Georgia Department of Transportation

Interoffice Memo
Office of Design Policy & Support

DATE: **12/19/2019**

FILE: P.I.# 0016894
Fulton County / GDOT District 7 - Metro Atlanta
SR 13 @ Peachtree Road - Roundabout

FROM: for Brent Story, State Design Policy Engineer

TO: SEE DISTRIBUTION

SUBJECT: **APPROVED CONCEPT REPORT**

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

Attachment

Distribution:

Hiral Patel, Director of Engineering
Joe Carpenter, Director of P3
Albert Shelby, Director of Program Delivery
Carol Comer, Director, Division of Intermodal
Darryl VanMeter, Assistant Director of P3/State Innovative Delivery Administrator
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Paul Tanner, State Transportation Planning Administrator
Eric Duff, State Environmental Administrator
Bill DuVall, State Bridge Engineer
Andrew Heath, State Traffic Engineer
Angela Robinson, Financial Management Administrator
Erik Rohde, State Project Review Engineer
Monica Flournoy, State Materials Engineer
Patrick Allen, State Utilities Engineer
Eric Conklin, State Transportation Data Administrator
Attn: Systems & Classification Branch
Benny Walden, Statewide Location Bureau Chief
Kathy Zahul, District Engineer
Paul DeNard, District Preconstruction Engineer
Shun Pringle, District Utilities Manager
Davida White, Project Manager
BOARD MEMBER - 5th Congressional District

Limited Scope Project Concept Report

Project Type:	Roundabout	P.I. Number:	0016894
GDOT District:	7	County:	Fulton
Federal Route Number:	19	State Route Number:	9 & 13
Project Number:	N/A		

Project Description: SPECIAL ENCROACHMENT PERMIT for the privately funded design-build project to modify the limited access at the SR13/Buford-Spring Connector ramps. The project will construct a roundabout to provide access to existing entrance ramp, exit ramp, public road (Inwood Cir.) and a driveway (as shown on the attached layout). The traffic signal at US19/SR9/Peachtree Street intersection will be modified as part of this project.

Submitted for approval: *Report Updated 10/25/2019*

Phillip Ravotti, PE, Heath & Lineback Engineers, Inc. — 08/28/2019 Date

Kimberly W. Nesbitt — 9/9/19 Date
State Program Delivery Administrator

Davida White — KESD — 8/30/2019 Date
GDOT Project Manager

Recommendation for approval:

Eric Duff — *9/20/2019* Date
State Environmental Administrator

Andrew Pearson — *10/04/2019* Date
for State Traffic Engineer

Paul DeNard — *10/17/2019* Date
for District Engineer

☒ MPO Area: This project is consistent with the MPO adopted Regional Transportation Plan (RTP)/Long Range Transportation Plan (LRTP)
Note: This project is not required to be included in the MPO area RTP/LRTP based upon the exemption from conformity analysis and no federal funding.

☐ N/A - Rural Area: This project is consistent with the goals outlined in the Statewide Transportation Plan (SWTP) and/or is included in the State Transportation Improvement Program (STIP).

Paul Tanner — *10/04/2019* Date
State Transportation Planning Administrator

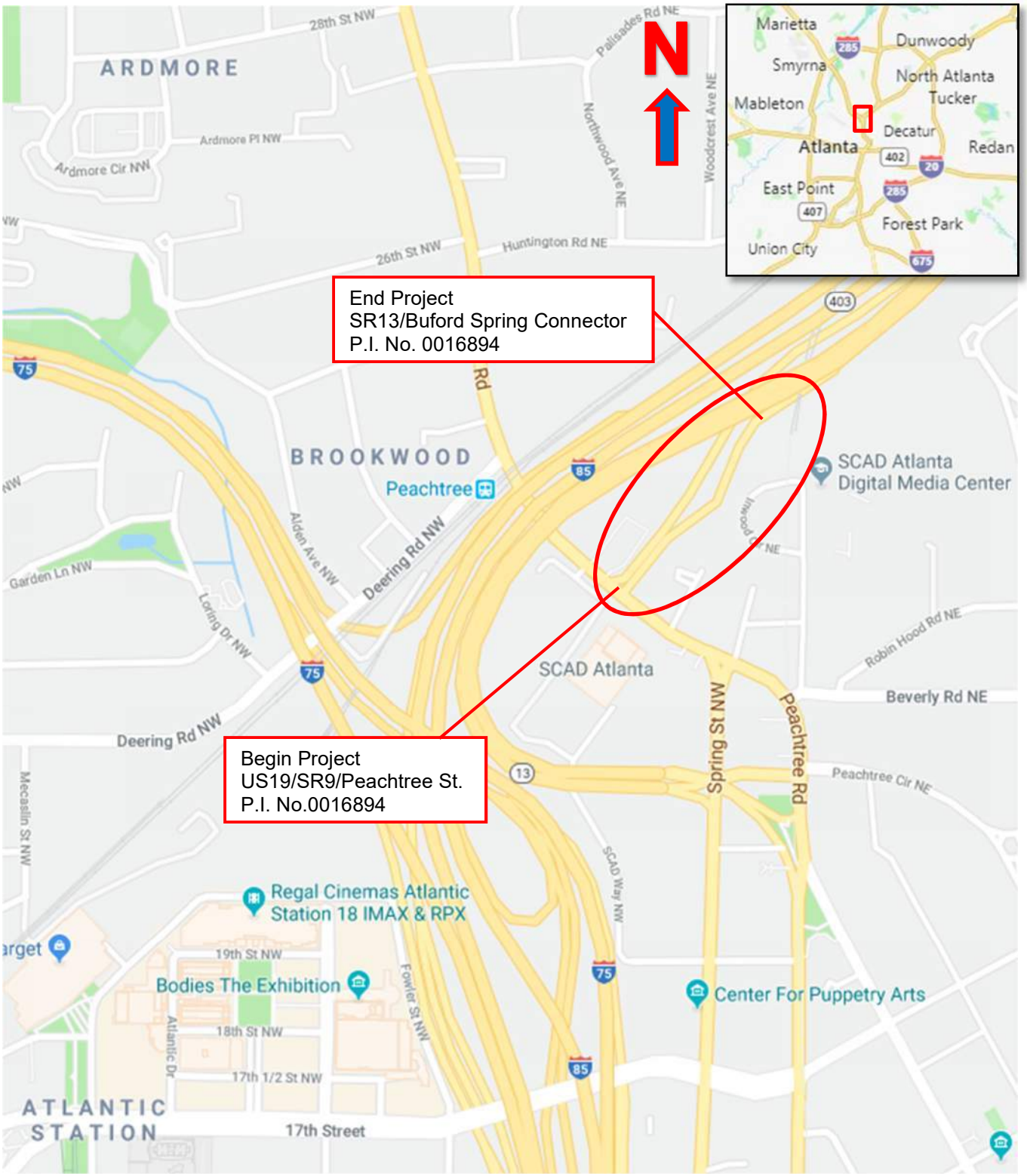
Approval:

Concur: Hiddlestel — 11-13-19 Date
GDOT Director of Engineering

Approve: Margaret B. Pikle — 12.20.19 Date
GDOT Chief Engineer

Also reviewed by: *Bill DuVall, State Bridge Engineer*
Patrick Allen, State Utilities Engineer
Alan Hood, Airport Safety Data Program Manager
Jim Simpson, for Office of Design Policy and Support
Erik Rohde, State Project Review Engineer

PROJECT LOCATION MAP



Project Name: Buford Spring Connector Roundabout

PLANNING & BACKGROUND DATA

Project Justification Statement: Access to planned developments and property is desired from the entrance and exit ramps that connect SR13/Buford Spring Connector and US19/SR9/Peachtree Street. The outcome will be improved access to underutilized area of the northern Midtown area. In addition it is a practical route alternative to traffic accessing the SR13/Buford Spring Connector, which in the operational analysis demonstrated the ability to divert a significant portion of the volume on US19/SR9/Peachtree Street.

Existing conditions: The entrance and exit ramps currently consist of (2) two 16ft lanes from US19/SR9/Peachtree Street intersection and diverges 200 ft from the intersection to tie into the SR13/Buford Spring Connector entrance ramp and exit ramp where each ramp is 16 ft wide lane.

Dewberry Capital Group and engineering team has studied and modeled midtown/uptown traffic since summer of 2014. In 2016, different concepts, traffic projections and modeling for an access Street were developed. In 2017 and 2018 the engineering team worked closely with GDOT Traffic Operations, District 7 and roundabout expert peer reviewers to obtain acceptance of the project.

In late 2018, Dewberry Capital wanting to expedite the project, moved to the design-build delivery method and hired a contractor to lead with the engineering team to deliver the project through GDOT's Special Encroachment Permit Process.

May 1, 2019, the design-build team held a kick-off meeting with District 7 staff, State Traffic Operations staff and Program Delivery to gain full understanding of the requirements for Special Encroachment Permit, present our schedule and begin coordination and collaboration with all offices.

July 11, 2019, the design-build team met with OPD (Sr. Project Manager- Davida White), Kim Nesbitt, Merishia Robinson, State Traffic Operations, D7 Preconstruction and Traffic to introduce the project to the PM, Program Manager and emphasize schedule and progress.

Other projects in the area:

PI 0012870 – SR 9/ US 19 from Pharr Rd to Buford Spring Connector Ramp

The proposed project consists of roadway resurfacing (milling and inlaying) and restriping within the existing right-of-way. One northbound lane will be dropped from Pharr Road to the Buford-Spring Connector Ramp to accommodate a dedicated two-way left turn lane, resulting in three southbound lanes and two northbound lanes. In addition, left turn bays with protected or protected/permissive signal phasing and signal timing adjustments will be included in the proposed work. No work is being proposed beyond existing limits of pavement.

PI M005652 – SR 9 from SR 3 to CS 1865/ Lake Placid Drive

This project, selected by the District Maintenance Office, is the resurfacing of SR 9 to improve the roadways current low PACES rating.

MPO: N/A - not in an MPO **TIP #:** N/A

Congressional District(s): 5

Federal Oversight: ☐PoDI ☐Exempt ☐State Funded ☒Other

Projected Traffic: AADT 24 HR T: 4.5%

Current Year (2014): 16,290 Open Year (2020): 16,701 Design Year (2040): 20,851

Traffic Projections Performed by: Southeastern Engineering, Inc.

Date approved by the GDOT Office of Planning: Pending

AASHTO Functional Classification (Mainline):

Peachtree Connector (US19/SR9/Peachtree St. to roundabout): Minor Arterial

AASHTO Functional Classification (Mainline):
Exit/Entrance Ramps (roundabout to SR13/Buford Spring Conn.): Prinipal Arterial

AASHTO Context Classification (Mainline): Urban

AASHTO Project Type (Mainline): Construction on existing roads

Complete Streets - Bicycle, Pedestrian, and/or Transit Standards Warrants:
Warrants met: ☒None ☐Bicycle ☐Pedestrian ☐Transit

Pavement Evaluation and Recommendations
Initial Pavement Evaluation Summary Report Required? ☒No ☐Yes
Feasible Pavement Alternatives: ☒HMA ☐PCC ☐HMA & PCC

DESIGN AND STRUCTURAL

Description of Proposed Project: The project proposes a multi-lane roundabout on the entrance and exit ramps to and from SR13/Buford Springs Connector and US19/SR9/Peachtree Street.

Major Structures:

Structure	Existing	Proposed
N/A	N/A	4 Retaining Walls: 2 MSE and 2 Standard Side Barrier Walls

Accelerated Bridge Construction (ABC) techniques anticipated: ☒ No ☐ Yes
Is the project located on a NHS roadway? ☐ No ☒ Yes, US19/SR9/Peachtree Street
Is the project located on a Special Roadway or Network? ☒ No ☐ Yes *Network Type*

Mainline Design Features: US19/SR9/Peachtree Connector (from Peachtree Street to roundabout)

Feature	Existing	Policy	Proposed
Typical Section			
- Number of Lanes	2		5
- Lane Width(s)	16’	11’-12’	12’
- Median Width & Type	4’ raised	4’ raised	4’-30’ raised
- Border Area Width *(*urban shoulder)*	6’	10’-16’	13’
- Outside Shoulder Slope	2%	2%	2%
- Posted Speed	None	25 MPH	25 MPH
Design Speed	N/A	25 MPH	25 MPH
Minimum Horizontal Curve Radius	N/A	154’	154’
Maximum Superelevation Rate	N/A	4%	4%
Maximum Grade	3%	10%	5.2%
Access Control	Permitted	N/A	Permitted
Design Vehicle		WB-40	WB-40/SU-40
Check Vehicle		WB-67	WB-67
Pavement Type	HMA & PCC		HMA

Mainline Design Features: Entrance & Exit Ramps (from roundabout to SR13/Buford Springs Conn.)

Feature	Existing	Policy	Proposed
Typical Section			
- Number of Lanes	1	2	1 to 2
- Lane Width(s)	16’	11’-12’	16’ to 24’
- Border Area Width *(*urban shoulder)*	6’	10’-16’	45’
- Outside Shoulder Slope	2%	2%	2%
- Inside Shoulder Slope	2%	N/A	2% & 6%
- Posted Speed	None	25 MPH	25 MPH
Design Speed	None	25 MPH	25 MPH
Minimum Horizontal Curve Radius	N/A	154’	154’
Maximum Superelevation Rate	N/A	4%	4%
Maximum Grade		10%	10%
Access Control	Permitted	N/A	Permitted
Design Vehicle		WB-40	WB-40/SU-40
Check Vehicle		WB-67	WB-67
Pavement Type	HMA & PCC		HMA

Mainline Design Features: Inwood Drive (local urban street)

Feature	Existing	Policy	Proposed
Typical Section			
- Number of Lanes	2	2	2
- Lane Width(s)	11’	10’-12’	12’
- Median Width & Type	none	none	none
- Border Area Width *(*urban shoulder)*	8’	10’-16’	8’
- Outside Shoulder Slope	2%	2%	2%
- Posted Speed	None	25 MPH	25 MPH
Design Speed	N/A	25 MPH	25 MPH
Minimum Horizontal Curve Radius	N/A	154’	154’
Maximum Superelevation Rate	N/A	4%	NC
Maximum Grade	N/A	12%	9.5%
Access Control	Permitted	Permitted	Permitted
Design Vehicle		SU-40	SU-40
Check Vehicle		Emergency	WB-50
Pavement Type	HMA		HMA

**According to current GDOT design policy if applicable*

Design Exceptions/Design Variances to GDOT and/or FHWA Controlling Criteria anticipated: None

Design Variances to GDOT Standard Criteria anticipated: None

Lighting required: ☐ No ☒ Yes
Roadway and Roundabout lighting required. Existing in place agreement will be modified during final design.

Off-site Detours Anticipated: ☒ No ☐ Undetermined ☐ Yes
If yes: Roadway type to be closed: ☐ Local Road ☐ State Route
Detour Route selected: ☐ Local Road ☐ State Route
District Concurrence w/Detour Route: ☐ No/Pending ☐ Received *Select a date*

Transportation Management Plan [TMP] Required: ☐ No ☒ Yes
If Yes: Project classified as: ☒ Non-Significant
TMP Components Anticipated: ☒ TTC

INTERCHANGES AND INTERSECTIONS

Interchanges/Major Intersections:
Peachtree Connector with US19/SR9/Peachtree St.
Traffic signal will be updated to allow left turn movement to US19/SR9/Peachtree Street

Intersection Control Evaluation (ICE) Required: ☐ No ☒ Yes

Roundabout Concept Validation Required: ☐ No ☒ Yes ☒ Completed – Date:8/17/18, Kittleson & Assoc.

UTILITY AND PROPERTY

Railroad Involvement: None

Utility Involvements: AT&T, ATL Gas Light, GA Transmission, Level3, Verizon

SUE Required: ☒ No ☐Yes

Public Interest Determination Policy and Procedure recommended? ☒ No ☐ Yes

Right-of-Way (ROW): Existing width: 108ft to 170ft. Proposed width: NA ft.
Required Right-of-Way anticipated: ☒None (Developer donating/deed ROW) ☐Yes ☐Undetermined
Easements anticipated: ☒None ☐Temporary ☐Permanent * ☐Utility ☐Other

***** *Permanent easements will include the right to place utilities.*

Anticipated total number of impacted parcels:		0
Displacements anticipated:	Businesses:	0
	Residences:	0
	Other:	0
	Total Displacements:	0

Location and Design approval: ☒ Not Required ☐ Required

Impacts to USACE property anticipated? ☒ No ☐ Yes ☐ Undetermined

CONTEXT SENSITIVE SOLUTIONS

Issues of Concern: N/A

Context Sensitive Solutions Proposed: N/A

ENVIRONMENTAL AND PERMITS

Anticipated Environmental Document: GEPA ~ None

Level of Environmental Analysis:

☒ The environmental considerations noted below are based on preliminary desktop or screening level environmental analysis and are subject to revision after the completion of resource identification, delineation, and agency concurrence.

☐ The environmental considerations noted below are based on the completion of resource identification, delineation, and agency concurrence.

