	B
I-85 SB, between ML Opening for Old Peachtree Rd CD and Old Peachtree Rd CD off-ramp, two-sided weave	Weave distance exceeds the maximum weave length, L_{MAX}							
I-85 SB, between SR 317 on-ramp and ML Opening for SR 120, two-sided weave	Weave distance exceeds the maximum weave length, L_{MAX}							

Note: X denotes volume that exceeds capacity, LOS F
♦ denotes change in general purpose lane geometry between No-Build and Build conditions
Source: Traffic Report for I-85 Express Lanes, October 2014

Freeway Segments (2038)

The Freeway Analysis is shown for the design year in **Table 5**. The 2038 No-Build Condition has 32 out of 36 segments studied that would experience a benefit with the implementation of the **Preferred Alternative**. The managed lane and auxiliary lane improvements would provide more capacity and reduce the density of traffic in the general purpose lanes.

The northbound direction of I-85 has nine segments that would experience at least one letter grade of LOS improvements in peak traffic operations. The two segments between SR 20 and SR 324 improved from LOS F to C in the PM peak hour and from LOS E to C in the AM peak hour. The two segments between SR 324 and Hamilton Mill Road improved from LOS F to E and from LOS F to D in the PM peak hour. The two northbound segments between I-985 and SR 20 improved from LOS E to C or D in the PM peak hour.

The southbound direction of I-85 has eight segments that would experience at least one letter grade of LOS improvements in peak traffic operations. Three of the segments between Hamilton Mill Road and SR 20 would improve from LOS F to LOS E in the AM peak period and LOS F/E to LOS D in the PM peak period. Three other segments that would experience significant improvement are between SR 20 and SR 317. These segments are all LOS F in the AM peak hour and improve to LOS C or D with the **Preferred Alternative**.

There are a few No-Build segments that have lower densities than in the Build condition. These segments are just upstream or downstream of the significant bottleneck that would occur between SR 317 and I-985 in the No-Build condition. This severe bottleneck would cause traffic volumes and therefore densities to be lower upstream or downstream of this segment. The excess demand that could not be met in No-Build would be forced to use other routes or would experience peak spreading. These segments are I-85 southbound upstream of the Old Peachtree Road on-ramp in the AM peak hour and both directions of I-985 during the peak hour for each direction.

Table 5. Design Year (2038) HCS Basic Freeway Segments Analysis

Facility	No-Build				Preferred Alternative			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
Mainline								
I-85 NB, between Old Peachtree Rd off-ramp and begin ML Opening for McGinnis Ferry Rd/SR 317 CD	24.0	C	32.1	D	22.5	C	30.7	D

Facility	No-Build				Preferred Alternative			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
I-85 NB, between end ML Opening for McGinnis Ferry Rd/SR 317 CD and Old Peachtree Rd CD on-ramp	24.0	C	32.1	D	22.5	C	30.7	D
I-85 NB, between Old Peachtree Rd and McGinnis Ferry Rd/SR 317 CD ♦	23.7	C	41.8	**E**	22.1	C	38.4	**E**
I-85 NB, between McGinnis Ferry Rd/SR 317 CD and begin ML Opening for I-985	24.5	C	43.2	**E**	22.9	C	40.2	**E**
I-85 NB, between end ML Opening for I-985 and SR 317/ Lawrenceville Suwanee Rd on-ramp	24.5	C	43.2	**E**	23.4	C	38.4	**E**
I-85 NB, between SR 317/ Lawrenceville Suwanee Rd and I-985	30.8	D	60.0	**F**	28.8	D	53.1	**F**
I-85 NB, between I-985 off-ramp and begin ML Opening for SR 20	21.1	C	37.5	**E**	18.6	C	25.9	C
I-85 NB, between end ML Opening for SR 20/Buford Dr and SR 20/Buford Dr off-ramp	21.1	C	37.5	**E**	18.9	C	30.9	D
I-85 NB, between SR 20/Buford Dr off-ramp and on-ramp	25.1	C	36.1	**E**	21.8	C	25.6	C
I-85 NB, between SR 20/Buford Drive and begin ML Opening for SR 324 ♦	37.6	**E**	57.1	**F**	19.0	C	21.1	C
I-85 NB, between end ML Open for SR 324 and SR 324 off-ramp ♦	37.6	**E**	57.1	**F**	18.3	C	21.3	C
I-85 NB, between SR 324 off-ramp and on-ramp	23.8	C	28.1	D	20.9	C	22.3	C
I-85 NB, between SR 324 on-ramp and end of ML	30.3	D	56.4	**F**	26.3	D	40.5	**E**

Facility	No-Build				Preferred Alternative			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
I-85 NB, between end of ML and Hamilton Mill Road off-ramp ♦	30.3	D	56.4	**F**	16.7	B	28.5	D
I-85 NB, between Hamilton Mill Road off-ramp and on-ramp	21.0	C	24.3	C	20.6	C	28.4	D
I-85 NB, between Hamilton Mill Road and SR 211	27.7	D	34.4	D	16.4	B	21.3	C
I-85 SB, between SR 211 and Hamilton Mill Road	32.3	D	27.7	D	21.3	C	16.4	B
I-85 SB, between Hamilton Mill Rd off-ramp and ML Begin	22.9	C	21.0	C	21.2	C	19.8	C
I-85 SB, between Hamilton Mill Road on-ramp and ML Opening for Hamilton Mill Road	22.9	C	21.0	C	21.2	C	19.8	C
I-85 SB, between ML Opening for Hamilton Mill Road and SR 324 off-ramp	49.5	**F**	64.8	**F**	40.5	**E**	26.3	D
I-85 SB, between SR 324 off-ramp and on-ramp	25.5	C	23.8	C	22.3	C	20.9	C
I-85 SB, between SR 324 on-ramp and begin ML Opening for SR 20/Buford Drive	47.6	**F**	37.6	**E**	40.9	**E**	32.0	D
I-85 SB, between end ML Opening for SR 20/Buford Drive and SR 20/Buford Drive off-ramp	47.6	**F**	37.6	**E**	40.0	**E**	33.7	D
I-85 SB, between SR 20/Buford Drive off-ramp and on-ramp	31.3	D	25.1	C	25.6	C	21.8	C
I-85 SB, between SR 20/Buford Drive on-ramp and begin ML Opening for and SR 317/ Lawrenceville Suwanee Rd ♦	108.6	**F**	40.1	**E**	30.9	D	18.9	C

Facility	No-Build				Preferred Alternative			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
I-85 SB, between end ML Opening for SR 317/ Lawrenceville Suwanee Road and I-985 ♦	108.6	**F**	40.1	**E**	25.9	C	18.6	C
I-85 SB, between I-985 and SR 317/Lawrenceville Suwanee Rd ♦	60.0	**F**	30.8	D	32.5	D	21.1	C
I-85 SB, between end ML Opening for Old Peachtree Rd CD and McGinnis Ferry Rd/SR 317 CD on-ramp	43.2	**E**	24.5	C	40.2	**E**	22.9	C
I-85 SB, between McGinnis Ferry Rd/SR 317 CD on-ramp and Old Peachtree Rd CD off-ramp	78.7	**F**	32.6	D	70.8	**F**	30.5	D
I-85 SB, between end ML Opening for SR 120 and Old Peachtree Road on-ramp	30.7	D	23.2	C	37.6	**E**	22.5	C
I-85 CD NB, between Old Peach-tree Road CD on-ramp and I-85	10.1	A	18.6	C	9.9	A	18.1	C
I-85 CD SB, between I-85 and Old Peachtree Road CD off-ramp	18.3	C	10.0	A	18.1	C	9.9	A
I-85 CD NB, between I-85 and McGinnis Ferry Rd/SR 317 CD off-ramp	9.4	A	13.7	B	9.2	A	13.6	B
I-85 CD SB, McGinnis Ferry Rd/SR 317 CD on-ramp and I-85	13.7	B	9.4	A	13.6	B	9.2	A
I-985 NB between I-85 and SR 20	25.4	C	34.8	D	24.9	C	46.0	**F**
I-985 SB between I-85 and SR 20	43.2	**E**	25.4	C	46.0	**F**	24.9	C

Note: X denotes volume that exceeds capacity, LOS F

♦ denotes change in general purpose lane geometry between No-Build and Build conditions

Source: Traffic Report for I-85 Express Lanes, October 2014

While 32 out of 36 segments studied would experience a benefit, there are several segments along I-85 that would still be expected to operate at unacceptable LOS (E or F), including I-85 NB between Old Peachtree Road and I-985, I-85 SB between SR 324 and SR 20,

and I-85 SB between SR 317 and Old Peachtree Road. These segments are severe bottlenecks in the no-build condition and, because no general purpose lanes would be added, they would remain so even after project implementation. However, the overall build condition provides greater throughput than the no-build condition and the purpose of this project is to provide motorists an additional travel choice so that reliable travel times would be possible within the otherwise highly congested project corridor. Unacceptable LOS in those general purpose segments in the build condition indicates that proposed improvements would not be able to accommodate all of the latent demand. Additional general purpose lane capacity would be necessary in order to provide acceptable LOS to all future traffic along the corridor, which is not the intent of the project.

Ramp Merge/Diverge Areas

Table 6 summarizes the 2038 HCS operating analyses for the AM and PM peak hour periods for the interchange ramps along I-85. The proposed managed lanes project would reduce the density of traffic on I-85 but would have little effect on the traffic volumes on the ramps.

Out of the 22 merge and diverge ramps in the 2038 study comparing the No-Build to the Preferred Alternative, a total of eight ramps had some capacity benefits that were quantifiable. In some cases, the proposed improvements required a different type of analysis that did not permit a direct comparison between Build and No-Build conditions. The improved traffic operations in the general purpose lanes would result from additional roadway capacity from new auxiliary lanes and lower densities of vehicles in the general purpose lanes as other users divert to the managed lane in the peak periods.

Ramp operational improvements would be experienced at SR 20 and SR 324. The I-85 southbound off-ramp to SR 20 would improve from LOS F to LOS E in the AM peak period and from LOS E to LOS D in the PM peak period. The I-85 southbound off-ramp to SR 324 would improve from LOS F to LOS D in the AM peak period. The I-85 southbound on-ramp from SR 324 would improve from LOS E to LOS D in the AM peak period.

The major merge analysis for the I-85 southbound/I-985 southbound merge shows that I-985 north of this point would be under capacity in 2038 in the No-Build condition, but would be over capacity in the Build condition. The No-Build alternative shows the segments on I-85 north and south of this point as over capacity.

Table 6. Design Year (2038) HCS Ramp Analysis

Facility	No-Build				Preferred Alternative			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Density (veh/mi/ln)	LOS	Density (veh/mi/ln)	LOS	Density (veh/mi/ln)	LOS	Density (veh/mi/l)	LOS
Ramps								
I-85 NB, on-ramp from Old Peachtree Road CD, merge ♦	24.7	C	37.6	**E**	N/A		N/A	
I-85 NB at Old Peachtree Rd CD Major Merge								
Upstream I-85 NB at Old Peachtree Rd CD NB merge ♦	N/A		N/A		Under Capacity		Under Capacity	
Upstream Old Peachtree Rd CD NB at I-85 NB merge ♦	N/A		N/A		Under Capacity		**Over Capacity**	
Downstream I-85 NB at Old Peachtree Rd CD NB merge ♦	N/A		N/A		Under Capacity		Under Capacity	
I-85 NB, off-ramp to SR 317, lane drop in no-build	Under Capacity		Under Capacity		Under Capacity		Under Capacity	
I-85 NB, on-ramp from SR 317, merge ♦	30.4	D	39.5	**F***	17.5	B	27.4	**F***
I-85 NB, off-ramp to I-985 NB, lane drop plus optional lane (diverge)	34.8	D	46.8	**F**	33.3	D	44.9	**F**
I-85 NB, off-ramp to SR 20/Buford Drive, lane drop (diverge)	Under Capacity		**Over Capacity**		Under Capacity		**Over Capacity**	
I-85 NB, on-ramp from SR 20/Buford Drive, merge ♦	34.2	D	40.6	**F**	Under Capacity		Under Capacity	
I-85 NB, off-ramp to SR 324, diverge ♦	9.9	A	16.9	**F***	Under Capacity		Under Capacity	
I-85 NB, on-ramp from SR 324, merge	28.5	D	37.7	**E**	26.1	C	33.4	D
I-85 NB, off-ramp to Hamilton Mill Road, diverge ♦	34.1	C	49.2	**F***	Under Capacity		Under Capacity	
I-85 NB, on-ramp from Hamilton Mill Road, merge	N/A		N/A		Under Capacity		Under Capacity	
I-85 SB, off-ramp to Hamilton Mill Road, diverge	Under Capacity		Under Capacity		Under Capacity		Under Capacity	

Facility	No-Build				Preferred Alternative			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Density (veh/mi/ln)	LOS	Density (veh/mi/ln)	LOS	Density (veh/mi/ln)	LOS	Density (veh/mi/l)	LOS
I-85 SB, on-ramp from Hamilton Mill Road, merge	38.4	**F***	30.9	D	36.3	**F***	26.4	C
I-85 SB, off-ramp to SR 324, diverge	37.2	**F***	28.1	D	33.8	D	25.1	C
I-85 SB, on-ramp from SR 324, merge	35.3	**E**	31.9	D	33.4	D	29.4	D
I-85 SB, off-ramp to SR 20/Buford Drive, diverge	42.7	**F**	38.4	**E**	36.2	**E**	33.0	D
I-85 SB, on-ramp from SR 20/Buford Drive, merge ♦	47.7	**F**	36.8	**E**	**Over Capacity**		Under Capacity	
I-85 SB at I-985 Major Merge								
Upstream I-85 SB at I-985 SB merge ♦	**Over Capacity**		Under Capacity		**Over Capacity**		Under Capacity	
Upstream I-985 SB at I-85 SB merge♦	Under Capacity		Under Capacity		**Over Capacity**		Under Capacity	
Downstream I-85 SB at I-985 SB, merge ♦	**Over Capacity**		Under Capacity		**Over Capacity**		Under Capacity	
I-85 SB, off-ramp to SR 317/ Lawrenceville Suwanee Rd, diverge ♦	43.1	**F**	32.4	D	Under Capacity		Under Capacity	
I-85 SB, on-ramp from SR 317/ McGinnis Ferry Rd, merge♦	29.2	**F***	16.8	B	27.4	**F***	14.8	B
I-85 SB, off-ramp to Old Peachtree Road CD, diverge	26.2	**F***	1.3	A	22.3	**F***	0.2	A
I-85 SB, on-ramp from Old Peachtree Road, merge	27.7	C	24.5	C	31.5	D	24.1	C

Note: X denotes volume that exceeds capacity, LOS F
F denotes that the ramp demand exceeds capacity based on "Flow Entering Influence Area"*
♦ denotes change in general purpose lane geometry between No-Build and Build conditions
Source: Traffic Report for I-85 Express Lanes, October 2014

Weaving Areas

Table 7 summarizes the 2038 HCS operating analyses for the AM and PM peak hour periods for the study area weaving areas. The weave results are divided between weaving movements for general purpose lane users and weave movements for managed lane users.

The general purpose lane weave movements would degrade in the **Preferred Alternative** from LOS E or better in 2018 to LOS F or better in 2038 due to increases in traffic volumes and the introduction of a new interchanges at McGinnis Ferry Road. The general purpose lane weave between SR 317 and I-985 would continue to operate at LOS F in the peak hour direction and LOS E in the off-peak direction in 2038 under the build conditions.

The proposed intermediate managed lane opening areas along I-85 within the project limits would be located between every interchange from Old Peachtree Road to Hamilton Mill Road. These movements were analyzed as both one-sided and two sided weaves. The managed lane vehicles that were weaving across the double skip line between the managed lanes and general purpose lanes were evaluated as one-sided weaves. The managed lane vehicles that were weaving across the general purpose lanes to access the managed lanes after entering the freeway or that were weaving across the general purpose lanes after exiting the managed lanes were evaluated as two-sided weaves.