Water Quality Requirements: N/A

MS4 Compliance – Is the project located in an MS4 area? ☐ No ☒ Yes

Is Non-MS4 water quality mitigation anticipated? ☒ No ☐ Yes

Environmental Permits, Variances, Commitments, and Coordination anticipated: None

Air Quality:

Is the project located in an Ozone Non-attainment area?	☐ No	☒ Yes
Carbon Monoxide hotspot analysis required?	☒ No	☐ Yes

Public Involvement: A public information meeting will be conducted in coordination with Midtown Alliance

COORDINATION, ACTIVITIES, RESPONSIBILITIES, AND COSTS

Is Federal Aviation Administration (FAA) coordination anticipated? ☒ No ☐ Yes

Project Meetings:

Kickoff Meeting: 2019-05-01
Concept Team Meeting: July 30, 2019

Other coordination to date:

In 2017 and 2018, coordination for planning, traffic analysis and concept layouts was performed with State Traffic Operations Office and District 7 Office.

Project Activity	Party Responsible for Performing Task(s)
Concept Development	Heath & Lineback Engineers, Inc.
Design	Heath & Lineback Engineers, Inc.
Right-of-Way Acquisition	N/A
Utility Coordination (Preconstruction)	Heath & Lineback Engineers, Inc.
Utility Relocation (Construction)	Dewberry Capital/North GA Concrete
Letting to Contract	N/A
Construction Supervision	Design-Build Team with District 7 oversight
Providing Material Pits	N/A
Providing Detours	N/A
Environmental Studies, Documents, & Permits	Heath & Lineback Engineers, Inc.
Environmental Mitigation	N/A
Construction Inspection & Materials Testing	Design-Build Team with District 7 oversight

Project Cost Estimate Summary and Funding Responsibilities: Not applicable. Privately funded.

	PE Activities		ROW	Reimbursable Utilities	CST*	Total Cost
	PE Funding	Section 404 Mitigation				
Programmed Cost:						
Funded By:						
Estimated Amount:						
Date of Estimate:						
Cost Difference:						

Privately Funded

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

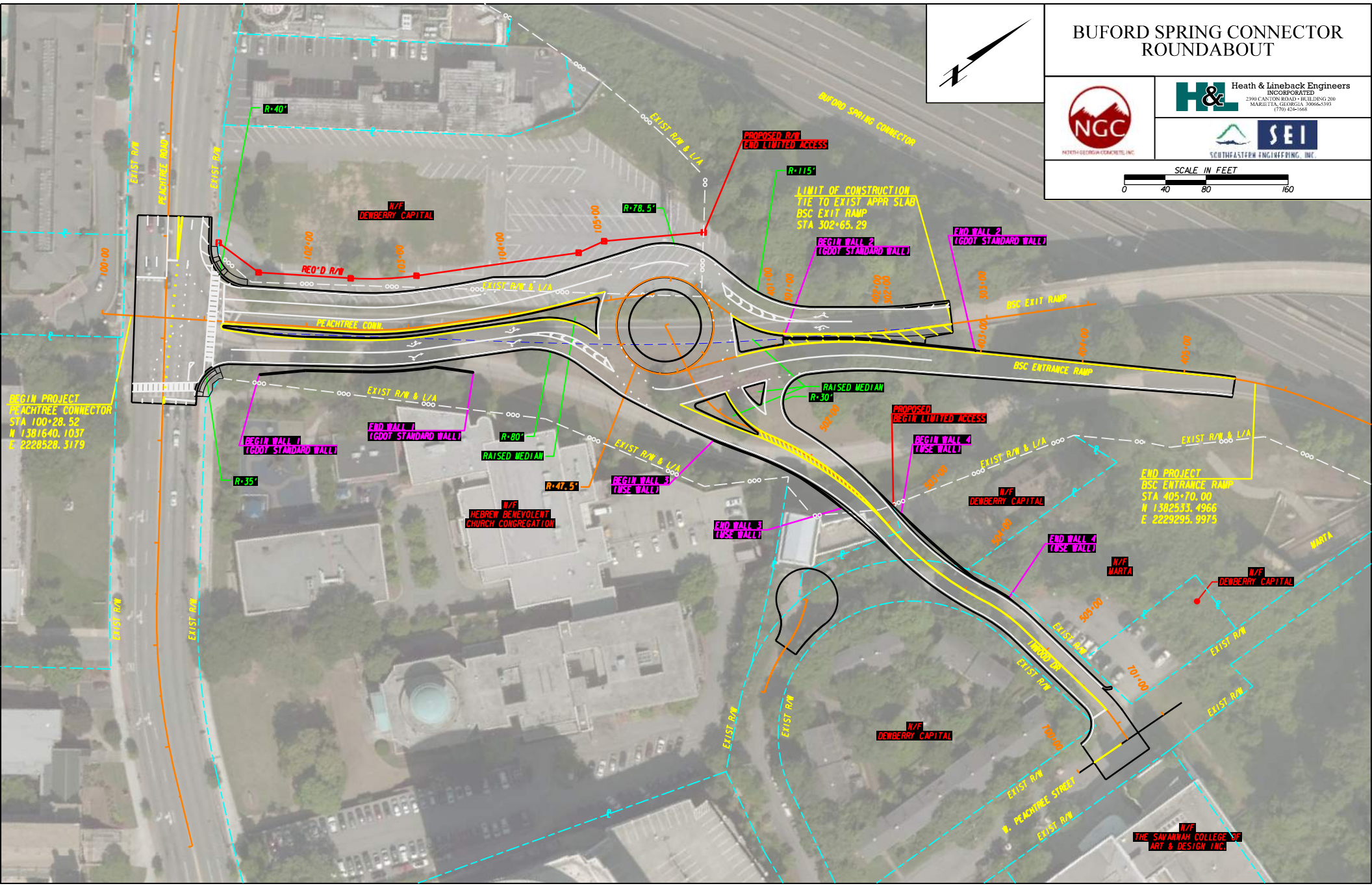
ALTERNATIVES DISCUSSION

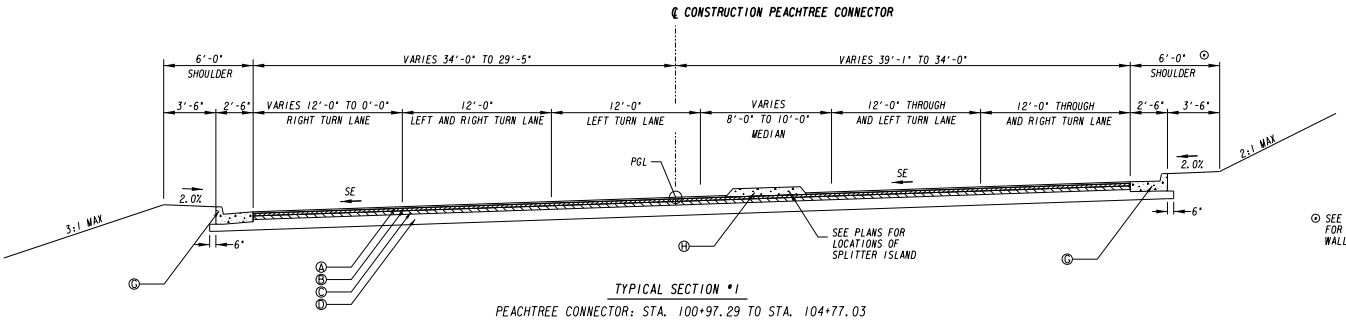
Other alternatives considered for the roundabout such as stop controlled intersection and signalized intersection were not viable solutions on this ramp-type facility. A stop controlled intersection impedes the expected free flow operations, and a signalized intersection violates signalized intersection spacing/distance requirements with the US19/SR9/Peachtree Street signalized intersection. The No-Build option was also studied and the existing geometry shows a lower overall capacity for the design year when compared to the roundabout. The roundabout is the preferred alternative to provide two new connections and access to underutilized areas of the northern Midtown area.

Additional Comments/ Information: N/A

LIST OF ATTACHMENTS/SUPPORTING DATA

1. Concept Layout
2. Typical Sections
3. Concept Profiles
4. City of Atlanta Letter of Support
5. Traffic Study and projections & Capacity analysis summary
6. Intersection Control Evaluation
7. Roundabout Concept Validation information
8. MS4 Concept Report Summary
9. Meeting Minutes
    a. Special Encroachment Kick-off Meeting
    b. Concept Team Meeting

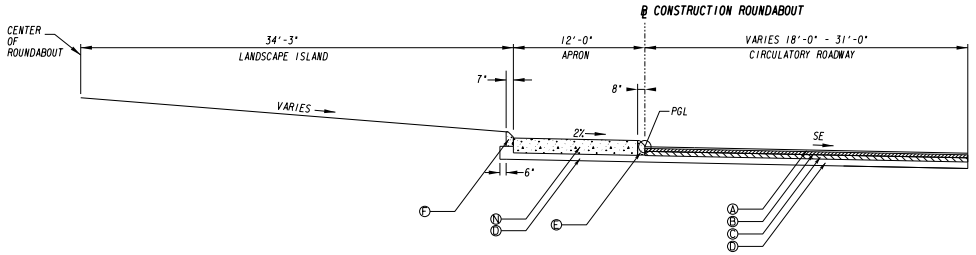

BUFORD SPRING CONNECTOR ROUNDABOUT
Heath & Lineback Engineers
INCORPORATED
2390 CANTON ROAD • BUILDING 200
MARIETTA, GEORGIA 30066-5393
(770) 426-1668
SOUTHEASTERN ENGINEERING, INC.
SCALE IN FEET
0 40 80 160
BEGIN PROJECT
PEACHTREE CONNECTOR
STA 100+28.52
N 1381640.1037
E 2228528.3179
END PROJECT
BSC ENTRANCE RAMP
STA 405+70.00
N 1382533.4966
E 2229295.9975
LIMIT OF CONSTRUCTION
TIE TO EXIST APPR SLAB
BSC EXIT RAMP
STA 302+65.29
PROPOSED R/W
END LIMITED ACCESS
PROPOSED
BEGIN LIMITED ACCESS
BUFORD SPRING CONNECTOR
PEACHTREE CONN.
BSC EXIT RAMP
BSC ENTRANCE RAMP
PEACHTREE ROAD
W. PEACHTREE STREET
LINDBERGH DR
MARTA
EXIST R/W
EXIST R/W & L/A
REQ'D R/W
RAISED MEDIAN
R=40'
R=115'
R=78.5'
R=80'
R=30'
R=35'
R=47.5'
BEGIN WALL 1 (GDOT STANDARD WALL)
END WALL 1 (GDOT STANDARD WALL)
BEGIN WALL 2 (GDOT STANDARD WALL)
END WALL 2 (GDOT STANDARD WALL)
BEGIN WALL 3 (USE WALL)
END WALL 3 (USE WALL)
BEGIN WALL 4 (USE WALL)
END WALL 4 (USE WALL)
N/F DEWBERRY CAPITAL
N/F HEBREW BENEVOLENT CHURCH CONGREGATION
N/F MARTA
N/F THE SAVANNAH COLLEGE OF ART & DESIGN INC.



TYPICAL SECTION #1

PEACHTREE CONNECTOR: STA. 100+97.29 TO STA. 104+77.03

⊙ SEE PLANS, CROSS SECTIONS, AND WALL DETAIL SHEETS FOR WALL 1 IN THE FOLLOWING LOCATIONS:
WALL 1: STA 101+57.00 TO STA 103+57.00 RT



TYPICAL SECTION #2

ROUNDABOUT: STA 200+00 TO 202+98.45

SEE CONSTRUCTION DETAIL RA-2 FOR ADDITIONAL ROUNDABOUT DETAILS.
IN THE CASE OF CONFLICTING INFORMATION WITH DETAIL RA-2, USE THIS SECTION.

SLOPE CONTROLS		
SLOPE	CUT	FILL
4:1	——	0-10'
2:1	ALL	OVER 10'

(A) RECYCLED ASPH CONC 12.5 MM SUPERPAVE, GP 2 ONLY, INCL POLYMER-MODIFIED BITUM MATL & H LIME (165 LBS/SY)
(B) RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME (220 LBS/SY)
(C) RECYCLED ASPH CONC 25 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME (550 LBS/SY)
(D) GR AGGR BASE CRS, 12 INCH INCL MATL
(E) CONCRETE HEADER CURB, 4 IN, TP 9
(F) CONCRETE HEADER CURB, 6 IN, TP 7
(G) CONC CURB & GUTTER, 8 IN X 30 IN, TP 2
(H) CONCRETE MEDIAN, 7 ½ IN (INTEGRAL) WITH TP 7 CURB FACE
(J) CONCRETE MEDIAN, 4 IN
(K) CONCRETE VALLEY GUTTER, 8 IN
(L) CONCRETE HEADER CURB, 6 IN, TP 2
(M) PAVEMENT EDGE TREATMENT - GA DETAIL P-7
(N) PLAIN PC CONC PVMT, CL 3 CONC, 10 INCH THK
(O) PVMT REINF FABRIC STRIPS, TP 2, 18 INCH WIDTH

NOTES:
1. SEE GA STANDARDS FOR GUARDRAIL SHOULDER TAPER LENGTHS AND WIDTHS.
2. SEE ROADWAY PLANS FOR LOCATION OF GUARDRAIL.
3. SEE ROADWAY PLANS FOR LOCATION OF DITCHES.
4. SEE ROADWAY PLANS FOR LOCATION OF CROSS SLOPE TRANSITIONS.

SOUTHEASTERN ENGINEERING, INC.
Heath & Lineback Engineers INCORPORATED
2390 CANTON ROAD • BUILDING 200
MARIETTA, GEORGIA 30066-5393
(770) 424-1668

NOT TO SCALE

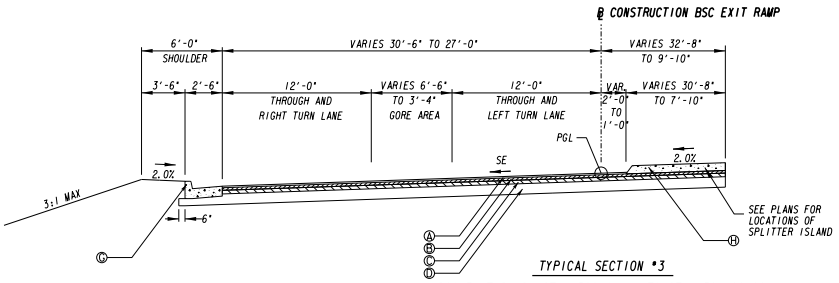
REVISION DATES

TYPICAL SECTIONS
BUFORD SPRING CONNECTOR & ROUNDABOUT

CHECKED: DATE:
BACKCHECKED: DATE:
CORRECTED: DATE:
VERIFIED: DATE:

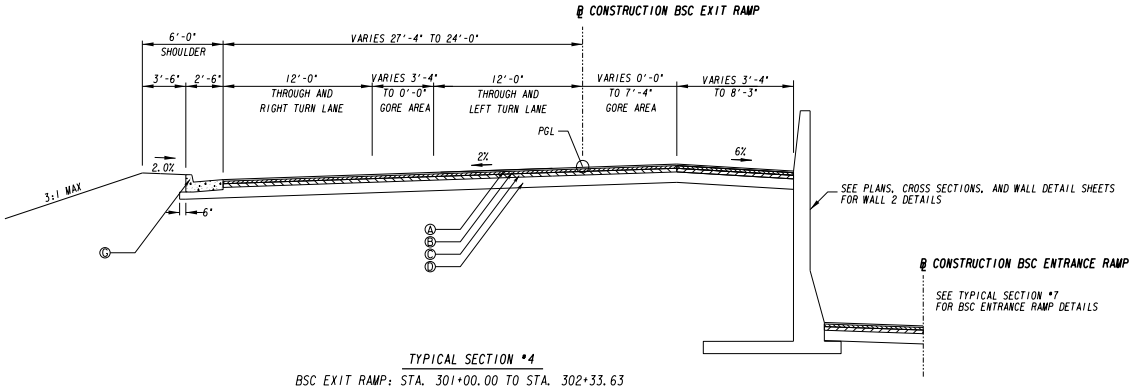
DRAWING No. 05-0001

7/31/2015 GPLN



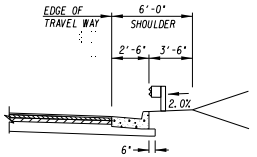
TYPICAL SECTION *3

BSC EXIT RAMP: STA. 300+61.11 TO STA. 301+00.00



TYPICAL SECTION *4

BSC EXIT RAMP: STA. 301+00.00 TO STA. 302+33.63

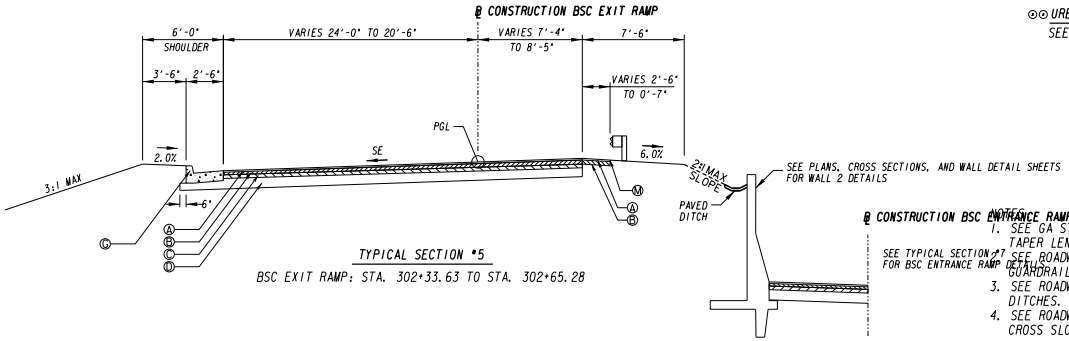


⊙⊙ URBAN GUARDRAIL DETAIL

SEE PLANS FOR LOCATIONS

SLOPE CONTROLS		
SLOPE	CUT	FILL
4:1	——	0-10'
2:1	ALL	OVER 10'