Four locations would experience LOS F in 2038 under the Build conditions:

- I-85 NB Opening for McGinnis Ferry Road/SR 317 (PM peak hour);
- I-85 SB Opening for Hamilton Mill Road (AM peak hour);
- I-85 SB Opening for Old Peachtree Road CD (AM peak hour); and
- I-85 SB Opening for SR 120 (AM peak hour).

Three additional locations would experience LOS E in 2038 under the Build conditions:

- I-85 NB Opening for I-985 (PM peak hour);
- I-85 NB Opening for SR 20 (PM peak hour); and
- I-85 SB Opening for SR 317 (AM peak hour).

Table 7. Design Year (2038) HCS Weaving Analysis

Facility	No-Build				Preferred Alternative			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
General Purpose Lane Weave Areas								

Facility	No-Build				Preferred Alternative			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
I-85 NB, between on-ramp from Old Peachtree Road CD & off-ramp to McGinnis Ferry Rd/SR 317 ♦	N/A		N/A		36.2	**E**	X	**F**
I-85 NB, between on-ramp from SR 317 & off-ramp to I-985, two-sided weave	40.7	**E**	X	**F**	39.0	**E**	X	**F**
I-85 SB, between on-ramp from I-985 & off-ramp to SR 317, two-sided weave ♦	X	**F**	40.9	**E**	X	**F**	53.0	**E**
I-85 NB CD at SR 20, between loop ramps	12.5	B	16.2	B	12.0	B	17.0	B
I-85 SB CD at SR 20, between loop ramps	11.9	A	5.5	A	13.6	B	5.3	A
SR 20 EB at I-85, between loop ramps, arterial weave	26.7	C	26.2	C	20.1	B	20.4	B
SR 20 WB at I-85, between loop ramps, arterial weave	37.9	**E**	32.0	C	31.4	C	26.8	C
Managed Lane Weave Area								
I-85 NB, between ML Opening for McGinnis Ferry Rd/SR 317 and McGinnis Ferry Rd/SR 317 off-ramp, two-sided weave	29.6	D	X	**F**	28.3	D	46.1	**E**
I-85 NB, between Old Peachtree Rd CD on-ramp and ML Opening for I-985, two-sided weave	Weave distance exceeds the maximum weave length, L_{MAX}							
I-85 NB, ML Opening for I-985, one-sided weave	N/A		N/A		22.1	C	41.2	**E**
I-85 NB, between SR 317 on-ramp and ML Opening for SR 20, two-sided weave	Weave distance exceeds the maximum weave length, L_{MAX}							
I-85 NB, ML Opening for SR 20, one-sided weave	N/A		N/A		16.6	B	28.3	D
I-85 NB, between ML Opening for SR 20 and SR 20 off-ramp, two-sided weave	N/A		N/A		23.2	C	42.2	**E**
I-85 NB, between ML Opening for SR 324 and SR 324 off-ramp, two-sided weave	N/A		N/A		22.4	C	27.5	C
I-85 NB, between End of ML and Hamilton Mill Rd off-ramp, two-sided weave	N/A		N/A		19.5	B	32.7	D

Facility	No-Build				Preferred Alternative			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
I-85 SB, between Hamilton Mill Rd on-ramp & ML Opening for Hamilton Mill Rd, two-sided weave	N/A		N/A		X	**F**	29.6	D
I-85 SB, between SR 324 on-ramp & ML Opening for SR 20, two-sided weave	Weave distance exceeds the maximum weave length, L_{MAX}							
I-85 SB, between ML Opening for SR 20 and SR 20 off-ramp, two-sided weave	N/A		N/A		25.8	C	22.2	C
I-85 SB, between SR 20 on-ramp and ML Opening for SR 317, two-sided weave	N/A		N/A		42.9	**E**	21.9	C
I-85 SB, between ML Opening for SR 317 and SR 317 off-ramp, two-sided weave	Weave distance exceeds the maximum weave length, L_{MAX}							
I-85 SB, ML Opening for SR 317, one-sided weave	N/A		N/A		28.3	D	16.6	B
I-85 SB, between I-985 on-ramp and ML Opening for Old Peachtree Rd CD, two-sided weave	Weave distance exceeds the maximum weave length, L_{MAX}							
I-85 SB, ML Opening for Old Peachtree Rd CD, one-sided weave	N/A		N/A		X	**F**	27.1	C
I-85 SB, between ML Opening for Old Peachtree Rd CD and Old Peachtree Rd CD off-ramp, two-sided weave	Weave distance exceeds the maximum weave length, L_{MAX}							
I-85 SB, between McGinnis Ferry Rd/SR 317 on-ramp and ML Opening for SR 120, two-sided weave	X	**F**	38.9	**E**	X	**F**	36.3	**E**

Note: X denotes volume that exceeds capacity, LOS F
♦ denotes change in general purpose lane geometry between No-Build and Build conditions
Source: Traffic Report for I-85 Express Lanes, October 2014

Crash Statistics:

The crash and injury rates for 2010-2012 were below the statewide average, while the fatality rate exceeded the statewide average in 2011 with four deaths and a fatality rate of 0.92 fatalities per 100 million vehicle miles traveled (see Table). While the crash rates are comparable with crashes on the interstate statewide, the number of crashes in conjunction with the traffic volumes on this segment of I-85 contributes to delay and increases the unreliability in travel time. During the 2010-2012 timeframe, there were 1,576 crashes on the corridor. On average, 8 crashes occurred each week in 2010, 10 crashes per week in 2011, and 12 crashes per week in 2012. On rare occasions there were weeks where there were no documented crashes. The unpredictability of the time,

location, number and severity of crashes add to the delay in travelling through the corridor resulting in unreliable travel time.

Table 8: Crash History of I-85: 2010 - 2012

Crash History of I-85 from Old Peachtree Road to Hamilton Mill Road

Year	Total Crashes/ Crash Rate/ Statewide Average Crash Rate*	Total Injuries/ Injury Rate/ Statewide Average Injury Rate*	Total Fatalities/ Fatality Rate/ Statewide Average Fatality Rate*
2012	620/143/205	205/47/63	0/0/0.50
2011	521/120/181	150/35/57	4/0.92/0.52
2010	435/96/175	149/33/59	2/0.44/0.51

* All crashes, injury, and fatality rates are per 100 million vehicle miles.

Logical Termini: Logical termini are defined as rational end points for a transportation improvement and rational end points for a review of the environmental impacts. The most common termini are points of major traffic generation, especially intersecting roadways. In order to ensure meaningful evaluation of alternatives and to avoid commitments to transportation improvements before they are fully evaluated, FHWA regulations (23 CFR 771.111(f)) require that the action evaluated shall:

(1) Connect logical termini and be of sufficient length to address environmental matters on a broad scope. In the highway context, logical termini generally are represented by crossroads, population centers, major traffic generators, or major breakpoints in traffic volumes. At a minimum, in order for a segment to possess logical termini, the terminus must be at a point where there is an opportunity for traffic to enter or exit. The southern terminus at Old Peachtree Road (Exit 109) connects to existing managed lanes. The northern terminus is just north of the Hamilton Mill Road bridge overpass (Exit 120); Population densities in the counties north of Gwinnett County are substantially lower.

In addition, the traffic operations analysis confirms that in the No-Build condition, desirable or minimally desirable levels of service (LOS A-D) will occur in 2038 beyond the proposed termini. The project termini of Old Peachtree Road and Hamilton Mill Road are appropriate to address the travel time, mobility, and congestion concerns in the project corridor.

The length of the project is approximately 10 miles, which is sufficient to address environmental matters on a broad scope. Environmental consequences of the projects would be addressed at local and regional scales as appropriate, depending on the environmental resources being considered and the potential extent of direct, indirect, and cumulative impacts on them.

Additional improvements, such as ITS equipment and signage, beyond the actual roadway construction, will also be taken into consideration in the environmental analyses.

(2) Have independent utility or independent significance, i.e., be usable and be a reasonable expenditure even if no additional transportation improvements in the area are made. Determinations regarding independent utility are based on whether a proposed undertaking can function or operate on its own and is considered usable if no other improvements are made. The traffic analysis for this project predicts that the extension of the managed lanes as well as the addition of auxiliary lanes will be able to accommodate the latent demand for increased travel on I-85 in the open and design year and that, by accommodating this demand, the Build condition would largely avoid the significant bottlenecks that would significantly impact travel patterns in the No-Build condition.