Ⓐ RECYCLED ASPH CONC 12.5 MM SUPERPAVE, GP 2 ONLY, INCL POLYMER-MODIFIED BITUM MATL & H LIME (165 LBS/SY)
Ⓑ RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME (220 LBS/SY)
Ⓒ RECYCLED ASPH CONC 25 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME (550 LBS/SY)
Ⓓ GR AGGR BASE CRS, 12 INCH INCL MATL
Ⓔ CONCRETE HEADER CURB, 4 IN, TP 9
Ⓕ CONCRETE HEADER CURB, 6 IN, TP 7
Ⓖ CONC CURB & GUTTER, 8 IN X 30 IN, TP 2
Ⓗ CONCRETE MEDIAN, 7 ½ IN (INTEGRAL) WITH TP 7 CURB FACE
Ⓙ CONCRETE MEDIAN, 4 IN
Ⓚ CONCRETE VALLEY GUTTER, 8 IN
Ⓛ CONCRETE HEADER CURB, 6 IN, TP 2
Ⓜ PAVEMENT EDGE TREATMENT - GA DETAIL P-7
Ⓝ PLAIN PC CONC PVMT, CL 3 CONC, 10 INCH THK
Ⓞ PVMT REINF FABRIC STRIPS, TP 2, 18 INCH WIDTH



TYPICAL SECTION *5

BSC EXIT RAMP: STA. 302+33.63 TO STA. 302+65.28

NOTES:
1. SEE GA STANDARDS FOR GUARDRAIL SHOULDER TAPER LENGTHS AND WIDTHS.
2. SEE ROADWAY PLANS FOR LOCATION OF GUARDRAIL.
3. SEE ROADWAY PLANS FOR LOCATION OF DITCHES.
4. SEE ROADWAY PLANS FOR CROSS SLOPE TRANSITIONS.

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NOT TO SCALE

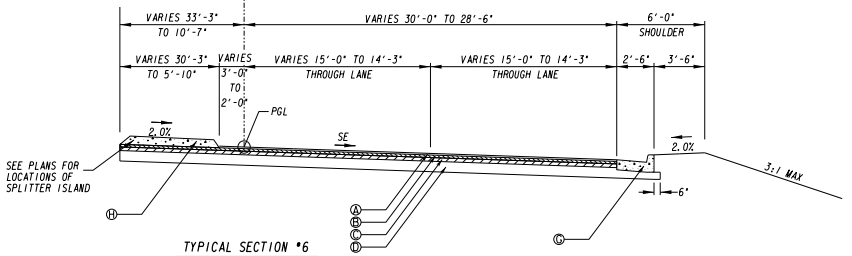
REVISION DATES

TYPICAL SECTIONS
BUFORD SPRING CONNECTOR & ROUNDABOUT

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

7/31/2015 GPLN

@ CONSTRUCTION BSC ENTRANCE RAMP

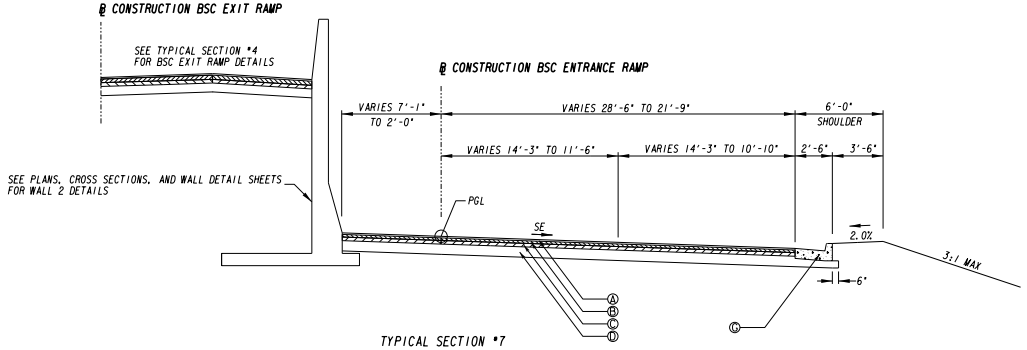


TYPICAL SECTION *6

BSC ENTRANCE RAMP: STA. 400+62.50 TO STA. 401+07.26

@ CONSTRUCTION BSC EXIT RAMP

@ CONSTRUCTION BSC ENTRANCE RAMP

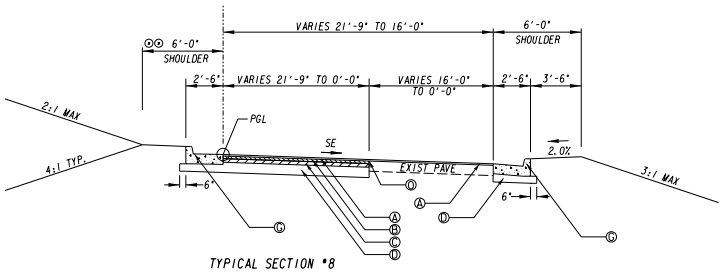


TYPICAL SECTION *7

BSC ENTRANCE RAMP: STA. 401+07.26 TO STA. 403+05.00

SLOPE CONTROLS		
SLOPE	CUT	FILL
4:1	——	0-10'
2:1	ALL	OVER 10'

@ CONSTRUCTION BSC ENTRANCE RAMP



TYPICAL SECTION *8

BSC ENTRANCE RAMP: STA. 403+05.00 TO STA. 405+50.00

⊙SEE GUARDRAIL DETAIL

(A) RECYCLED ASPH CONC 12.5 MM SUPERPAVE, GP 2 ONLY, INCL POLYMER-MODIFIED BITUM MATL & H LIME (165 LBS/SY)
(B) RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME (220 LBS/SY)
(C) RECYCLED ASPH CONC 25 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME (550 LBS/SY)
(D) GR AGGR BASE CRS, 12 INCH INCL MATL
(E) CONCRETE HEADER CURB, 4 IN, TP 9
(F) CONCRETE HEADER CURB, 6 IN, TP 7
(G) CONC CURB & GUTTER, 8 IN X 30 IN, TP 2
(H) CONCRETE MEDIAN, 7 ½ IN (INTEGRAL) WITH TP 7 CURB FACE
(J) CONCRETE MEDIAN, 4 IN
(K) CONCRETE VALLEY GUTTER, 8 IN
(L) CONCRETE HEADER CURB, 6 IN, TP 2
(M) PAVEMENT EDGE TREATMENT - GA DETAIL P-7
(N) PLAIN PC CONC PVMT, CL 3 CONC, 10 INCH THK
(O) PVMT REINF FABRIC STRIPS, TP 2, 18 INCH WIDTH

NOTES:
1. SEE GA STANDARDS FOR GUARDRAIL SHOULDER TAPER LENGTHS AND WIDTHS.
2. SEE ROADWAY PLANS FOR LOCATION OF GUARDRAIL.
3. SEE ROADWAY PLANS FOR LOCATION OF DITCHES.
4. SEE ROADWAY PLANS FOR LOCATION OF CROSS SLOPE TRANSITIONS.

SEI SOUTHEASTERN ENGINEERING, INC.
NGC
Heath & Lineback Engineers INCORPORATED
2390 CANTON ROAD • BUILDING 200
MARIETTA, GEORGIA 30066-5393
(770) 424-1668

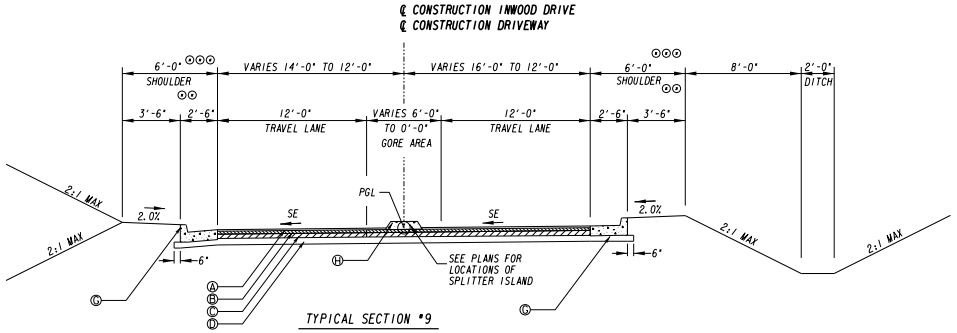
NOT TO SCALE

REVISION DATES

TYPICAL SECTIONS
BUFORD SPRING CONNECTOR & ROUNDABOUT

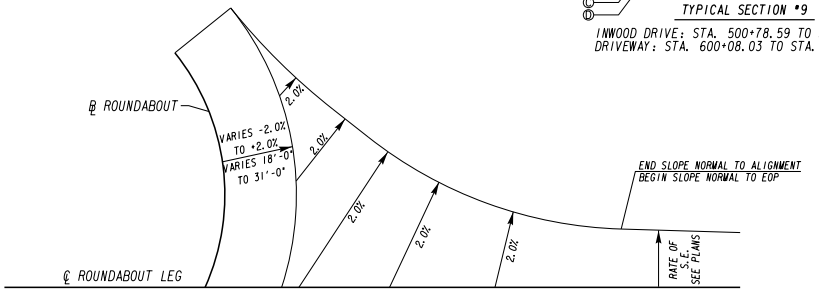
CHECKED:		DATE:		DRAWING No.
BACKCHECKED:		DATE:		05-0003
CORRECTED:		DATE:		
VERIFIED:		DATE:		

7/31/2015 GPLN



TYPICAL SECTION #9

INWOOD DRIVE: STA. 500+78.59 TO STA. 505+78.36
DRIVEWAY: STA. 600+08.03 TO STA. 602+23.92

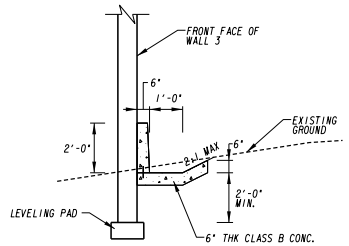


TYPICAL ROUNDABOUT PAVEMENT SLOPES

ENTRANCE SHOWN. EXIT SIMILAR.

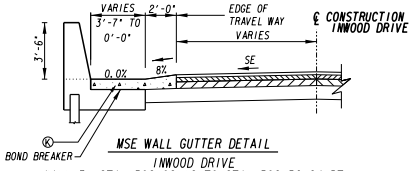
NOTES:
1. SEE GA STANDARDS FOR GUARDRAIL SHOULDER TAPER LENGTHS AND WIDTHS.
2. SEE ROADWAY PLANS FOR LOCATION OF GUARDRAIL.
3. SEE ROADWAY PLANS FOR LOCATION OF DITCHES.
4. SEE ROADWAY PLANS FOR LOCATION OF SLOPE CROSS SLOPE TRANSITIONS.

STEEP SLOPE CONTROLS		
CROSS SLOPE	LENGTH	
2:1	ALL	OVER 10'



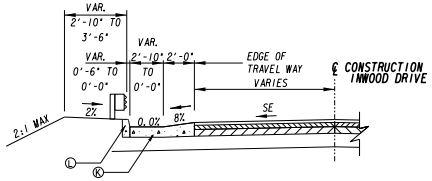
PAVED DITCH AT WALL 3 DETAIL

INWOOD DRIVE
STA. 501+22.16 TO STA. 502+14.98 RT



MSE WALL GUTTER DETAIL

INWOOD DRIVE
WALL 3: STA. 502+02.12 TO STA. 502+56.24 RT
WALL 4: STA. 503+01.88 TO STA. 504+01.10 LT



HEADER CURB AT GUTTER DETAIL

INWOOD DRIVE
STA. 500+84.42 TO STA. 501+09.88 RT
STA. 502+56.42 TO STA. 503+32.19 RT
STA. 502+58.90 TO STA. 503+01.81 LT
STA. 504+40.55 TO STA. 504+54.54 LT

(A) RECYCLED ASPH CONC 12.5 MM SUPERPAVE, GP 2 ONLY, INCL POLYMER-MODIFIED BITUM MATL & H LIME (165 LBS/SY)
(B) RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME (220 LBS/SY)
(C) RECYCLED ASPH CONC 25 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME (550 LBS/SY)
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(J) CONCRETE MEDIAN, 4 IN
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(N) PLAIN PC CONC PVMT, CL 3 CONC, 10 INCH THK
(O) PVMT REINF FABRIC STRIPS, TP 2, 18 INCH WIDTH

ALLOWABLE RANGES TABLE

FOR THIS PROJECT, CROSS SLOPES THAT ARE ADJUSTED TO "BEST FIT" EXISTING PAVEMENT SLOPES ARE SUBJECT TO THE FOLLOWING LIMITS:

A. NORMAL CROWN

SECTION WITH GRADES 0.5% OR GREATER	SECTION WITH GRADES LESS THAN 0.5%
0.0150 FT/FT - MINIMUM	0.0156 FT/FT - MINIMUM
0.0208 FT/FT - DESIRABLE	0.0208 FT/FT - DESIRABLE
0.0250 FT/FT - MAXIMUM	0.0300 FT/FT - MAXIMUM

B. SUPERELEVATION RATE

S.E. RATE SHOWN ON PLANS OR SE RATE EXISTING IN FIELD, WHICHEVER IS GREATER.

C. SUPERELEVATION TRANSITION LENGTH (LENGTH FROM FLAT POINT TO FULL SE)

	RATE OF CHANGE	CORRESPONDING DIFFERENCE IN GRADE BETWEEN PIVOT POINT AND EDGE OF PAVEMENT
MINIMUM	1:150	0.67%
DESIRABLE	1:200	0.50%
MAXIMUM	1:300	0.33%

LENGTH SHALL BE SET TO AVOID CREATING A FLAT GUTTER GRADE ON LOW SIDE AND TO AVOID FLAT CROSS SLOPES AT OR NEAR THE LOW POINT OF VERTICAL CURVES.

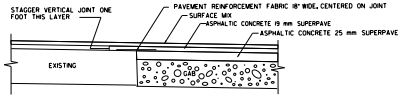
D. POSITIONING OF SUPERELEVATION TRANSITION LENGTH ON SIMPLE CURVES

50% OF TRANSITION INSIDE CURVE - MAXIMUM
33% OF TRANSITION INSIDE CURVE - DESIRABLE
20% OF TRANSITION INSIDE CURVE - MINIMUM

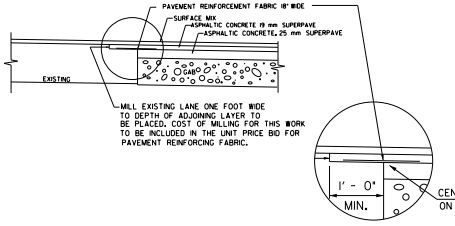
NOTE: CROWN WIPE-OUT SHALL BE AT THE SAME RATE AS THE SE TRANSITION.

E. SMOOTHING OF BREAKS IN EDGE PROFILE AT BEGIN AND END OF TRANSITION SHALL BE ACCOMPLISHED BY VERTICAL CURVE WITH A MINIMUM LENGTH (IN FEET) EQUAL TO THE SPEED DESIGN (IN MPH).