The travel demand model produces average annual daily traffic (AADT) forecasts for each link in the roadway network. Specific locations were targeted for tracking AADT growth from 2014, 2018, and 2038. Examples of this are shown in **Table 9**.

Table 9. Annual Average Daily Traffic (AADT) Summary (x1,000)

Segments	Existing 2014	Build Alternatives						Annual Growth Rate 2018 to 2038
		No-Build 2018	Build 2018 GP	Build 2018 ML	No-Build 2038	Build 2038 GP	Build 2038 ML	
I-85 between Old Peachtree Rd and SR 317	157.6	164.1	158.6	5.5	221.0	209.5	11.5	1.5%
I-85 between SR 317 and I-985	150.6	156.8	151.2	5.6	211.2	198.9	12.3	1.5%
I-85 between I-985 and SR 20	87.6	91.2	85.6	5.6	122.8	110.5	12.3	1.5%
I-85 between SR 20 and Gravel Springs Rd	72.9	75.8	70.7	5.1	103.3	93.2	10.1	1.5%
I-85 between Gravel Springs Rd and Hamilton Mill Road	72.9	75.8	70.1	5.8	100.1	91.4	8.7	1.5%

Source: The ARC Plan 2040 Travel Demand Model & PM 2.5 Hot Spots Data

Table 10 shows that the most common trip on the existing I-85 Express Lanes is the entire length of the system (Old Peachtree to I-285) during the peak periods. This is an

indication of the demand at the northern terminus of the existing I-85 Express Lanes for peak period trips.

Table 10. I-85 Express Lanes Peak Period Trips 2014

AM PEAK PERIOD (6:00am to 10:00am)				PM PEAK PERIOD (3:00pm to 7:00pm)			
Hour of Trip	**Direction**	**Origin to Destination**	**Avg Trips/Hour**	**Hour of Trip**	**Direction**	**Origin to Destination**	**Avg Trips/Hour**
6:00am	NB	I-285 to Old Peachtree	10.1	3:00pm	NB	I-285 to Old Peachtree	180.5
		Indian Trail to Old Peachtree	6.3			Indian Trail to Old Peachtree	24.5
		Jimmy Carter to Old Peachtree	16.5			Jimmy Carter to Old Peachtree	163.7
		Old Peachtree to Old Peachtree	3.5			Old Peachtree to Old Peachtree	16.1
		Pleasant Hill to Old Peachtree	5.7			Pleasant Hill to Old Peachtree	20.9
		Total	**41.5**			**Total**	**404.2**
	SB	Old Peachtree to I-285	242.0		SB	Old Peachtree to I-285	26.8
		Old Peachtree to Indian Trail	64.6			Old Peachtree to Indian Trail	6.3
		Old Peachtree to Jimmy Carter	165.2			Old Peachtree to Jimmy Carter	12.0
		Old Peachtree to Old Peachtree	12.3			Old Peachtree to Old Peachtree	5.8
		Old Peachtree to Pleasant Hill	33.2			Old Peachtree to Pleasant Hill	6.2
		Total	**515.4**			**Total**	**56.4**
7:00am	NB	I-285 to Old Peachtree	15.7	4:00pm	NB	I-285 to Old Peachtree	297.0
		Indian Trail to Old Peachtree	8.8			Indian Trail to Old Peachtree	32.5
		Jimmy Carter to Old Peachtree	18.7			Jimmy Carter to Old Peachtree	126.4
		Old Peachtree to Old Peachtree	6.3			Old Peachtree to Old Peachtree	32.0
		Pleasant Hill to Old Peachtree	6.4			Pleasant Hill to Old Peachtree	36.9
		Total	**55.2**			**Total**	**519.5**

AM PEAK PERIOD (6:00am to 10:00am)				PM PEAK PERIOD (3:00pm to 7:00pm)			
Hour of Trip	**Direction**	**Origin to Destination**	**Avg Trips/Hour**	**Hour of Trip**	**Direction**	**Origin to Destination**	**Avg Trips/Hour**
	SB	Old Peachtree to I-285	171.8		SB	Old Peachtree to I-285	33.6
		Old Peachtree to Indian Trail	19.9			Old Peachtree to Indian Trail	6.3
		Old Peachtree to Jimmy Carter	81.8			Old Peachtree to Jimmy Carter	16.3
		Old Peachtree to Old Peachtree	38.9			Old Peachtree to Old Peachtree	6.6
		Old Peachtree to Pleasant Hill	24.5			Old Peachtree to Pleasant Hill	7.1
		Total	**333.9**			**Total**	**68.7**
8:00am	NB	I-285 to Old Peachtree	12.5	5:00pm	NB	I-285 to Old Peachtree	271.6
		Indian Trail to Old Peachtree	6.6			Indian Trail to Old Peachtree	38.6
		Jimmy Carter to Old Peachtree	15.8			Jimmy Carter to Old Peachtree	114.2
		Old Peachtree to Old Peachtree	7.5			Old Peachtree to Old Peachtree	77.7
		Pleasant Hill to Old Peachtree	6.1			Pleasant Hill to Old Peachtree	50.6
		Total	**47.5**			**Total**	**549.6**
	SB	Old Peachtree to I-285	151.4		SB	Old Peachtree to I-285	43.8
		Old Peachtree to Indian Trail	14.4			Old Peachtree to Indian Trail	7.3
		Old Peachtree to Jimmy Carter	70.5			Old Peachtree to Jimmy Carter	24.8
		Old Peachtree to Old Peachtree	11.8			Old Peachtree to Old Peachtree	9.2
		Old Peachtree to Pleasant Hill	16.2			Old Peachtree to Pleasant Hill	7.8
		Total	**263.9**			**Total**	**92.4**
9:00am	NB	I-285 to Old Peachtree	11.6	6:00pm	NB	I-285 to Old Peachtree	175.1
		Indian Trail to Old Peachtree	7.6			Indian Trail to Old Peachtree	24.9

AM PEAK PERIOD (6:00am to 10:00am)				PM PEAK PERIOD (3:00pm to 7:00pm)			
Hour of Trip	**Direction**	**Origin to Destination**	**Avg Trips/Hour**	**Hour of Trip**	**Direction**	**Origin to Destination**	**Avg Trips/Hour**
		Jimmy Carter to Old Peachtree	14.0			Jimmy Carter to Old Peachtree	92.0
		Old Peachtree to Old Peachtree	3.5			Old Peachtree to Old Peachtree	31.0
		Pleasant Hill to Old Peachtree	5.0			Pleasant Hill to Old Peachtree	24.9
		Total	**41.6**			**Total**	**344.9**
	SB	Old Peachtree to I-285	112.7		SB	Old Peachtree to I-285	26.2
		Old Peachtree to Indian Trail	13.4			Old Peachtree to Indian Trail	5.8
		Old Peachtree to Jimmy Carter	51.9			Old Peachtree to Jimmy Carter	19.5
		Old Peachtree to Old Peachtree	9.0			Old Peachtree to Old Peachtree	7.8
		Old Peachtree to Pleasant Hill	12.1			Old Peachtree to Pleasant Hill	5.7
		Total	**197.4**			**Total**	**64.4**

Other Projects in the Vicinity

Adjacent to the northern terminus of this project, NH-IM0-0085-2(165) P.I. 110610 will widen I-85 to three lanes in each direction from Hamilton Mill Road to S.R. 211 in Barrow County. The southern terminus of this project is associated with at least one or more other projects: Projects CSMSL-0009-00(295), CSMSL-0009-00(296), CSMSL-0009-00(297), P.I. Numbers 0009295, 0009296, and 0009297, which are currently completed and operational and have converted the existing High Occupancy Vehicle (HOV) lanes along I-85 from Chamblee Tucker Road to just north of Old Peachtree Road to High Occupancy Toll (HOT) lanes. A full diamond interchange, PI No. 0012698, is under development along I-85 at SR 324/Gravel Springs Road. A half diamond interchange, PI No. 0013104, is under development along I-85 at McGinnis Ferry Road.