TYPICAL SECTION DETAIL TO BE USED WHEN EXISTING PAVEMENT IS TO BE RESURFACED WITH TWO INCHES OR MORE OF ASPHALTIC CONCRETE



TYPICAL SECTION DETAIL TO BE USED WHEN EXISTING PAVEMENT IS TO BE RESURFACED WITH LESS THAN TWO INCHES OF ASPHALTIC CONCRETE



PAVEMENT REINFORCING FABRIC DETAIL

SOUTHEASTERN ENGINEERING, INC.
Heath & Lineback Engineers INCORPORATED
2390 CANTON ROAD • BUILDING 200
MARIETTA, GEORGIA 30066-5393
(770) 424-1668

NOT TO SCALE

REVISION DATES

TYPICAL SECTIONS
BUFORD SPRING CONNECTOR & ROUNDABOUT

CHECKED:		DATE:	DRAWING No.
BACKCHECKED:		DATE:	05-0004
CORRECTED:		DATE:	
VERIFIED:		DATE:	

7/31/2015 GPLN

DATE$$S
$USER$

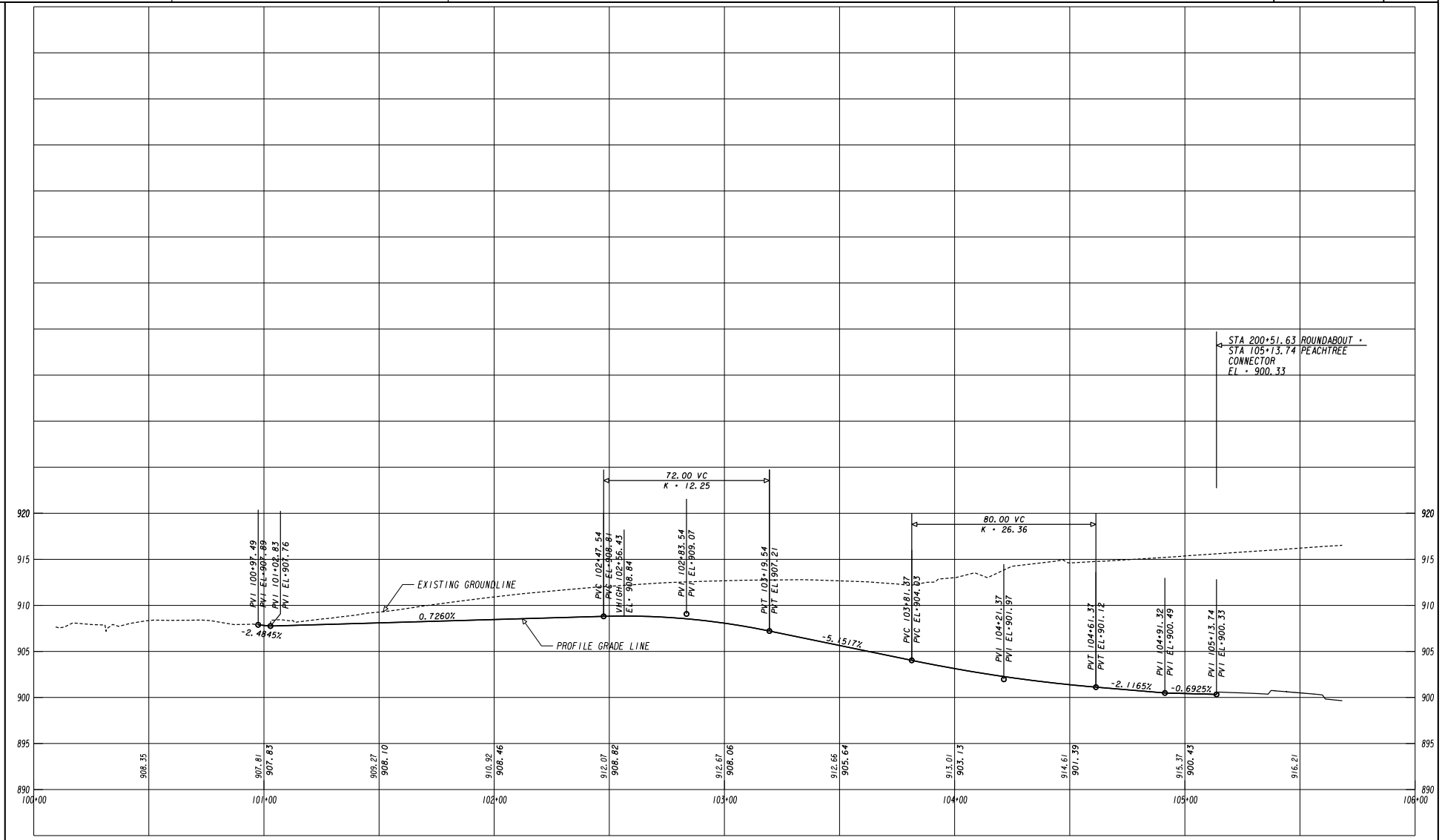
TIME$$S

$PRFB$
$$PENTABLE$$

DGN

GDOT

P. I. No.
521T010



SCALE:
HORIZONTAL 1"=20'
VERTICAL 1"=5'

REVISION DATES

MAINLINE PROFILE

BUFORD SPRING CONNECTOR & ROUNDABOUT
PEACHTREE CONNECTOR

CHECKED:		DATE:	DRAWING No.
BACKCHECKED:		DATE:	
CORRECTED:		DATE:	15-0001
VERIFIED:		DATE:	

7/31/2015 G20EDG

DATE$$S
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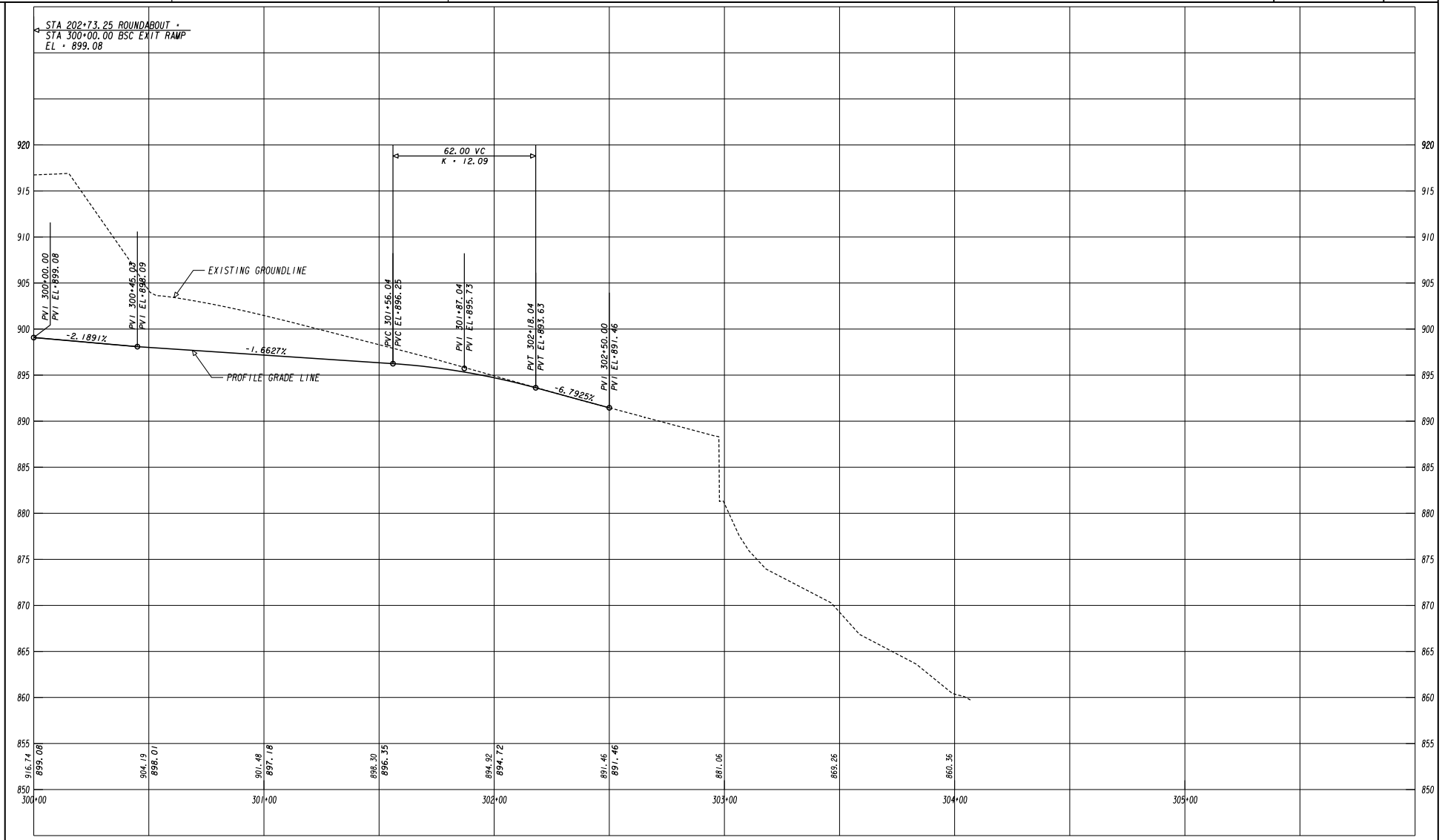
521TOIO



SCALE:
HORIZONTAL 1"=20'
VERTICAL 1"=5'

REVISION DATES

MAINLINE PROFILE

BUFORD SPRING CONNECTOR & ROUNDABOUT

BSC EXIT RAMP

CHECKED:		DATE:	DRAWING No.
BACKCHECKED:		DATE:	
CORRECTED:		DATE:	15-0002
VERIFIED:		DATE:	

7/31/2015 G20EDG

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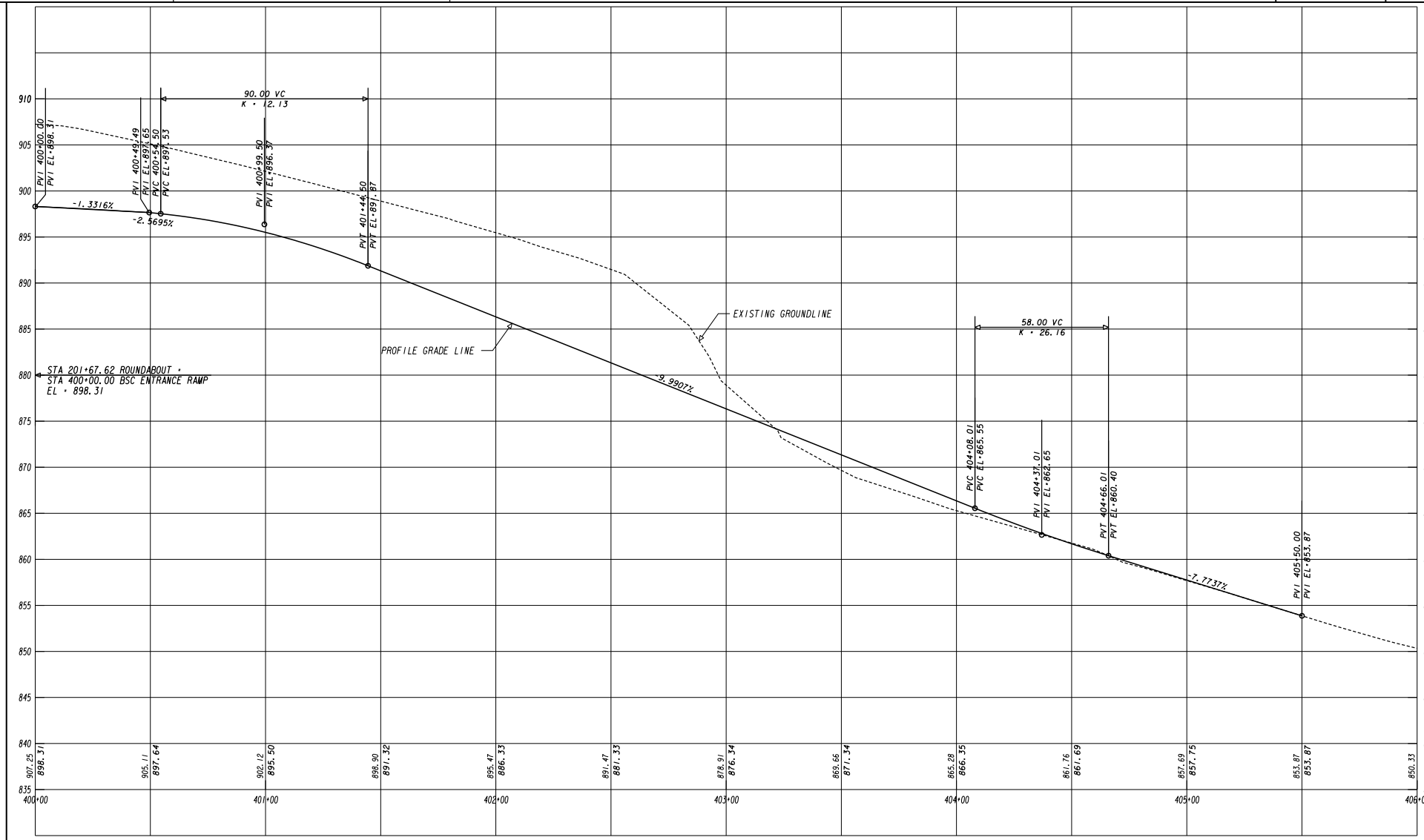
GDOT

P. I. No.



SCALE:
HORIZONTAL 1"=20'
VERTICAL 1"=5'

REVISION DATES

MAINLINE PROFILE

BUFORD SPRING CONNECTOR & ROUNDABOUT

BSC ENTRANCE RAMP

CHECKED:		DATE:	DRAWING No.
BACKCHECKED:		DATE:	
CORRECTED:		DATE:	15-0003
VERIFIED:		DATE:	

7/31/2015 G20EDG

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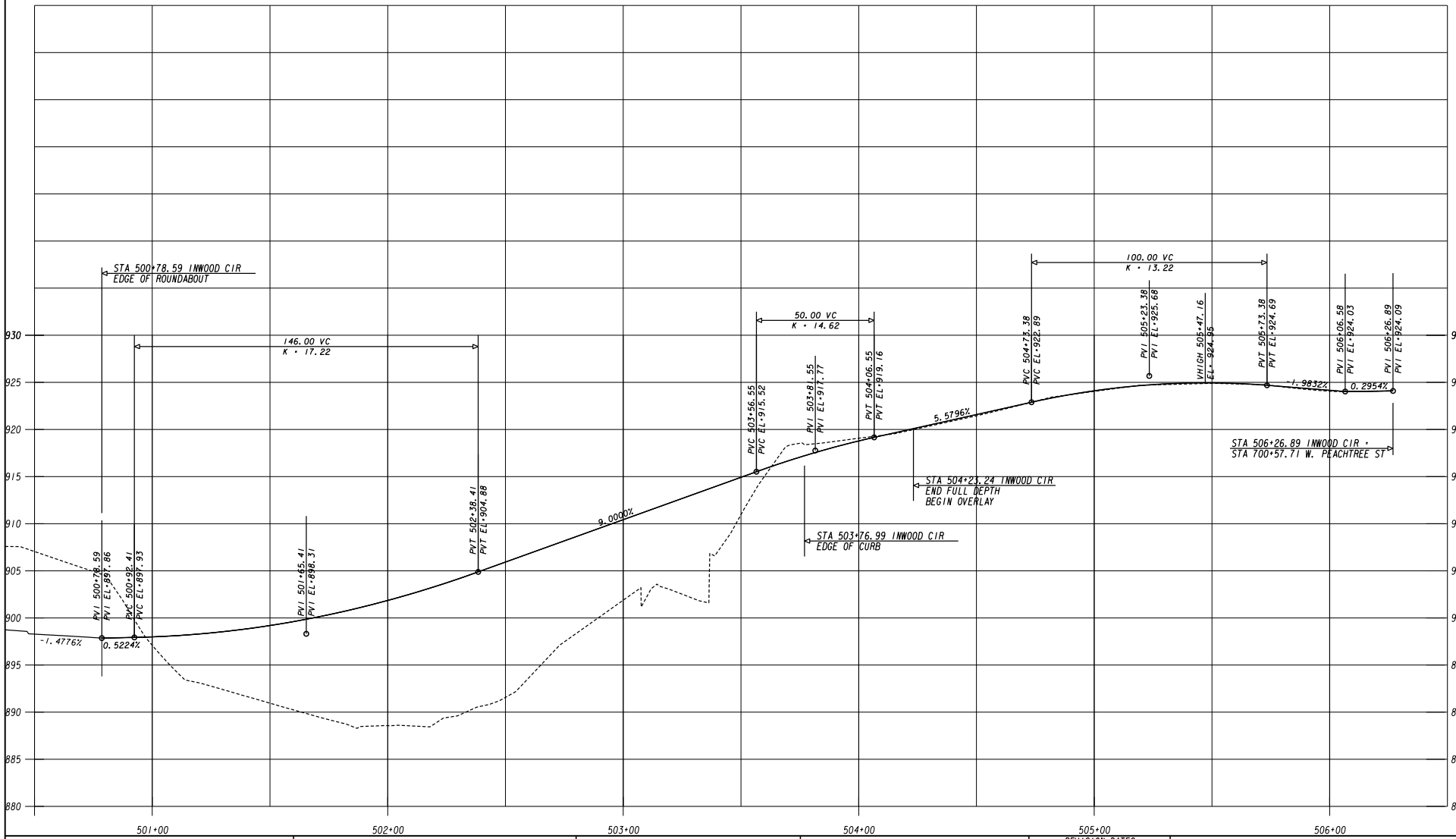
$USER$ 0016894



SCALE:
HORIZONTAL 1"=20'
VERTICAL 1"=5'

REVISION DATES

MAINLINE PROFILE
BUFORD SPRING CONNECTOR & ROUNDABOUT
INWOOD CIRCLE

CHECKED:		DATE:	DRAWING No.
BACKCHECKED:		DATE:	
CORRECTED:		DATE:	15-0004
VERIFIED:		DATE:	

7/31/2015 G20EDG

DATE$$S
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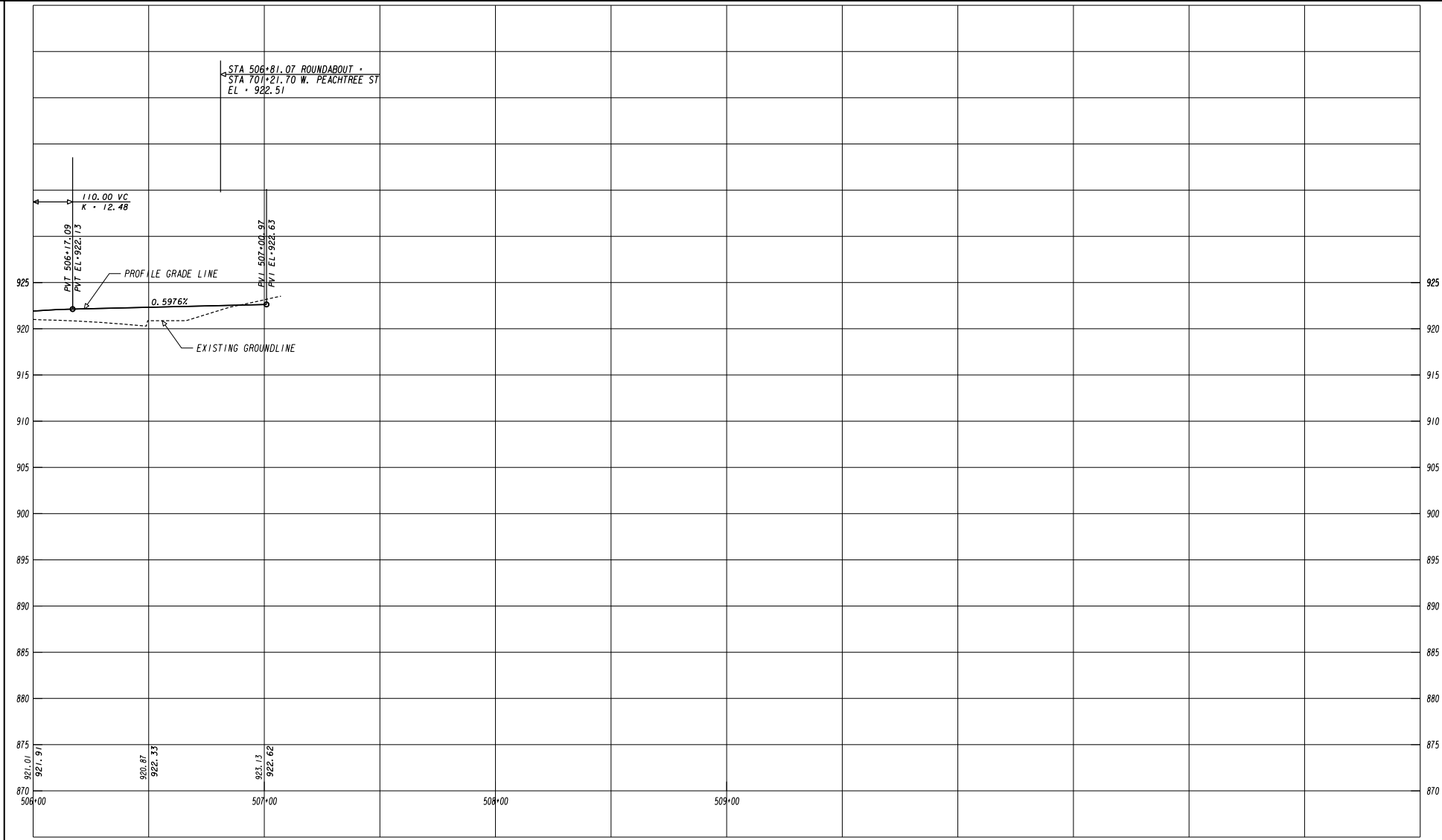
P. I. No.
521TO10



SCALE:
HORIZONTAL 1"=20'
VERTICAL 1"=5'

REVISION DATES

MAINLINE PROFILE

BUFORD SPRING CONNECTOR & ROUNDABOUT

INWOOD CIRCLE

CHECKED:		DATE:		DRAWING No.
BACKCHECKED:		DATE:		
CORRECTED:		DATE:		15-0005
VERIFIED:		DATE:		

7/31/2015 G20EDG

DATE$$S
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DGN
GDOT
P. I. No.
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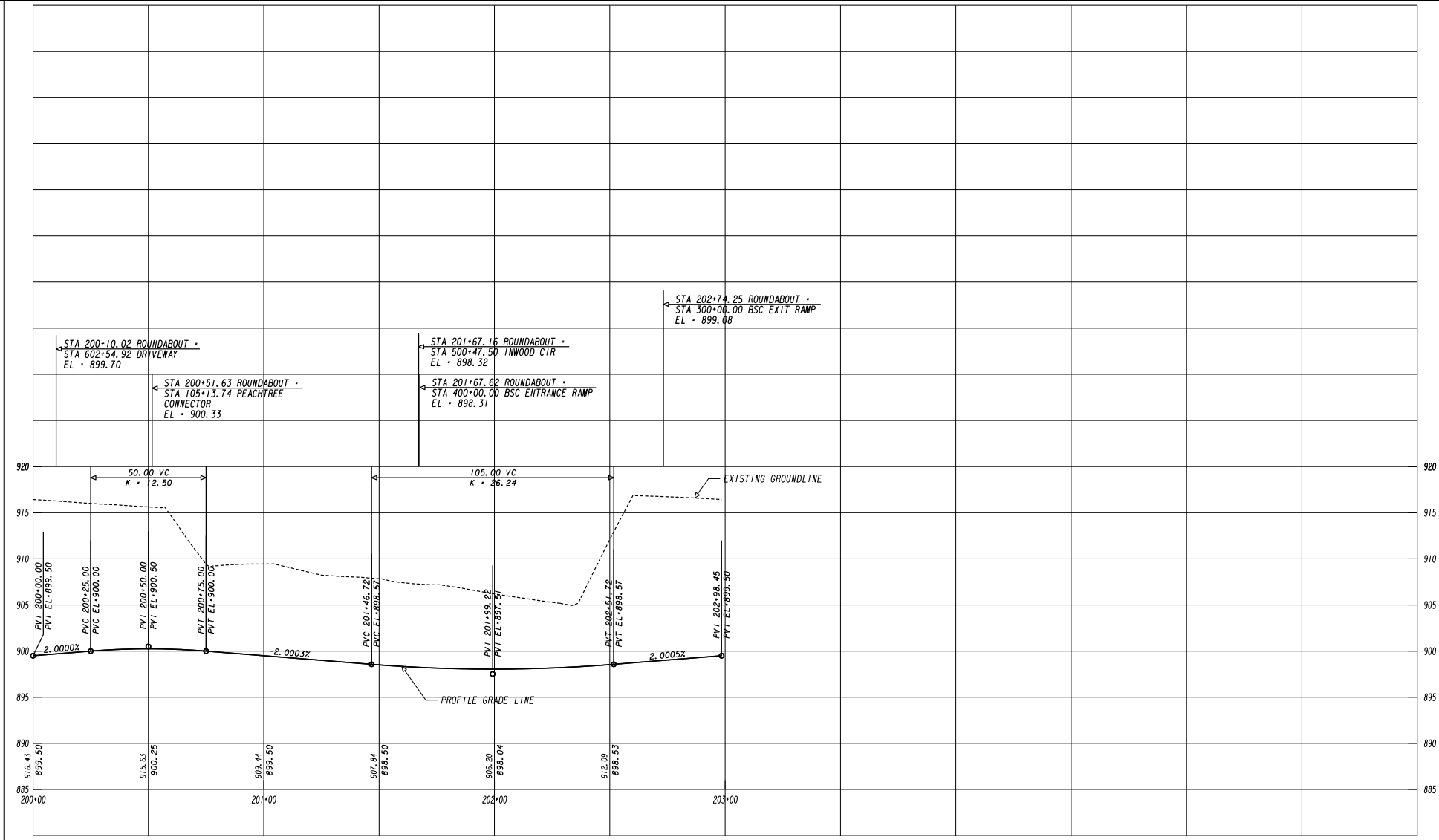

SCALE:
HORIZONTAL 1"=20'
VERTICAL 1"=5'

REVISION DATES

MAINLINE PROFILE

BUFORD SPRING CONNECTOR & ROUNDABOUT

BSC ROUNDABOUT

CHECKED:		DATE:	DRAWING No.
BACKCHECKED:		DATE:	
CORRECTED:		DATE:	15-0006
VERIFIED:		DATE:	

7/31/2015 G20EDG

CITY OF ATLANTA
Office of the Mayor
55 Trinity Avenue, SW
Suite 2400
Atlanta, Georgia 30303
404-330-6100

Kasim Reed
Mayor

Dan Gordon
Chief Operating Officer

September 10, 2015

Commissioner Russell R. McMurry, P.E.
Georgia Department of Transportation
One Georgia Center
600 West Peachtree NW
Atlanta, GA 30308

Re: Letter of Support – Roundabout Construction

Dear Commissioner McMurry:

I am writing to express my support for the installation of a roundabout as proposed by John Dewberry and Dewberry Capital. The City of Atlanta has the responsibility to address traffic safety and control challenges, while improving traffic flow for its residents and visitors. Roundabouts have a proven track record of reducing collisions and lowering the number of fatalities, bodily harm and property damage associated with car crashes. In addition, compared to stop signs and signals, roundabouts promote mobility which allows traffic to move through an intersection with minimal delay.

We are excited to partner with Dewberry Capital on this project near the intersection of Peachtree Street and the Buford/Spring Connector. The connector is an ideal location to create better access to this corridor, and should promote economic development in the area.

Using specifications outlined by the City of Atlanta, Dewberry Capital has committed to the design and construction. Further, Dewberry Capital will finance a roundabout in the desired location. The project will be turned over to the City of Atlanta upon completion.

It is with these compelling elements in mind that the City of Atlanta looks forward to partnering with Dewberry Capital to create a pedestrian friendly, traffic calming measure that will also cultivate and promote economic development for a deserving area of our city.

Sincerely,

Daniel L. Gordon
Chief Operating Officer

Traffic Operation Analysis

FOR

Buford-Spring Connector/Peachtree Street Ramps

Traffic Analysis Report

Atlanta, Fulton County, Georgia

Prepared For:

Dewberry Capital

One Peachtree Pointe

1545 Peachtree St. NE Suite 250

Atlanta, GA 30309

Prepared by:

2470 Sandy Plains Rd

Marietta, Georgia 30066

January 19, 2017

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Appendix A Study Traffic Flow Diagrams (Existing, No Build and Build)
Appendix B VISSIM Outputs

EXECUTIVE SUMMARY

SEI was tasked with the operational analysis of a proposed change to the existing Buford-Spring Connector exit and entrance ramps to and from Peachtree Street, which could consist of two new connections that would tie into the existing roads of Peachtree Street and Inwood Circle via a new roundabout. The basic layout considered the existing geometry and survey data.

Due to the tight spacing of the intersections, the configurations of the proposed roundabout and existing intersection of West Peachtree Street and Beverly, the pedestrian volumes, the high levels of congestion, and other key factors the microsimulation software Vissim was utilized to conduct the analysis.

The proposed connection provides accessibility to underutilized areas of the northern Midtown area. In addition it is a practical route alternative to traffic accessing the Buford-Spring connector, which in the operational analysis demonstrated the ability to divert a significant portion of the volume on Peachtree Street.

The operational analysis focused on the overall network area. By creating a link, the overall queues experienced the area were approximately the same, but a single queue did not reach the length it did with the existing geometry, effectively spreading the delay among all the drivers in the area instead of a concentrated group.

The added connection gives the network more capacity in an area currently constrained in its ability to expand due to the existing developments and urban landscape. This supplementary capacity increases the throughput in the network by more than 1000 vehicles on average in both the AM and PM hour.

Another important consideration is the functionality of roundabout. Per the level of service evaluations, three of the four approaches are at acceptable LOS in the 2040 design year. The overall roundabout is also operating at an acceptable level of service. The failing approach traffic still has a shorter queue than it would without the roundabout.

The roundabout and two connecting roads will not only provide accessibility to areas that in existing conditions are not served well, but will also increases the storage for the northern Buford-Spring connection. It functions at acceptable levels in the design year.

INTRODUCTION

Background

Southeastern Engineering, Inc. (SEI) has provided traffic services for Dewberry Capital as part of the West Peachtree Ramp Project in the City of Atlanta, Fulton County, Georgia. The West Peachtree Ramp study area map is shown in Figure 1 and the location map is shown in Figure 2.

Figure 1: Study Area Map

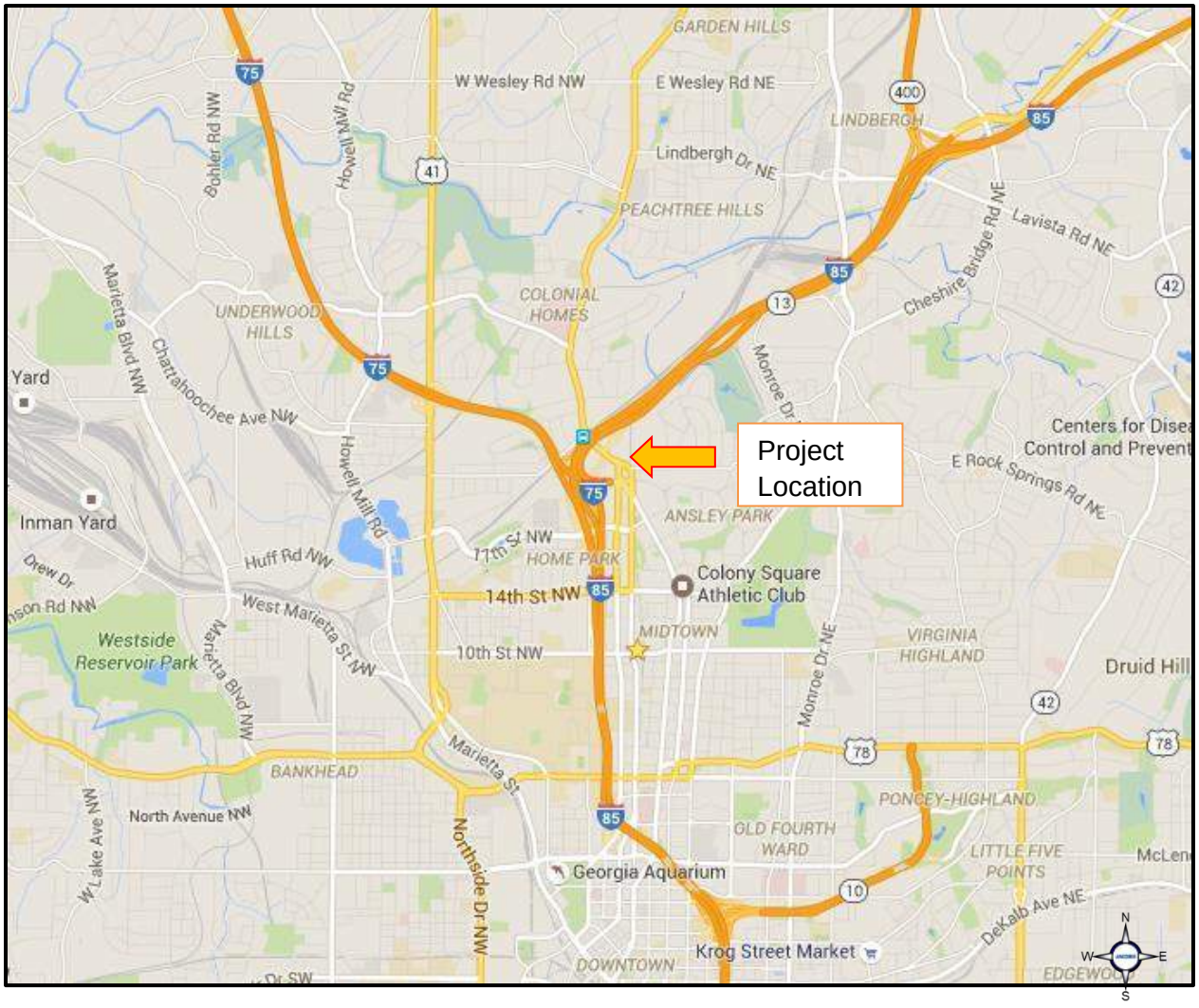


Figure 2: Study Area Aerial Map

The Build condition for this project considers the installation of a roundabout as shown in Figure 2. SEI has performed peak hour traffic analysis for existing year (2016) conditions, Opening Year (2020) No Build and Build conditions, and Design Year (2040) No Build and Build conditions.

Project Description

The proposed project will modify the limited access at the Buford-Spring Connector ramps to allow access to two new public roads, labeled on Figure 2 as “Peach Circle” and “Inwood Connector.” The traffic analysis is intended to review the future traffic operations given the proposed project roadway network with the roundabout to determine if any adverse impacts would occur as a result of the development and to determine the regional significance. Because the Buford-Spring Connector ramps are not on the Federal highway system, no Interchange Modification Report will be needed as part of this study.