Consideration of Avoidance Alternatives on Reasonably Foreseeable Projects: Finally, this project would not preclude the consideration of any alternatives on the proposed managed lanes project. Based on the current NEPA document, the managed lanes are to be located within the existing right-of-way of I-85. Even though environmental impacts are not expected to be significant for the managed lanes project, the locations of the foreseeable projects do not constrain possible avoidance alternatives for the managed lanes project.

Local Community and Business Concerns/Issues

The I-85 Express Lane project is located within Gwinnett County, Georgia. One aspect of the local community concerns was an aversion to the managed lanes concept, and its effects on the lower income population. Another concern was that the additional lanes did not continue far enough along I-85, which will be addressed with future projects.

Traffic Growth Rates

Gwinnett County's population is expected to grow by 35% between 2018 and 2038, from 833,938 to 1,185,732 (ARC, Plan 2040). Traffic volumes on I-85 have been growing at a rate of approximately 1.5% per year, and the current volume is approximately 108,320 vehicles per day through the project limits. The existing section of I-85 represents a constriction for the mainline through traffic, the merging traffic onto I-85 from I-985, SR20 and SR317. The lane and speed changes of the entering and exiting vehicles cause deterioration in traffic operations resulting in congested conditions.

SECTION 4 – WORK ZONE IMPACTS ASSESSMENT REPORT

Quantitative Summary of Anticipated Work Zone Impacts

The greatest impact anticipated in the work zone is an increase in the travel time through the work zone due to the reduced speed limit and the presence of temporary traffic control measures. The reduction in speed limit is necessary for the safety of workers on the job site, as well as those traveling through the work zone where reduced shoulders are required by the construction activities.

Impacts Assessment of Alternative Project Design and Management Strategies

A wide range of work zone management strategies were considered for this project; however, in order to be in compliance with contract provisions, to accommodate temporary and permanent utility relocations, and to stay within the acquired right-of-way, many were deemed not viable. TABLE 11 summarizes the assessment of work zone management strategies and identifies those to be used as part of this Traffic Management Plan.

TABLE 11 – Work Zone Management Strategy Assessment

Management Strategy	Mobility Improvement	Motorist Safety Improvement	Worker Safety Improvement	Comments	Used (Y/N)
TEMPORARY TRAFFIC CONTROL (TTC) STRATEGIES					
Control Strategies					
Construction Phasing//Staging	X	X		Construction staging utilized in order to accommodate utility relocations, Section 150, and right-of-way constraints.	YES

Management Strategy	Mobility Improvement	Motorist Safety Improvement	Worker Safety Improvement	Comments	Used (Y/N)
Full Roadway Closure – I-85			X	Not feasible due to volume of traffic and no suitable detour route	NO
Reduced lane Width to Maintain Number of Lanes	X			Reduced Lane widths will be necessary to maintain the number of lanes	YES
Permanent Lane closure			X	Not allowed per special provision – section 150 provided in the contract	NO
Reduced shoulder width to maintain number of lanes	X			Reduced shoulder widths will be necessary to maintain the number of lanes for each stage	YES
Shoulder Closure to Provide Worker Safety			X	Shoulder closure on I-85 may be necessary during certain portions of each stage and will be in compliance with special provision – section 150	YES
Lane shift to shoulder/median to maintain number of lanes	X		X	Lane shifts will be utilized and traffic placed on shoulder pavement to maintain number of lanes and create a safe workzone	YES
Night Work	X			Used on I-85 in conjunction with temporary lane closures.	YES
Weekend Work	X			Used on I-85 in conjunction with temporary lane closures.	YES
Work Hour Restrictions for Peak Travel	X			Lane closure restrictions during peak hours and seasonal limitations implemented	YES
Traffic Control Devices					
Temporary Warning Signs	X	X	X	Provided with contractor generated Traffic Control Plan	YES
Regulatory Signs	X	X	X	Existing regulatory sings to be maintained or relocated in the field as required.	YES
Temporary Guide/Information Signs	X	X		Temporary guide signs used in the field as required.	YES
Changeable Message Signs (CMS)	X	X		Used to alert I-85 road users as to when to expect traffic delays and prior to major changes in traffic patterns.	YES
Arrow Panels	X	X	X	Arrow panels to be used with temporary lane closures	YES

Management Strategy	Mobility Improvement	Motorist Safety Improvement	Worker Safety Improvement	Comments	Used (Y/N)
Channelizing Devices	X	X	X	Channelizing devices to be used to help facilitate lane shifts/tapers and to delineate work zone.	YES
Temporary Pavement Markings	X	X	X	Temp pavement marking to be utilized on I-85 to delineate lane shifts and tapers.	YES
Temporary Traffic Signals	X	X	X	No temporary signals will be necessary during construction.	NO
Project Coordination					
Coordination with Other Projects	X	X	X	N/A	NO
Utility Coordination	X			Proposed project was designed around existing utilities with minimum relocations.	YES
Right-of-Way Coordination	X			Acquisition of nine parcels and easements.	YES
Design-Build	X			Design-build contract awarded.	YES
Innovative Construction Techniques	X			Design criteria established in contract limits alternative or non-standard design and innovative construction techniques, not beneficial given project scope.	NO
PUBLIC INFORMATION STRATEGIES					
Public Awareness Strategies					
Brochures and Mailers	X	X	X	The majority of impacted users would be commuter traffic, high traffic volumes and few directly impacted parcels make this cost prohibitive	NO
Press Releases/Media Alerts	X	X	X	GDOT Communications Office to issue press releases regarding the project and lane closures.	YES
Project Website	X	X	X	GDOT's NAVIGATOR website will serve as the project information website.	YES
Public Meetings/Hearings	X	X	X	Two Public Information Open Houses	NO
Changeable message signs (CMS)	X	X	X	Signs to be used in accordance with the contractors Traffic Control Plan	YES

Management Strategy	Mobility Improvement	Motorist Safety Improvement	Worker Safety Improvement	Comments	Used (Y/N)
Temporary motorists information signs	X	X	X	Advance warning signs to be placed in accordance with contractor's Traffic Control Plan	YES
Highway information network (web-based)	X		X	GDOT's NAVIGATOR to be utilized for this project	YES
511 traveler information systems (wireless, handheld)	X	X	X	Utilized in conjunction with GDOT's NAVIGATOR page	YES
Transportation Management Center (TMC)	X	X	X	Portions of I-85 are currently monitored through this segment.	YES
Incentives for carpooling/ ridesharing/ using transit/ park-and-ride/	X			Project delay not significant enough to warrant costs for these measures. Inform users of alternate ways to avoid delays.	NO
TRANSPORTATION OPERATIONS (TO) STRATEGIES					
Demand Management Strategies					
Transit Service Improvements Incentives and Shuttle Services	X			Transit service improvements incentives and shuttle services are not cost effective for this project. Transit alternatives exist and use can be promoted through public awareness campaign.	NO
HOV Lanes, Toll/Congestion Pricing, Ramp Metering	X	X		These strategies not applicable to this project	NO
Corridor Management Strategies					
Signal Timing/Coordination Improvement	X	X		No signal timing changes are needed for the project.	NO
Work Zone Safety Management Strategies					
Speed limit reduction/ variable speed limit		X	X	Speed limit reduction on I-85 through work zone planned. The majority of work located adjacent to travel lanes and traffic shifts are required to provide adequate work site for construction and to provide safer construction zone for workers.	YES
Temporary Traffic Barrier		X	X	Temporary traffic barrier used to separate traveling public from work sites on I-85.	YES
Crash-cushions		X	X	Temporary attenuators will be utilized.	YES

Management Strategy	Mobility Improvement	Motorist Safety Improvement	Worker Safety Improvement	Comments	Used (Y/N)
Construction Safety Supervisor		X	X	Contractor's Safety Manager is Chris Blair	YES
TMP monitor/inspection team	X	X	X	Contractor's Traffic Control Supervisor is Jeff Duncan	YES
Team Meetings		X	X	Contractor policy requires weekly safety meetings.	YES
Project on-site safety training			X	Contractor personnel receive safety training annually and as needed for compliance.	NO
Traffic / Incident Management & Enforcement Strategies					
ITS for Traffic Monitoring	X	X	X	Portions of I-85 are currently monitored through this segment.	YES
Coordination with Media	X	X		Coordination with local governments and GDOT to issue media alerts in conjunction with public information strategies	YES
Incident/Emergency Response Plan	X	X	X	Plan is required as part of the Design Build Contract.	YES
Dedicated (paid) Police Enforcement		X	X	Work zone law enforcement will be utilized for this project.	YES
Increased penalties for work zone violations		X	X	Increased speeding fines through work zones will be used.	YES

Traffic Analysis Results

The Work Zone Management Strategy does not include Permanent Lane Closures at any time and Temporary Lane Closures during peak periods. Because of this it is anticipated that there will be insignificant impact to the travel times during the peak periods.

Safety

The Project Team understands that consideration and management of work zone impacts related to the safety and mobility of the road user, as well as all construction workers, must be an integral part of the planning, design and construction of this project. Recognizing the constraints and challenges identified above, The CWM Team has developed construction staging and maintenance of traffic plans under the following guiding principle:

"Move road users through and around work zones efficiently and safely with minimum delay, without compromising the safety of construction workers or sacrificing the quality of the finished product."

Safety of construction workers and road users shall take precedence over work zone mobility and shall not be sacrificed to reduce delay through the construction zone. Several of the work zone

management strategies to be utilized for this project are incorporated strictly for construction worker and motorist safety. If any implemented work zone management strategies are observed to create an unsafe condition for the motorist or the construction workers, the unsafe condition shall be immediately resolved prior to resuming construction activities.

Adequacy of Detour Routes

No detours are anticipated to be needed during the life of this project.

Business/Community Impact

It is anticipated that construction will create unavoidable, temporary inconveniences to motorists by interrupting regular existing traffic flow along I-85 within the project limits and potentially delaying travel. However, construction activities will be conducted in a manner that will maintain continuous access during peak travel demand hours to minimize traffic conflicts. Lane closures will occur at night, and access will be maintained at all other times so that minimal impact to the traveling public occurs.

Seasonal Impact

Traffic Control Special Provision 150 provides additional holiday and event restrictions. Work that interferes with traffic will not be allowed during Independence Day, Labor Day, Thanksgiving through New Year and Memorial Day. Lane closures will not be allowed during the time periods which conflict with special events, including but not limited to Events at Gwinnett Arena and Gwinnett Braves games. The stipulations set forth in the Traffic Control Special Provision 150 will minimize any additional delay as a result of the increased traffic volumes that have not been accounted for in the traffic analysis provided.

Cost Effectiveness/Evaluation of Alternatives

See Table 11 – Work Zone Management Strategies
'Comments' column provides information relative to each suggested work zone management strategy

Selected Alternative

See Table 11 – Work Zone Management Strategies
'Used (Y/N)' column states whether each management strategy is to be implemented for the project

SECTION 5 – SELECTED WORK ZONE IMPACTS MANAGEMENT STRATEGIES

Temporary Traffic Control (TCC) Strategies

Temporary traffic control (TCC) strategies selected to manage work zone impacts will compliment the staged construction described in the previous section (see approved construction and staging plans for more detailed information). To help facilitate and move road users through and around the project area, the Temporary Traffic Control Work Zone Management Strategies identified below will be implemented.

1. Traffic Control Strategies During Construction
   - Staged construction to accommodate utility relocation and maintain travel lanes.
   - Reduced shoulder widths to maintain existing number of travel lanes.
   - Temporary shoulder closures to provide worker safety.
   - Lane shift to shoulder to maintain number of lanes and create a safe work zone.
   - Night/Weekend/Off Peak work hours to minimize impacts to traveling public

2. Traffic Control Devices
   - Temporary Warning Signs
   - Regulatory Signs
   - Guide/Information signs
   - Changeable Message Signs (CMS)
   - Arrow Panels
   - Channelizing Devices
   - Temporary Pavement Markings

3. Project Coordination, Contracting and Innovative Construction Strategies
   - Early utility coordination
   - Design-build procurement

Control strategies are outlined in the Traffic Control Special Provision 150 as well as above. In addition, Special Provision 150.11 allows for lane closures at various times. Temporary lane closures will be implemented in accordance with GDOT Standard Numbers 9106 and 9107 and the following project specific time restrictions:

A. Work Hours:

   a. I-85 SB and ramps between I-985 and Old Peachtree Road:
      1. Single Lane Closure
         1. Single lane closures are allowed between the hours of 8:00 pm to 5:00 am, Sunday through Thursday.
         2. Single lane closures are allowed between the hours of 8:00 pm Friday to 7:00 am Saturday.
         3. Single lane closures are allowed between the hours of 8:00 pm Saturday to 9:00 am Sunday.

4. Single lane closures are allowed between 10:00 am to 3:00 pm Monday through Friday.

2. Double Lane Closure
    1. Double lane closures are allowed between the hours of 11:00 pm to 5:00 am, Sunday through Thursday.
    2. Double lane closures are allowed between the hours of 11:00 pm Friday to 6:00 am Saturday.
    3. Double lane closures are allowed between the hours of 11:00 pm Saturday to 7:00 am Sunday.
3. Triple Lane Closure
    1. Triple lane closures are allowed between the hours of 12:00 am to 4:00 am Monday through Friday.
    2. Triple lane closures are allowed between the hours of 12:00 am Saturday to 5:00 am Saturday.
    3. Triple lane closures are allowed between the hours of 12:00 am Sunday to 5:00 am Sunday.
4. Traffic Pacing:
    1. Traffic pacing will be allowed between the hours of 11 pm to 4 am daily.

b. I-85 SB and ramps between Hamilton Mill Road and I-985 (applies when three (3) or more lanes are open to traffic)
    1. Single Lane Closure
        1. Single lane closures are allowed between the hours of 8:00 pm to 5:00 am, Sunday through Thursday.
        2. Single lane closures are allowed between the hours of 8:00 pm Friday to 7:00 am Saturday.
        3. Single lane closures are allowed between the hours of 8:00 pm Saturday to 9:00 am Sunday.
    2. Double Lane Closure (can occur when 3 lanes are open to traffic)
        1. Double lane closures are allowed between the hours of 10:00 pm to 5:00 am, Sunday through Thursday.
        2. Double lane closures are allowed between the hours of 10:00 pm Friday to 6:00 am Saturday.
        3. Double lane closures are allowed between the hours of 10:00 pm Saturday to 7:00 am Sunday.
    3. Traffic Pacing
        1. Traffic pacing will be allowed between the hours of 11 pm to 4 am daily.

c. I-85 SB and ramps between Hamilton Mill Road and I-985 (Current Configuration of two (2) lanes)
    1. Single Lane Closure
        1. Single lane closures are allowed between the hours of 9:00 pm to 5:00 am, Sunday through Thursday.
        2. Single lane closures are allowed between the hours of 9:00 pm Friday to 7:00 am Saturday.

3. Single lane closures are allowed between the hours of 9:00 pm Saturday to 9:00 am Sunday.

2. Double Lane Closures are not allowed at any time
3. Traffic Pacing
    1. Traffic pacing will be allowed between the hours of 11 pm to 4 am daily.

d. I-85 NB and ramps between Old Peachtree Road and I-985
    1. Single Lane Closure
        1. Single lane closures are allowed between the hours of 9:00 pm to 5:00 am, Sunday through Thursday.
        2. Single lane closures are allowed between the hours of 9:00 pm Friday to 7:00 am Saturday.
        3. Single lane closures are allowed between the hours of 9:00 pm Saturday to 9:00 am Sunday.
        4. Single lane closures are allowed between 9 am to 2 pm Monday through Friday.
    2. Double Lane Closure
        1. Double lane closures are allowed between the hours of 11:00 pm to 5:00 am, Sunday through Thursday.
        2. Double lane closures are allowed between the hours of 11:00 pm Friday to 6:00 am Saturday.
        3. Double lane closures are allowed between the hours of 11:00 pm Saturday to 7:00 am Sunday.
    3. Triple Lane Closure
        1. Triple lane closures are allowed between the hours of 12:00 am to 4:00 am Monday through Friday.
        2. Triple lane closures are allowed between the hours of 12:00 am Saturday to 5:00 am Saturday.
        3. Triple lane closures are allowed between the hours of 12:00 am Sunday to 5:00 am Sunday.
    4. Traffic Pacing
        1. Traffic pacing will be allowed between the hours of 11 pm to 4 am daily.

e. I-85 NB and ramps between I-985 to Hamilton Mill Road (applies when three (3) or more lanes are open to traffic)
    1. Single Lane Closure (closure of the Express lane or an auxiliary lane is considered a single lane closure):
        1. Single lane closures are allowed between the hours of 9:00 pm to 5:00 am, Sunday through Thursday.
        2. Single lane closures are allowed between the hours of 9:00 pm Friday to 7:00 am Saturday.
        3. Single lane closures are allowed between the hours of 9:00 pm Saturday to 9:00 am Sunday.
    2. Double Lane Closure
        1. Double lane closures are allowed between the hours of 10:00 pm to 5:00 am, Sunday through Thursday.