EXISTING CONDITIONS

The transportation facilities within the study area are described as follows:

Main Study Roadways

Buford/Spring Connector

The Buford/Spring Connector is functionally classified as an Urban Principal Arterial (Other Freeways and Expressways) that connects Spring Street in the southwest to Buford Highway in the northeast. Between Spring Street and Sidney Marcus Road, the Buford/Spring Connector is a limited-access facility with a 55 mile per hour (mph) speed limit, with ramp connections to adjacent arterials and expressways such as Interstate-85. This study focuses on the connector ramps between Peachtree Street and the Buford/Spring Connector. At the merge point with the Peachtree Street ramps, the Buford/Spring Connector has two travel lanes in each direction.

Peachtree Street

Peachtree Street extends north from Memorial Drive, where it changes names to Peachtree Road just south of Palisades Road. Peachtree Road continues to the north and northeast until just south of Clairmont Road, where it changes names to Peachtree Industrial Boulevard. Peachtree Street is classified as an Urban Minor Arterial within Midtown Atlanta with a 35 mph speed limit. Development along Peachtree Road within the study area is primarily commercial, with access driveways to residential communities and other services. South of Spring Street, Peachtree Street has two travel lanes in each direction with turn lanes at major intersections. North of the Spring Street intersection, Peachtree Street gains an additional travel lane in each direction.

Beverly Street

Within the study area, Beverly Street is functionally classified as an Urban Minor Collector that primarily serves the Ansley Park area. Beverly Street is a two-lane roadway with a 25 mph speed limit that connects Peachtree Street in the west to Montgomery Ferry Drive in the east.

West Peachtree Street

Within the study area, West Peachtree Street is functionally classified as a Local Road and serves primarily commercial development.

Traffic Data Collection

In order to create the existing and future traffic flow diagrams, SEI obtained traffic count data within the study area. The original traffic data sheets are included in Appendix A and the traffic flow diagrams are included in Appendix B. The locations are also shown on Figure 3.

Six-Hour Turning Movement Counts (7 locations)

Turning movement counts were performed during the weekday AM, noon, and PM peak periods (7:00-9:00 AM, 11:00 AM-1:00 PM and 4:00-6:00 PM, respectively) at the following intersections:

1. Peachtree Street at Peachtree Circle / S Rhodes Centre
2. Peachtree Street at Beverly Road
3. Peachtree Street at Spring Street
4. Peachtree Street at Buford-Spring Connector
5. Peachtree Street at Deering Road
6. Beverly Road at West Peachtree Street
7. Beverly Road at Robin Hood Road

24-Hour Single-directional Traffic Volume Classification Counts (4 locations)

Traffic volume and classification counts were conducted for 24 hours for one travel direction along the following roadway segments:

1. Buford-Spring Connector east of Peachtree Street (eastbound)
2. Buford-Spring Connector east of Peachtree Street (westbound)
3. Spring Street south of Peachtree Street (southbound)
4. S Rhodes Center west of Peachtree Street (eastbound)

24-Hour Bi-directional Traffic Volume Classification Counts (3 locations)

Traffic volume and classification counts were conducted for 24 hours for both travel directions along the following roadway segments:

1. Peachtree Street south of S Rhodes Center
2. Peachtree Street south of Deering Road
3. Buford/Spring Connector west of merge with Peachtree Street ramps

24-Hour Bi-directional Traffic Volume Counts (9 locations)

Traffic volume counts were conducted for 24 hours for both travel directions along the following roadway segments:

1. Peachtree Street northwest of Deering Road
2. Deering Road west of Peachtree Street
3. Driveway location east of Peachtree Street
4. Driveway location east of Peachtree Street
5. Driveway location east of Peachtree Street
6. West Peachtree Street north of Beverly Road
7. Robin Hood Road north of Beverly Road
8. Beverly Road east of Robin Hood Road
9. Peachtree Circle east of Peachtree Street

Figure 3: Traffic Count Locations

Study Intersection Growth Trends

SEI determined historic traffic growth trends based on the past fifteen years of data provided at Georgia Department of Transportation (GDOT) count stations (where available). Trend line graphs were prepared for five, ten, and fifteen year trends.

SEI performed a trend analysis that conforms to specific Design Manual Guidance. Historical data from nearby GDOT count stations was analyzed from 1999 to 2014. Table 1 shows the analysis of historical annual average daily traffic (AADT) volumes recorded by GDOT count stations located in Fulton County.

Table 1 Historical Growth Rate				
Station #	**Location**	**5-Year Growth Rate**	**10-Year Growth Rate**	**15-Year Growth Rate**
1215104	Peachtree Street south of Spring Street	0.9%	-5.4%	-5.2%
121R843	Buford-Spring Connector On-Ramp east of Peachtree Street	-3.9%	--	--
1215528	Buford-Spring Connector west of Peachtree on-Ramp	0.4%	-2.0%	-1.9%
5-Year, 10-Year, and 15-Year Averages		**-0.9%**	**-3.7%**	**-3.5%**
Weighted Average		**-2.8%**		

As shown in Table 1, the weighted historical growth rate for the traffic recorded at these GDOT count stations shows generally negative growth rates, with slightly positive growth rates at two of the three stations in the last five years. This decline in traffic volumes has been seen statewide due to the national recession. SEI used a growth rate of 0.5% for projecting future traffic volumes.

Study Area Future Developments

Based on our discussions with Midtown Alliance and Dewberry Capital, the following adjacent developments were evaluated to incorporate in the future traffic volumes in addition to background traffic growth. These developments were applied to both future years for both the No Build (without the ramp modifications) and Build (with the ramp modifications) scenarios. The location of these developments are shown in Figure 4.

1. Uptown Heights
2. Uptown Square
3. Ansley
4. Rhodes Tower
5. Peachtree at 17th
6. Dewberry/17th
7. 1400 West Peachtree
8. SCAD Spring House

Figure 4: Study Area Future Developments Aerial Map

The following assumptions were used for trip generation:

- Trip generation rates were based on rates from the Institute of Transportation Engineers *Trip Generation Manual*, 9th Edition (ITE Trip Generation manual), for the following land uses:
    - Land Use 220 Apartment
    - Land Use 230 Residential Condominium/Townhouse
    - Land Use 310 Hotel
    - Land Use 710 General Office
    - Land Use 820 Shopping Center
    - Land Use 932 High Turnover/Sit Down Restaurant

- Passby percentages were based on rates from the ITE Trip Generation manual for the following land uses:

    - Land Use 820: 34%
    - Land Use 932: 43%

- Mixed-use, transit, and transportation management reduction percentages were based on the urban Midtown setting and a goal of 25% reduction in peak hour trip generation for office developments large enough to have a transportation management plan (TMP). For this reduction percentage, all daily reductions and the peak hour reductions for smaller developments are set to 15%. The peak hour reductions for the larger developments are set to 25%. For the purposes of this study, smaller developments were considered those with less than 1,500 daily-generated trips. As an example, for a purely office development, this would be the equivalent of 160,000 s.f. of leasable space. Based on the Midtown Atlanta SPI-16 zoning regulations:

    - *The Bureau of Buildings shall not issue building permits for office components of any development in this district until such time as the developer or leasing agent for each of the office components has submitted to the Director of the Bureau of Planning, a transportation management plan (TMP) for each such component that has more than twenty-five thousand (25,000) square feet of total gross leasable floor area of space. The TMP shall contain strategies to reduce single occupancy vehicle trips generated by the project by a minimum of twenty-five (25%) percent during a five-year period from the initial date of occupancy.*

  The threshold for the 25% reduction was set at 1,500 daily-generated trips, which is higher than the daily trips would be for the threshold s.f. indicated in the SPI-16 zoning regulations. The threshold was raised for this analysis to account for other land uses (such as hotel) that will have a lower trip reduction, as well as the implementation time of transportation management plans for various facilities.

- Looking at the northern Midtown Atlanta area distribution, two major routes to I-85 exist: West Peachtree north to the Buford-Spring Connector (south connection) or Peachtree Street north to the Buford-Spring Connector Ramps (north connection). In order to determine what percentage of traffic would be traveling to and from these connections and to the north on Peachtree Street, a volume-based distribution for this area of Midtown was calculated based on historical 2014 GDOT AADT data, as shown in Table 2.

Table 2 Northern Midtown Atlanta Distribution

Location	2014 AADT Volume (vpd)	Overall Percentage
Buford-Spring Connector Ramps (north connection)	16,290	6.4%
Buford-Spring Connector at West Peachtree/Spring Street (south connection)	29,400	11.6%
Peachtree Street north of Deering Road	43,400	17.1%
Deering Road west of Peachtree Street	9,070	3.6%
17th Street west of Spring Street	20,500	8.1%
14th Street west of Spring Street*	27,280	10.7%
10th Street west of West Peachtree Street*	23,420	9.2%
14th Street east of Peachtree Street	19,200	7.6%
10th Street east of Peachtree Street	13,200	5.2%
Spring Street/West Peachtree Street south of 8th Street	33,000	13.0%
Peachtree Street south of 8th Street	19,100	7.5%
Total	**253,860**	**100%**

* ADT volume obtained from 2013 MTOP traffic count and grown to 2014 volume.

This distribution is an approximation for all trips in the area. When doing specific trip assignment, the placement of the development will affect which roadway is used. Examples of the calculations considered are shown below.

- By using the Buford-Spring Connector Ramps (north connection) percentage (6.4%) and the Buford-Spring Connector at West Peachtree/Spring Street (south connection) percentage (11.6%), it can be estimated that approximately 18% of traffic in this area is traveling up Buford Highway and its connections to GA 400 and I-85. Based on the placement of the development, future traffic will be split on how much of site-generated future traffic volume will use the West Peachtree/Spring Street connection to Buford-Spring Connector and how much will use Peachtree Street.
- No alternate paths out of Midtown serve the same roadway facilities as Peachtree Street north of Deering Road (17.1%). Trip assignment to this distribution will take

logical roadway paths to this destination but this percentage will not be combined with any other for the analysis.

As an initial approximation, the overall trip generation for the developments was compared to the traffic volumes on the Buford-Spring Connector Ramps and Peachtree Street north of Deering Road in order to estimate how much growth the specific developments are anticipated to add to this area. The details of the developments can be seen in Table 3 and the trip generation results can be seen in Table 4.

Table 3 Projected and Under Construction Developments in Midtown Atlanta (north of 16th Street)

Project Name/Type	Status of Project	Office/ Institutional (SF)	Residential Units	Hotel Rooms	Retail (SF)
Uptown Heights	Proposed	0	1,800	0	0
Uptown Square	Proposed	600,000	500	0	15,000
Ansley	Proposed	0	100	100	20,000
Rhodes Tower	Proposed	750,000	250	0	20,000
Peachtree at 17th	Proposed	0	206	140	12,200
1400 West Peachtree	Proposed	0	356	150	6,000
Dewberry/17th	Proposed	600,000	0	0	25,000
SCAD Spring House	Proposed	0	500	0	6,000
Total		**1,950,000**	**3,712**	**390**	**104,200**

Table 4 Projected and Under Construction Developments in Midtown Atlanta (north of 16th Street) Trip Generation									
Project Name/Type	**AM**			**PM**			**Daily**		
	Enter	**Exit**	**Total**	**Enter**	**Exit**	**Total**	**Enter**	**Exit**	**Total**
Uptown Heights	126	531	657	520	272	792	4,874	4,872	9,746
Uptown Square	684	252	936	283	646	929	4,510	4,508	9,018
Ansley	91	96	187	112	78	190	1,210	1,210	2,420
Rhodes Tower	840	224	1,064	266	767	1,033	4,750	4,749	9,499
Peachtree at 17th	85	119	204	132	88	220	1,371	1,370	2,741
Dewberry/17th	625	89	714	136	581	717	3,113	3,111	6,224
1400 West Peachtree	72	136	208	145	91	236	1,585	1,585	3,170
SCAD Spring House	43	150	193	146	74	220	1,420	1,419	2,839
Total	**2,566**	**1,597**	**4,163**	**1,740**	**2,597**	**4,337**	**22,833**	**22,824**	**45,657**

When comparing the percentage of the new trip-generated volume to the existing 2014 GDOT historical volumes on Peachtree Street and the Buford-Spring Connector Ramps in the study area, volumes are expected to increase approximately 18% from specific development growth, as shown in Table 5.

Table 5 General Traffic Growth from Development north of 16th Street				
Location	**2014 AADT Volume (vpd)**	**Overall Percentage**	**Approximate Daily Distribution from Trip Generation (Overall Percentage x Total in Table 4)**	**Percentage Growth Compared to 2014 AADT**
Buford-Spring Connector Ramps (north connection)	16,290	6.4%	2,920	18%
Buford-Spring Connector at West Peachtree/Spring Street (south connection)	29,400	11.6%	5,300	18%
	45,690	**18.0%**	**8,220**	**18%**

Table 5 shows that overall the traffic growth to I-85 is expected to grow approximately 18% over the next twenty years from the current and planned developments north of 16th Street. In addition, GDOT has approved a 0.5% background traffic growth that will result in another approximate 10% of volume increase over 20 years.

Growth information from the Atlanta Regional Commission (ARC) travel demand model was obtained on March 10, 2016. The information from Midtown Alliance is considered the most up-to-date, but the following ARC travel demand model is useful to ensure that adding the specific development traffic and the background growth percentage is not considered over-counting by comparing the final projected growths from the traffic study to the volume growth between the 2040 and 2015 ARC travel demand outputs in the study area. Based on the ARC 2015 and 2040 travel demand models, the expected growths for these two locations are:

Table 6 General Traffic Growth from ARC Model (comparison)

Location	ARC Model Growth 2015 to 2040	Anticipated Approximate Trip Generated Growth (Table 5)	Approximate Background Growth (0.5% annual, 2016 to 2040)	Total Initial Estimated Growth	Comparison of Volumes: Specific Developments to ARC Growth
To Buford-Spring Connector	12,739	8,220	5,800	14,020	110%

Based on the initial information shown in Table 6, using both the anticipated trip generation and the background growth is directly comparable (within 10%) of the ARC model information. The growth is slightly conservative compared to the ARC model, since the projected future volumes are higher using the trip generation results for the specific developments shown in Table 4.

Site-generated traffic from these developments were given specific turning assignments at the study intersections for the future traffic flow diagrams, in addition to the overall background growth increase, in order to project the 2020 and 2040 year traffic volumes.

Balanced flow diagrams were prepared as follows:

- Existing 2016 Peak Hour Traffic
- Opening Year 2020 Peak Hour Traffic No Build and Build
- Design Year 2040 Peak Hour Traffic No Build and Build
- Existing 2016 Average Daily Traffic
  Opening and Design Years (2020 and 2040) Average Daily Traffic No Build and Build

These flow diagrams are included in Attachment B.

K, D and T Factors

Peaking (K) and distribution (D) factors were calculated for the two primary study corridors (Peachtree Road and the Buford Spring Connector). The K factor is defined as the proportion of daily traffic that occurs during the peak hour of the day. The D factor is the percentage of traffic moving in the peak travel direction during the peak hour. The average corridor results of these calculations are shown in Table 7.

Table 7 Study K and D Factors By Facility				
Location	**K-Factor**		**D-Factor**	
	AM	PM	AM	PM
Peachtree Road Average	**0.07**	**0.08**	**0.58**	**0.57**
Buford Spring Connector ramp (exit)	0.05	0.08	*	-*
Buford Spring Connector ramp (entrance)	0.07	0.05	*	-*
Ramp Average	**0.06**	**0.06**	*-	--*

* D factors are not meaningful for one-way traffic flow, as there is no opposing traffic. The D factor is always 1.

The K factor for the Buford Spring Connector is lower than typical when considering the two-way volume of both ramps, but when each ramp is considered separately, the K factor is typical for arterials in the midtown Atlanta area.

These K and D factors were used for comparison in the existing and future analysis.

The truck factor (T factor) was also calculated from the count data and separated in the single-units (SU) and combination units (CU). The trucks were primarily comprised of single units, which is expected for an urban area.

The T factors for the existing and future analysis are shown in Table 8.

Table 8 Study T Factors By Approach and Facility: Peak Hours									
Location	AM			PM			ADT		
	T	SU	CU	T	SU	CU	T	SU	CU
Buford Spring Conn NB Ramp N/O Peachtree St NE	2.6%	2.5%	0.1%	3.5%	3.5%	0.0%	3.9%	3.8%	0.1%
Buford Spring Conn SB Ramp N/O Peachtree St NE	4.5%	4.3%	0.2%	1.6%	1.6%	0.0%	4.5%	4.3%	0.2%
Peachtree St Bet. Buford Spring Conn & W Peachtree St	4.8%	4.2%	0.6%	4.4%	4.0%	0.5%	4.7%	4.2%	0.5%
Peachtree St NE W/O Buford Spring Conn	3.4%	3.0%	0.3%	3.0%	2.5%	0.4%	3.9%	3.5%	0.4%
Spring St NW Left Turn Ln S/O Peachtree St NE	4.1%	3.7%	0.4%	3.1%	3.1%	0.0%	3.9%	3.6%	0.3%

T = Total Trucks, SU = single unit trucks, CU = combination unit trucks

Overall, the truck percentages on the Buford Spring Connector, Peachtree Street, and Spring Street are typical for major urban arterial routes in the metro Atlanta area. Single unit trucks comprised the majority of the truck as expected as most combined units are prohibited from passing through the city unless for local deliveries.