2. Double lane closures are allowed between the hours of 10:00 pm Friday to 6:00 am Saturday.
3. Double lane closures are allowed between the hours of 10:00 pm Saturday to 7:00 am Sunday.

3. Traffic Pacing
    1. Traffic pacing will be allowed between the hours of 11 pm to 4 am daily.

f. I-85 NB and ramps between SR 20 to Hamilton Mill Road (Current configuration of two (2) lanes)
    1. Single Lane Closure
        1. Single lane closures are allowed between the hours of 9:00 pm to 5:00 am, Sunday through Thursday.
        2. Single lane closures are allowed between the hours of 9:00 pm Friday to 7:00 am Saturday.
        3. Single lane closures are allowed between the hours of 9:00 pm Saturday to 9:00 am Sunday.
    2. Double Lane Closure are not allowed at any time.
    3. Traffic Pacing
        1. Traffic pacing will be allowed between the hours of 11 pm to 4 am daily.
g. The DB Team shall not install a complete closure of I-85 in either direction.
h. SR 20 EB & WB
    1. Single Lane Closure
        1. Single lane closures are allowed between the hours of 10:00 am to 3:00 pm Monday through Friday.
        2. Single lane closures are allowed between the hours of 9:00 pm to 6:00 am Monday through Sunday.
    2. Double Lane Closure
        1. Double lane closures are not allowed at any time.
    3. Traffic Pacing
        1. Traffic pacing will be allowed between the hours of 11 pm to 4 am daily.

Long term shoulder closures will be allowed on one shoulder with Department's approval in areas where there is an inside and outside shoulder. The shoulder opposite of the closed shoulder will have a minimum width of eight (8) feet except in areas where the existing concrete median barrier is less than eight (8) feet from the inside edge of travel way. Shoulder Closures will be allowed for a maximum of 180 days and a maximum distance of one (1) mile. There will be at least one (1) mile between long term shoulder closures. Long term shoulder closure is defined as any shoulder closures longer than times allowed per Volume 2, Section 18 of the Technical Proposal.

Lanes open to the traveling public shall be maintained and accessible except for times as stated per Volume 2, Section 18 of the Technical Proposal. A minimum lane width of eleven (11') feet shall be maintained during construction on all major roads and major crossing streets. GDOT at their discretion may allow lane widths of ten (10') feet for short

distances on minor crossing streets if necessary. Full closures of roadway will not be allowed without prior approval of GDOT and any other affected Governmental Authorities, and only after the submission and acceptance of a detailed Traffic Control Plan for said closure.

B. ITS System: The existing ITS System on I-85 and all those portions outside of the Project limits needed for temporary and permanent signing shall not be taken out of service for more than 24 hours at any time during construction.

C. TRAFFIC LOOPS: Removed Traffic Loops shall be replaced and operational within seven (7) calendar days of removal.

D. SPECIAL EVENT RESTRICTIONS:
No lane closures will be allowed that affects traffic a minimum of 2 hours before and 2 hours after a concert, Major Event, or Games (Gwinnett Braves, Gwinnett Arena, etc.) It is the responsibility of the Contractor to verify the schedule and plan The Work accordingly.

E. WORKZONE LAW ENFORCEMENT: Work zone Law Enforcement consists of utilizing a uniformed police officers in accordance with GDOT special provision Section 150 and the MUTCD. Uniformed police officers are to be equipped with a marked patrol vehicle and blue flashing lights to enforce traffic laws in construction work zones. The Contractor will be responsible for coordinating and scheduling the utilization for the Work zone Law Enforcement.

[BT3]

Public Information (PI)

One public information open house (PIOH) was held on September 29, 2014 at Gwinnett Center. A second public information open house (PIOH) was held on October 2, 2014 at Braselton Community Room.

Public awareness strategies during construction include utilizing:

- The Georgia Department of Transportation's Communications Office to issue various press releases regarding the project and lane closures.

Motorist information strategies during construction include utilizing:

- The Georgia Department of Transportation's NAVIGATOR for regular updates on traffic conditions and for issuing announcements on the overhead message boards as appropriate.
- Variable message signs at key locations in and around the project site that describe current traffic conditions around the project site.
- The Georgia Department of Transportation's NAVIGATOR will also have Traffic

Interruptions Reports posted on the website.

- Warning signs throughout the corridor informing the public of planned closures or major construction activities that could impact travel will be placed in order to give the traveling public a minimum of seven days notice as required.

Transportation Operations (TO)

Several transportation operations strategies will be implemented to mitigate impacts of the work zone on the operations and management of the transportation system within the work zone. Strategies during construction include the following:

1. Corridor/Network Management Strategies

    - Turning Restrictions – Turning movements to adjoining businesses will be maintained throughout construction were such movement does not create unsafe conditions for the motorist or workforce.

    - Established Truck and HazMat Routes – Existing specified trucking routes and routes for the transport of hazardous materials will be maintained. Suitable detours will be used with proper approvals if necessary, but are not anticipated.

2. Work Zone Safety Management Strategies

    - Speed Limit Reductions – The speed limits through the work zones of this project are reduced due to shoulder closures, traffic shifts, other changes to roadway geometry, and work occurring adjacent to the traffic lanes.

    - Work Zone Law Enforcement - Uniformed police officers equipped with marked patrol vehicles will be utilized to enforce traffic laws in the construction work zone during periods when temporary lane closures, traffic pacing, or other activities are occurring within the travel lanes.

    - Temporary Traffic Barrier – Temporary traffic barrier will be utilized to separate long term construction zones from the traffic lanes where restoration to safe conditions is not feasible or cost effective during periods when temporary lane closures are not allowed.

    - Traffic Device Maintenance and Replacement – All traffic devices installed for traffic control as well as all temporary markings will be regularly inspected in place by the WTCS, and if found to be damaged or ineffective will be removed and replaced as necessary to maintain safety of the traveling public.

    - TMP Monitoring/Inspection – The temporary traffic control strategies will be monitored to ensure they are properly implemented.

- Safe Ingress and Egress Planning - The proper set up and maintenance procedures for work zone ingress and egress points will be followed at all times. The following aspects will be addressed in the development and maintenance of access points:
  - Motorists following construction vehicles into the work space
  - Acceleration and deceleration of construction vehicles as they exit and enter open traffic lanes
  - Workers in the vicinity of ingress and egress locations
  - Proximity of parked or staged equipment and materials to passing motorists

3. Traffic/Incident Management and Enforcement Strategies

- ITS for Traffic Monitoring/Management – In cooperation with the GDOT Traffic Management Center, the existing ITS infrastructure located on I-85 will be utilized to monitor current traffic conditions and to communicate information to the motorist.

- Coordination With Media – Public information strategies include coordinating with the Georgia Department of Transportation's Communications Office to issue various press releases regarding the project and traffic impacts.

- Increased Penalties for Work Zone Violations – To encourage motorist compliance with warning and regulatory signing and reduced speed limits through the work zones, an increase in speeding fines is applicable as per Section 150 of the GDOT Standard Specifications.

SECTION 6 – TMP MONITORING

TMP Monitoring

Throughout the length of the project, traffic flow throughout the work zones will be closely monitored in the field by the TMP Implementation Task Leader, Freddy Sumner, and Worksite Traffic Control Supervisor, Jeff Duncan. If at any stage during construction it appears that the traffic impacts predicted in Section 4 of this plan are not the actual conditions in the field, traffic flow through the work zone will be monitored and all traffic control strategies will be reviewed and modified to the extent possible to improve traffic flow.

Evaluation and Reporting

During each stage of construction, the TMP Implementation Task Leader and TMP Manager will provide an assessment of the success of the overall TMP and the traffic control strategies being implemented. In addition, they will provide recommendations, if any, for improvements to the strategies being used.

Upon completion of the project, a review of the TMP's successes and failures are to be compiled with input from the GDOT project engineer as well as the contractor's TMP Manager. This report will be submitted for review and comment to GDOT.

SECTION 7 – CONTINGENCY PLANS

To minimize traffic impacts should unexpected events occur within the work zone a Contingency Plan for the I-85 Express project has been developed. The following events are considered trigger points that could potentially initiate the contingency plan:

- **Injury accidents** within or in close proximity to the work zone causing unexpected and congestion and a potential safety hazard.

- **Special Events** including sporting events, concerts, conferences which could produce much higher traffic volumes through the construction zone during time periods when such volumes are not anticipated.

- **Inclement Weather** that results in a decrease in work zone mobility and creates potential safety hazards.

Contract provisions allow temporary lane closures during off peak hours but do not allow permanent lane closures or a reduction in the number of lanes. For this reason the contingency plan primarily deals with advising motorists of the unexpected situations and communicating alternate routes for road users to take and specific action to be taken if a triggering event occurs during temporary lane closures.

Contingency Plan

1. The project management team shall consider planned special events in the region in construction planning and scheduling. To the extent possible, scheduling construction activities that would increase the impacts to traffic during special events will be avoided.

2. Should an injury accident within or near the work zone occur during the time temporary lane closures are in place, the Department's and Contractor's project managers shall determine if immediate removal of the temporary lane closure is necessary to improve traffic flow through the corridor. If so, the contractor shall take immediate actions to remove temporary lanes closures.

3. Should inclement weather occur within or near the work zone during the time temporary lane closures are in place that decreases work zone mobility and increases the potential safety hazards, the contractor shall take immediate actions to remove temporary lanes closures.

4. If the TMP needs to be modified, the District and Area construction staff will coordinate with the GDOT Project Manager assigned to the project for modification of the TMP.

Any modifications must be reviewed and approved by the District 1 FHWA Georgia Division Transportation Engineer.

5. In the event an injury accident, special event or inclement weather prohibits traffic from moving through the work zone, potential detours could be deployed. These detour routes will be established and approved by GDOT and FHWA. Listed below are potential routes that could be utilized:

   A. I-85 northbound. Exit 105, SR 120, to US 23, to SR 20. Return to I-85 via SR 20 Exit 115. (Area 1 & 2)

   B. I-85 southbound. Exit 115, SR 20, to US 23, to SR 120, Return to I-85 via SR 120 Exit 109. (Area 1 & 2)

   C. I-85 northbound. Exit 115, SR 20, to SR 124, Return to I-85 via Hamilton Mill Exit 120. (Area 3)

   D. I-85 southbound. Exit 120, Hamilton Mill, to SR 124, Return to I-85 via SR 20 Exit 115. (Area 3)

   These routes are only potential detours and could be modified by the Engineer based on the location of the accident, special event, inclement weather or other conditions.

6. In accordance with Special Provision 150 – Traffic Control, the Worksite Traffic Control Supervisor will be available 24 hours a day. They will have a response time not to exceed forty-five (45) minutes and will have access to all equipment and personnel needed to maintain the traffic control devices or handle any emergency situations.

SECTION 8 – TMP IMPLEMENTATION COSTS

Following are approximate costs for implementing major components of the work zone traffic management strategies:

Temporary Lane Closures	$ 914,124.31
Temporary Traffic Barrier	$ 1,095,863.52
Temporary Pavement Marking	$ 302,807.60
Temporary Impact Attenuators	$ 100,000.00
Traffic Control Devices / Barrels / ETC.	$ 704,951.97
Advance Warning Signs / Guide Signs	$ 257,103.83
Workzone Law Enforcement	$ 650,000.00
Variable Message Signs	$ 182,016.00

SECTION 9 – TMP COMPONENTS CHICKLIST

TABLE 12 – TMP Components Checklist and Responsibility Matrix

Project #	CSNHS-0009-00(156) & CSNHS-0009-00(157)			Initial Submittal by GDOT	To be provided by DB Team
PI	110600	County	Gwinnett		
TMP Component					
1. Introductory Material					
Cover page				☒	☐
Licensed Engineer stamp page (if necessary)				☐	☐
Table of contents				☒	☒
List of figures				☒	☒
List of tables				☒	☒
List of abbreviations and symbols				☒	☒
Terminology				☐	☒
2. Executive Summary				☒	☒
3. TMP Roles and Responsibilities					
TMP manager				☒	☒
Stakeholders/review committee				☐	☒
Approval contact(s)				☒	☒
TMP implementation task leaders (e.g., public information liaison, incident management coordinator, etc.)				☒	☒
TMP monitors				☒	☒
Emergency contacts				☐	☒
4. Project Description					
Project background				☒	☐
Project type				☒	☐
Project area/corridor				☒	☐
Project goals and constraints				☒	☐
Proposed construction phasing/staging				☒	☒
General schedule and timeline				☒	☒
Related projects				☒	☐
5. Existing and Future Conditions					

Data collection and modeling approach	☒	☐
Existing roadway characteristics (history, roadway classification, number of lanes, geometrics, urban/suburban/rural)	☒	☐
Existing and historical traffic data (volumes, speed, capacity, volume to capacity ratio, percent trucks, queue length, peak traffic hours)	☒	☐
Existing traffic operations	☒	☐
Incident and crash data	☒	☐
Traffic growth rates	☒	☐
Traffic predictions during construction (volume, delay, queue)	☐	☒
6. Work Zone Impacts Assessment Report		
Qualitative summary of anticipated work zone impacts	☐	☒
Impacts assessment of alternative project design and management strategies (in conjunction with each other)	☐	☒
• Construction approach/phasing/staging strategies	☐	☒
• Work zone impacts management strategies	☐	☒
Traffic analysis results (if applicable)	☐	☒
• Traffic analysis strategies	☐	☒
• Measures of effectiveness	☐	☒
• Analysis tool selection methodology and justification	☐	☒
• Analysis results	☐	☒
• Traffic (volume, capacity, delay, queue, noise)	☐	☒
Safety	☐	☒
Adequacy of detour routes	☐	☒
Business/community impact	☐	☒
Seasonal impacts	☐	☒
Cost effectiveness/evaluation of alternatives	☐	☒
Selected alternative	☐	☒
• Construction approach/phasing/staging strategy	☐	☒
• Work zone impacts management strategies	☐	☒
7. Selected Work Zone Impacts Management Strategies		
Temporary Traffic Control (TTC) strategies	☐	☒
• Control strategies	☐	☒
• Traffic control devices	☐	☒
• Project coordination, contracting, and innovative construction strategies	☒	☒

Public Information (PI)	☒	☐
• Public awareness strategies	☐	☒
• Motorist information strategies	☐	☒
Transportation Operations (TO)	☐	☒
• Demand management strategies	☐	☒
• Corridor/network management strategies	☐	☒
• Work zone safety management strategies	☐	☒
• Traffic/incident management and enforcement strategies	☐	☒
8. TMP Monitoring		
Monitoring requirements	☐	☒
Evaluation report of successes and failures of TMP	☐	☒
9. Contingency Plans		
Trigger points	☐	☒
Decision tree	☐	☒
Contractor's contingency plan	☐	☒
Standby equipment or personnel	☐	☒
10. TMP Implementation Costs		
Itemized costs	☐	☒
Cost responsibilities/sharing opportunities	☐	☒
Funding source(s)	☐	☒
11. Special Considerations NONE	☐	☐
12. Attachments NONE	☐	☐