TRAFFIC ANALYSIS

Model Assumptions

Microsimulation (VISSIM) was used to look at the interaction between the roundabout and the nearby traffic signal (Peachtree Street) and merge area (Buford/Spring connector) within the study area. Microsimulation models track individual vehicle movements on a second or subsecond basis, where macroscopic models (such as the Synchro HCM analysis) analyze traffic streams as a whole by evaluating overall characteristics such as flow, density, and mean speed. The network was analyzed in the VISSIM microsimulation to determine the queueing within the study area over the course of the entire peak hour. In addition macroscopic models do not illustrate extremely congested conditions well, which microsimulation represents better. Due to the current heavy congestion and proposed geometric changes in the study area, a microsimulation model is a more accurate, optimal tool to use for the analysis.

Several field observations, information from the collected counts, and an overall understanding and familiarity of the area were used in the model to calibrate it to realistic conditions. This included modeling vehicles based on the observed classification, which increased the overall average length of the vehicles from the default. In addition, this area has high pedestrian traffic, which was also included in the model. Most of the traffic going through this area during the peak hours is familiar with the area, so the model's driver behavior was calibrated to reflect those conditions.

Vissim's traffic flow model, based on the car-following model researched by Wiedemann, tracks individual vehicles traveling through a built network. Based on their free flow speed and distance to preceding vehicles, a driver can either be in free driving, approaching, following, or a braking state. For this model the base values were used and calibrated to match field observations. The base given values for acceptable gap and headway were used as they mirrored realistic conditions. The desired speed was adjusted based on the design speed of the roads in the study network.

The base network was created based on existing aerial imagery of the study network. This includes the lane geometry, configuration, and widths. The location and layout of an addition of a roundabout on the existing on and off ramps at the northern connection of Peachtree Street and the Buford Spring connector was based on a schematic, which considered preliminary survey data to lay out potential areas for roadway improvements. The new driveways for four new developments that will be open in design year 2040 were modelled along the existing road within the study network. An additional four developments are expected to be open by design year 2040 outside the study network and will affect the traffic volume on the network, but their individual driveways are not directly in the study area.

At each intersection or conflict point, rules were created in the model to reflect yield situations and driver behavior. These were further calibrated based on field observations and typical driver behavior. This included adjustments for variations in driver behavior resulting from congestion such as vehicles allowing other vehicles without the right of way passage in congested situations or preventing excessive intersection blocking.

The signals were created based on existing data from the controllers currently in place. The phasing, detectors, and splits were set up based on the existing timing for the AM and PM peak. In the future condition, the base volumes and lane configurations were inputted in Synchro. The signal timing was optimized utilizing Synchro and then put in the Vissim emulation of a ring-barrier signal controller. The signals along Peachtree Street are coordinated. The intersection of Spring Street and S Rhodes Center was left as free running as the signals it is in coordination with are not in the study network.

Because the study network has a high pedestrian volume, the actual pedestrian counts (rounded up to the nearest fifth) at each intersection were inputted into the model. In areas in which the pedestrian counts were unavailable or at new intersections in the future conditions with the developments the average number of pedestrians per leg was used. This was 9 pedestrians in the AM peak and 13 pedestrians in the PM peak.

The volumes inputted into the model were based on existing counts, an assumed background growth of 0.5% per year, and growth from new developments expected in the area. The traffic of the developments was assigned to paths based on the existing traffic distribution and the most likely paths a vehicle would take. These volumes were then balanced throughout the network. The volumes were comprised of a mix of cars, pick-up trucks, vans, buses, and trucks based on the vehicle classification from collected field data.

Typically in traffic studies individual intersections are studied, and vehicular traffic counts are assigned to each intersection based on existing patterns. Vissim, because it is microscopic model, tracks a vehicle through the entire network. To properly model a vehicle traveling through the network with the close spacing observed in the study area, traffic counts by intersection needed to be converted into an origin-destination matrix. This was done using a target matrix based on the endpoints of the network and controlling for turning movement counts.

The vehicles were then assigned to routes in Vissim. In situations where multiple likely routes existed, the proportion between route choices was found iteratively through several simulation runs until the choices were balanced. Although there were alternate routes in the study network with the existing geometry because of the origin and destinations of the vehicles a different route was unlikely to be taken by a vehicle as it was not beneficial to the individual driver. The proposed scenario with two new roadways connected to the existing Buford-Spring Connectors ramps connected with a roundabout

Vissim uses stochastic modeling to evaluate a network; several runs need to be conducted once the network has been set up and calibrated. For the study 20 runs were simulated. Each simulation represented 75 minutes: 15 minutes to seed the model and 60 minutes to evaluate it. There were 10 time steps per simulation second. Runs that exhibited unrealistic characteristics were not included in the results.

Results

The purpose of the operational analysis was to determine if there were any adverse impacts to the study area because of the roundabout and two connecting legs. Although there additional congestion from the developments and background growth in the area, the roundabout geometry itself does not adversely impact the region. It functions comparably to the existing geometry in overall queues and better in overall capacity. In addition, the development of the roundabout connection has regional significance because it improves accessibility to areas in the vicinity of the connection and provides alternate routes for vehicles traveling from further outside the network through the Buford-Spring Connector.

Because the long term impacts to the region, the design year 2040 was the focus of the model in the comparison of the functionality of the two geometries: existing and proposed.

Queues at Key Locations in Network

One of the measurements used to evaluate the existing geometry versus the proposed geometry of the roundabout was to compare the queue lengths of key approaches on segments most affected by the new connection. With the existing geometry West Peachtree Street southbound has a queue of over 1,000 ft in both the AM and PM peak hours. Because the connection directly links with this segment, it provides an alternate route for vehicles traveling on that corridor and significantly decreases that queue. In the roundabout condition, there are additional queues near the roundabout. The total queue length in the area is comparable.

The average queue length was measured at key locations in both scenarios for the AM and PM Peak for the build year 2040.

The queue at the entrance ramp at the Buford-Spring Connector does increase during the PM peak hour, but it is still under 15 ft. In field observations, this on-ramp does get backed up, but this is due to congestion on I-85 or the Buford-Spring Connector itself.

Table 9 Queue Lengths Observed (2040 Model)						
Queues on Key Segments			Average Queue Length (ft)			
			AM		PM	
Intersection	**Traffic Control**	**Approach**	Existing Geometry	Proposed Connection	Existing Geometry	Proposed Connection
Peachtree Street at West Peachtree Street/Beverly Road	Stop	Southbound	1120.7	210.9	1083.6	535.3
Peachtree Street at West Peachtree Street/Beverly Road	Stop	Westbound	148.7	145.7	146.9	139.5
Beverly Road at Robin Hood Road	Stop	Southbound	321.5	285.1	347.5	335.2
Beverly Road at Robin Hood Road	Stop	Westbound	542.5	541.8	522.9	425.8
Georgia Lane/Buford Spring Connector at Inwood Connector	Roundabout	Westbound		183.2		478.1
Georgia Lane/Buford Spring Connector at Inwood Connector	Roundabout	Southbound		1540.6		72.5
Buford Spring Connector Entrance Ramp at Merge	None	Northbound	0.6	0.5	5.9	13.9
Georgia Lane/Buford Spring Connector at Inwood Connector	Roundabout	Northbound		25.0		158.2
Peachtree Street at north Buford-Spring Connection	Signalized	Exit Ramp	1622.8	145.4	134.2	265.2
Total Queue			3756.9	3078.1	2241.0	2423.7

Latent Demand

In addition, the latent demand was observed. In the peak hour, there are more vehicles attempting to go through the system than the roadway capacity allows. The proposed connection, which includes the roundabout and both additional access points it, has a lower average numbers of vehicles left unable to enter the system.

Table 10 Latent Demand Observed (2040 Model)				
Peak Period	Existing Geometry		Proposed Connection	
	Average Latent Demand (# of vehicles)	**Observed Range of Latent Demand (# of vehicles)**	**Average Latent Demand (# of vehicles)**	**Observed Range of Latent Demand (# of vehicles)**
AM	4065	3576 - 4443	2699	2205 - 3100
PM	5015	4478 - 5458	3389	3020 - 3754

Roundabout LOS

Another consideration was the level of service observed at the roundabout, summarized in the table below. Although the westbound approach fails on some of the runs in both the

AM and the PM, the other three approaches are functioning at an acceptable level of service. The overall level of service is acceptable.

Table 11 Roundabout LOS (2040)				
Approach	2040 AM		2040 PM	
	Average of LOS	LOS Letter Equivalent	Average of LOS	LOS Letter Equivalent
Eastbound	3.36	C/D	2.93	B/C
Northbound (Existing Ramp from Peachtree Street to Buford Spring Connector)	2.24	B/C	4.74	D/E
Southbound (Existing Ramp from Buford Spring Connector to Peachtree Street)	6.00	F	2.65	B/C
Westbound	5.37	E/F	6.00	F
Overall Average (weighted by throughput)	4.48	D/E	3.93	C/D

CONCLUSIONS

The proposed connection provides accessibility underutilized areas of the northern Midtown area. In addition is a practical route alternative to traffic accessing the Buford-Spring connector, which in the operational analysis demonstrated the ability to divert a significant portion of the volume on Peachtree Street.

The operational analysis focused on the overall network area. By creating a connection, the overall queues experienced the area were approximately the same, but a single queue did not reach the length it did with the existing geometry, effectively spreading the delay among all the drivers in the area instead of a concentrated group.

The added connection gives the network more capacity in an area that is constrained in how much it can expand due to the existing developments and urban landscape. This supplementary capacity increases the throughput in the network by more than 1000 vehicles on average in both the AM and PM hour.

Another important consideration is the functionality of roundabout. Per the level of service evaluations, three of the four approaches are at acceptable LOS in the 2040 design year. The overall roundabout is also operating at an acceptable level of service. The failing approach traffic still has a shorter queue than it would without the roundabout.

The roundabout and two connecting roads will not only provide accessibility to areas that in existing conditions are not served well, but will also increases the storage for the northern Buford-Spring connection. It functions at acceptable levels in the design year.

GDOT INTERSECTION CONTROL EVALUATION (ICE) TOOL

ICE Version 2.15 | Revised 07/01/2019

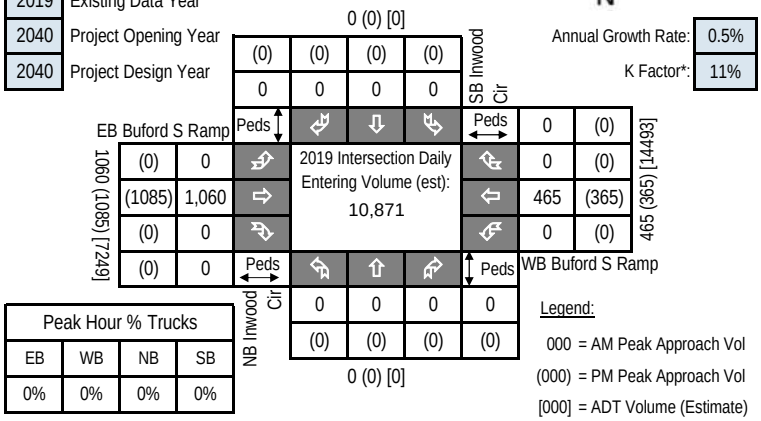
GDOT PI # (or N/A):	N/A	Request By:	
County:	DeKalb	GDOT District:	7 - Metro Atlanta
Major (State) Road:	Buford S Ramp	Speed Limit:	35 mph
Minor (Crossing) ST:	Inwood Cir	Speed Limit:	< 35 mph
Major ST Direction:	East/West	Area Type:	Urban
Intersection Control:	Conventional (Minor Stop)		
Prepared By:	SEI	Analyst:	NNC
Date:	9/11/2019	Project ID:	
Project Purpose:	Driveway encroachment analysis		

2019	Existing Data Year
2040	Project Opening Year
2040	Project Design Year

Annual Growth Rate: 0.5%

K Factor*: 11%

2019 Existing Year Volumes



Peak Hour % Trucks			
EB	WB	NB	SB
0%	0%	0%	0%

Legend:

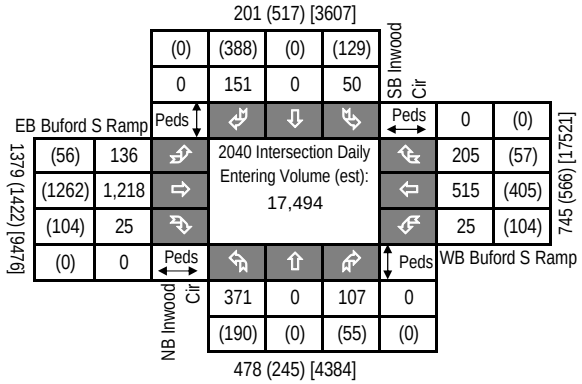
000 = AM Peak Approach Vol

(000) = PM Peak Approach Vol

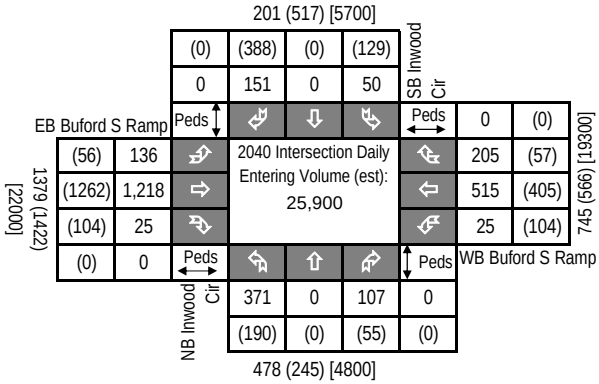
[000] = ADT Volume (Estimate)

Approach Splits: Buford S Ramp - 1 / Inwood Cir - 0

2040 Opening Year Volumes



2040 Design Year Volumes



Introduction: In 2005, SAFETEA-LU established the Highway Safety Improvement Program (HSIP) and mandated that each state prepare a Strategic Highway Safety Plan (SHSP) to prioritize safety funding investments. Intersections quickly became a common component of most states' SHSP emphasis areas and HSIP project lists, including Georgia's SHSP. Intersection Control Evaluation (ICE) policies and procedures represent a traceable and transparent procedure to streamline the evaluation of intersection control alternatives, and further leverage safety advancements for intersection improvements beyond just the safety program. Approximately one-third of all traffic fatalities and roughly seventy five percent of all traffic crashes in Georgia occur at or adjacent to intersections. Accordingly, the Georgia SHSP includes an emphasis on enhancing intersection safety to advance the *Toward Zero Deaths* vision embraced by the Georgia Governor's Office of Highway Safety (GOHS). This ICE tool was developed to support the ICE policy, developed and adopted to help ensure that intersection investments across the entire Georgia highway system are selected, prioritized and implemented with defensible benefits for safety towards those ends.

Tool Goal: The goal of this ICE tool is to provide a simplified and consistent way of importing traffic, safety, cost, environmental impact and stakeholder posture data to assess and quantify intersection control improvement benefits. The tool supports the ICE policy and procedures to provide traceability, transparency, consistency and accountability when identifying and selecting an intersection control solution that both meets project purpose and reflects overall best value in terms of specific performance-based criteria.

Requirements: An ICE is required for any intersection improvement (e.g. new or modified intersection, widening/reconstruction or corridor project, or work accomplished through a driveway or encroachment permit that affects an intersection) where: 1) the intersection includes at least one roadway designated as a State Route (State Highway System) or as part of the National Highway System; or 2) the intersection will be designed or constructed using State or Federal funding. In certain circumstances where an ICE would otherwise be required, the requirement may be waived based on appropriate evidence presented with a written request. (See the "Waiver" tab to review criteria that may make a project waiver eligible and for instructions to submit a waiver request to the Department). An ICE is not required when the proposed work does not include any changes to the intersection design, involves only routine traffic signal timing and equipment maintenance, or for driveway permits where the driveway is not a new leg to an already existing intersection on either 1) a divided, multi-lane highway with a closed median and only right-in/right-out access or 2) an undivided roadway where the development is not required to construct left and/or right turn lanes (as per the Driveway Manual and District Traffic Engineer).

Two-Stage Process: A complete ICE process consists of two (2) distinct stages, and it is expected that the respective level of effort for completing both stages of ICE will correspond to the magnitude and complexity of the intersection. Prior to starting an ICE, the District Traffic Engineer and/or State Traffic Engineer should be consulted for advice on an appropriate level of effort. The Stage 1 and Stage 2 ICE forms are designed minimize required data inputs using drop-down menu choices and limiting text entry. All fields shaded grey include drop down menu choices and all fields shaded blue require data entry. All other cells in the worksheet are locked.

Stage 1: Screening Decision Record Stage 1 should be conducted early in the project development process and is intended to inform which alternatives are worthy of further evaluation in Stage 2. Stage 1 serves as a screening effort meant to *eliminate* non-competitive options and identify which alternatives merit further considerations based on their practical feasibility. Users should use good engineering judgement in responding to the seven policy questions by selecting "Yes" or "No" in the drop-down boxes. Alternatives should not be summarily eliminated without due consideration, and reasons for eliminating or advancing an alternative should be documented in the "Screening Decision Justification" column.

Stage 2: Alternative Selection Decision Record Stage 2 involves a more detailed and familiar evaluation of the alternatives identified in Stage 1 in order to support the selection of a preferred alternative that may be advanced to detailed design. Stage 2 data entry may require the use of external analysis tools to determine costs, operations and/or safety data that, combined with environmental and stakeholder posture data, form the basis of the ICE evaluation. A separate "CostEst" worksheet tab helps users develop pre-planning-level cost estimates for each Stage 2 alternative evaluated, and a separate Users Guide has been prepared to give guidance on Stage 1 and Stage 2 data entry. Once all data is entered, each alternative is scored and ranked, with the results reported at the bottom of the Stage 2 worksheet to inform on the best of the intersection controls evaluated for project recommendation.

Documentation: A complete ICE document consists of the combination of the outputs from either a completed and signed waiver form or both Stage 1 and Stage 2 worksheets (along with supporting costing and/or environmental documentation), to be included in the approved project Concept Report (or equivalent) or as a stand-alone document.

GDOT ICE STAGE 1: SCREENING DECISION RECORD

ICE Version 2.15 | Revised 07/01/2019

GDOT PI #	N/A
Project Location:	Buford S Ramp @ Inwood Cir
Existing Control:	Conventional (Minor Stop)
Prepared by:	SEI
Date:	9/11/2019

Answer "Yes" or "No" to each policy question for each control type to identify which alternatives should be evaluated in the Stage 2 Decision Record; enter justification in the rightmost column

Note: Up to 5 alternatives may be selected and evaluated; Use this ICE Stage 1 to screen 5 or fewer alternatives to evaluate in Stage 2

	Intersection Alternative (see "Intersections" tab for detailed description of intersection/interchange type)	1. Does alternative address the project need in a balanced manner and in scale with the project?	2. Does alternative improve safety performance in terms of reducing severe crashes?	3. Does alternative incorporate safety, convenience and accessibility for pedestrians and/or bicyclists?	4. Does alternative improve (or preserve) traffic operations (congestion, delay, reliability, etc.)?	5. Does alternative appear feasible given the site characteristics, constrains & location context?	6. Does alternative appear feasible with respect to other project factors?	7. Overall feasible alternative (select alternative for further evaluation in Stage 2)?	Screening Decision Justification:
Unsignalized Intersections	Conventional (Minor Stop)	Yes	No	No	No	Yes	No	Yes	Continue to Stage 2
	Conventional (All-Way Stop)	No	Yes	No	No	Yes	No	No	Not vaible to due to heavy traffic on Buford Spring Ramps
	Mini Roundabout	No	Yes	No	Yes	Yes	No	No	Not applicable for multi lane approach
	Single Lane Roundabout	Yes	Yes	No	Yes	No	No	No	Not applicable for multi lane approach
	Multilane Roundabout	Yes	Yes	No	Yes	Yes	Yes	Yes	Continue to Stage 2
	RCUT (stop control)	Yes	Yes	No	Yes	No	No	No	Geometric and spatial constraints
	RIRO w/down stream U-Turn	Yes	Yes	No	Yes	No	No	No	Geometric and spatial constraints
	High-T (unsignalized)	No	No	No	No	No	No	No	Not a T-intersection
	Offset-T Intersections	No	No	No	No	No	No	No	Not a T-intersection
	Diamond Interch (Stop Control)	No	No	No	No	No	No	No	N/A
	Diamond Interch (RAB Control)	No	No	No	No	No	No	No	N/A
	No LT Lane Improvements No RT Lane Improvements	No	No	No	No	No	No	No	
	Other unsignalized (provide description):	No	No	No	No	No	No	No	
Signalized Intersections	Traffic Signal	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Continue to Stage 2
	Median U-Turn (Indirect Left)	Yes	Yes	No	Yes	No	No	No	Geometric and spatial constraints
	RCUT (signalized)	Yes	Yes	No	Yes	No	No	No	Geometric and spatial constraints
	Displaced Left Turn (CFI)	Yes	Yes	No	No	No	No	No	Geometric and spatial constraints
	Continuous Green-T	No	No	No	No	No	No	No	Not a T-intersection
	Jughandle	Yes	Yes	No	Yes	No	No	No	Geometric and spatial constraints
	Quadrant Roadway	Yes	Yes	No	Yes	No	No	No	Geometric and spatial constraints
	Diamond Interch (Signal Control)	No	No	No	No	No	No	No	N/A
	Diverging Diamond	No	No	No	No	No	No	No	N/A
	Single Point Interchange	No	No	No	No	No	No	No	N/A
	No LT Lane Improvements No RT Lane Improvements	No	No	No	No	No	No	No	
	Other Signalized (provide description):	No	No	No	No	No	No	No	

☐ = Intersection type selected for more detailed analysis in Stage 2 Alternative Selection Decision Record

GDOT ICE STAGE 2: ALTERNATIVE SELECTION DECISION RECORD

ICE Version 2.15 | Revised 07/01/2019

GDOT PI # (or N/A): N/A
GDOT District: 7 - Metro Atlanta
Date: 9/11/2019
County: DeKalb
Area Type: Urban
Agency/Firm: SEI
Project Location: Buford S Ramp @ Inwood Cir
Analyst: NNC
Existing Intersection Control: Conventional (Minor Stop)
Type of Analysis: Conventional Non-Safety Funded Project

Opening / Design Year Traffic Operations

Intersection meets signal/AWS warrants?	Meets Signal Warrants	
Traffic Analysis Measure of Effectiveness	Intersection Delay	
Traffic Analysis Software Used	Synchro 10	
Analysis Time Period	AM Peak Hr	PM Peak Hr
2040 Opening Yr No-Build Peak Hr Intersection Delay	300.0 sec	300.0 sec
2040 Opening Yr No-Build Peak Hr Intersection V/C	2.09	4.84
2040 Design Yr No-Build Peak Hr Intersection Delay	300.0 sec	300.0 sec
2040 Design Yr No-Build Peak Hr Intersection V/C ratio	2.09	4.84

Complete Streets Warrants Met?
- ☐ PEDESTRIANS
- ☐ BICYCLES
- ☐ TRANSIT

Crash Data: Enter most recent 5 years of crash data	*Crash Severity* PDO	Injury Crash*	Fatal Crash*	
Crash Type Angle	0	0	0	0%
Head-On	0	0	0	0%
Rear End	0	0	0	0%
Sideswipe - same	0	0	0	0%
Sideswipe - opposite	0	0	0	0%
Not Collision w/Motor Veh	2	0	0	100%
TOTALS:	2	0	0	2

* Number of crashes resulting in injuries / fatalities, not number of persons

Alternatives Analysis:	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Alternative 4**	**Alternative 5**
Proposed Control Type/Improvement:	Conventional (Minor Stop)	Multilane Roundabout	Traffic Signal	N/A	N/A
Project Cost: (From CostEst Worksheet)	*Additional description here*	*Additional description here*	*Add LT bays all approaches*		
Construction Cost	$0	$1,211,000	$341,000		
ROW Cost	$0	$0	$0		
Environmental Cost	$0	$0	$0		
Reimbursable Utility Cost	$0	$14,000	$6,000		
Design & Contingency Cost	$0	$341,000	$119,000		
Cost Adjustment (justification req'd)	0%	0%	0%		
Total Cost	$0	$1,566,000	$466,000		
Traffic Operations:					
Traffic Analysis Software Used	Synchro 10	VISSIM 9.0	Synchro 10		
Analysis Period	AM Peak Hr / PM Peak Hr	AM Peak Hr / PM Peak Hr	AM Peak Hr / PM Peak Hr		
2040 Design Yr Build Intersection Delay	300.0 sec / 300.0 sec	11.0 sec / 38.0 sec	72.4 sec / 79.5 sec		
2040 Design Yr Build Intersection V/C	2.09 / 4.83	0.91 / 0.91	1.21 / 1.25		
Safety Analysis:					
Predefined CRF: PDO	0%	32%	39%		
Predefined CRF: Fatal/Inj	0%	71%	40%		
Predefined CRF Source:	N/A	FHWA Clearinghouse #s 236 / 237	FHWA Clearinghouse #s 7982 / 7984		
User Defined CRF: PDO					
User Defined CRF: Fatal/Inj					
User Defined CRF Source (write in if applicable):					
Environmental Impacts:[1]					
Historic District/Property	None	None	None		
Archaeology Resources	None	None	None		
Graveyard	None	None	None		
Stream	None	None	None		
Underground Tank/Hazmat	None	None	None		
Park Land	None	None	None		
EJ Community	None	None	None		
Wooded Area	None	None	None		
Wetland	None	None	None		
Stakeholder Posture:	*Note: If environmental impact is significant (**RED**), provide justification impact won't jeopardize project delivery using "Env" worksheet*				
	[1] *Environmental impacts are only preliminary estimates; detailed environmental impact documentation will be included with project concept report*				
Local Community Support	Neutral	Negative	Supportive		
GDOT Support	Neutral	Supportive	Negative		
Final ICE Stage 2 Score:	-2.9	4.4	4.5		
Rank of Control Type Alternatives:	3	2	1		

Note: Stage 2 score is not given (shown as "-") if signal or AWS is selected as control type but respective warrants are not met

Provide additional comments and/or explain any unique analysis inputs, or results (as necessary): ICE score for the multi-lane roundabout is lower than the traffic signal due to the construction cost of lane roundabout. However, the operations were better with a roundabout, so it was chosen as the preferred option.

GDOT ICE TOOL: COST ESTIMATING AID

ICE Version 2.15 | Revised 07/01/2019

Project Information

Location:	Buford S Ramp @ Inwood Cir	County:	DeKalb	Date:	9/11/2019
GDOT PI # (or N/A):	N/A	Area Type:	Urban	Agency/Firm:	SEI
Existing Intersection Control:	Conventional (Minor Stop)	GDOT District:	7 - Metro Atlanta	Analyst:	NNC
Type of Analysis:	Conventional Non-Safety Funded Project			Major Street Direction:	East/West

Table 1: Existing Conditions

	EB Buford S Ramp			WB Buford S Ramp			NB Inwood Cir			SB Inwood Cir		
Movement	Left Turn	Thru	Right Turn	Left Turn	Thru	Right Turn	Left Turn	Thru	Right Turn	Left Turn	Thru	Right Turn
Number of Lanes	0	1	0	0	1	0	0	0	0	0	0	0
Lane Widths*	0'	11'	0'	0'	11'	0'	0'	0'	0'	0'	0'	0'
Bay Length**	0'		0'	0'		0'	0'		0'	0'		0'
Median Width		0'			0'			0'			0'	
Right-of-Way	0'						0'					

Table 2: Proposed Conditions

	Conventional (Minor Stop)	Multilane Roundabout	Traffic Signal	N/A	N/A
Proposed Pavement Type	F.D. Asphalt	F.D. Asphalt	F.D. Asphalt	F.D. Asphalt	F.D. Asphalt
Reimbursable Utility:	Minimal	Minimal	Minimal	Minimal	Minimal
# of Driveway(s) Impacted	0	0	0	0	0
Modify/Replace Traffic Signal	0	0	0	0	0
Lighting Poles (ea)	0	0	0	0	0
Flashing Beacons (ea)	0	0	0	0	0
RFB/PHB Ped Crossings (ea)	0	0	0	0	0
New/Replace Sidewalks (LF)	0'	0'	0'	0'	0'
New/Replace Cross Drains (LF)	0'	0'	0'	0'	0'
New/Replace Guardrail (LF)	0'	0'	0'	0'	0'
New Retaining Wall (LF)	0'	0'	0'	0'	0'
Bridge:New/Widen/Replace (sqft)	0	0	0	0	0
Add'l ROW/Easements/Demolition	$0	$0	$0	$0	$0

Site Context

Topography:	Rolling
Traffic Mgmt Plan:	Maintain Traffic
Project Size:	Single Intersection

Intersections

Signal Poles	Mast Arm
Design Vehicle	WB-67
Existing Interchange?	No

Roundabouts

Inscribed DIA - Mini	80
Inscribed DIA - Single	140
Inscribed DIA - Multi	200
Circulating Lane Width	18

Cost Multipliers

Grading Complete:	20%
Reimbursable Utility:	2%
Traffic Control:	20%
Project Size:	0%
Prelim Engineering:	15%
Project Contingency:	20%

ROW Costs

Prevalent ROW Type:	Mixed (Average)
ROW Cost/Acre:	$288,750
ROW Multiplier:	1.6

Table 3: Control Type Cost Breakdown

Pay Item	Per Ln Mi Unit Cost	Unit Cost	Conventional (Minor Stop)		Multilane Roundabout		Traffic Signal		N/A		N/A	
			Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost
New Construction (Base & Pave)	$500K/LM	$9.47/sqft	0	$0	35,475	$453,520	16,000	$151,515	#N/A	#N/A		
Roadway Mill and Overlay	$64K/LM	$1.21/sqft	0	$0	0	$0	0	$0	#N/A	#N/A		
Urban C&G/Drainage - both sides	441-6720	$19.08/LF	0	$0	3,431	$88,363	4,000	$76,320	#N/A	#N/A		
Rural Typ Drainage - both sides	$150K/LM	$2.84/LF	0	$0	0	$0	0	$0	#N/A	#N/A		
Concrete Island (sqyd)	n/a	$51.58/syd	0	$0	300	$20,890	0	$0	#N/A	#N/A		
Median Landscaping	$100K/LM	$1.89/LF	0	$0	3,600	$9,205	0	$0	#N/A	#N/A		
Typical Driveways Impacted (ea)	n/a	$7,500 ea	0	$0	0	$0	0	$0	#N/A	#N/A		
Typical E&S Control Temp/Perm	$150K/LM	$34.09/LF	0	$0	1,200	$55,227	2,000	$68,182	#N/A	#N/A		
Roundabout Truck Apron (sqft)	n/a	$10.25/sqft	0	$0	4,273	$59,126	0	$0	#N/A	#N/A		
Signing & Marking	$0	$22.73/LF	0	$0	1,200	$36,823	2,000	$45,460	#N/A	#N/A		
Flashing Beacon (ea)	n/a	$20,000 ea	0	$0	0	$0	0	$0	#N/A	#N/A		
New Traffic Signal (Mast Arms)	674-1000	$182,575ea	0	$0	0	$0	0	$0	#N/A	#N/A		
Lighting (per pole)	n/a	$5,607 ea	0	$0	0	$0	0	$0	#N/A	#N/A		
Signalized Ped Crossings (ea)	n/a	$19,637 ea	0	$0	0	$0	0	$0	#N/A	#N/A		
6' Sidewalk (LF)	n/a	$49.23/LF	0	$0	0	$0	0	$0	#N/A	#N/A		
New/replace cross drains (LF)	n/a	$41.31/LF	0	$0	0	$0	0	$0	#N/A	#N/A		
Typical Guardrail (LF)	n/a	$65.56/LF	0	$0	0	$0	0	$0	#N/A	#N/A		
Retaining Wall (LF)	n/a	$808.52/LF	0	$0	0	$0	0	$0	#N/A	#N/A		
Bridge widen/replace (SF)	n/a	$210/sqft	0	$0	0	$0	0	$0	#N/A	#N/A		
Env Costs (from Stage 2 impacts)	n/a	n/a	0	$0	0	$0	0	$0	#N/A	#N/A		
Grading Complete - 20%	n/a	n/a		$0		$292,877		$0		#N/A		
Traffic Control - 20%	n/a	n/a		$0		$195,251		$0		#N/A		
Reimbrusable Utility	n/a	n/a		$0		$14,463		$6,830		#N/A		
Preliminary Engineering - 15%	n/a	n/a		$0		$146,438		$51,222		#N/A		
Contigency - 20%	n/a	n/a		$0		$195,251		$68,295		#N/A		
ROW Cost/Acre: Mixed (Average)	n/a	$288,750ac		$0		$3		$0		#N/A		
Add'l ROW / Displacement / Demo	n/a	n/a		$0		$0		$0		#N/A		
ROW Multiplier - 1.6	n/a	n/a		$0		$2		$0		#N/A		
Project Scale Reduction - 0.0%	n/a	n/a		$0		$0		$0		#N/A		
Grand Total Costs				$0		$1,567,000		$468,000		#N/A		

Table 4: Assumption Adjustments/Quantity Overrides

Alternative Evaluated	Assumptions:	Pavement	Calculated ROW (ac)	User Override*	Calculated Pavement	User Override*	Major ST Const Limits	User Override*	Minor ST Const Limits	User Override*
Conventional (Minor Stop)	N/A	F.D. Asphalt	0.00	0.0	0	0.0	70	0.0	50	0.0
Multilane Roundabout	Low Approach Speeds	F.D. Asphalt	1.11	0.0	35,475	0.0	600	0.0	600	0.0
Traffic Signal	--select one--	F.D. Asphalt	0.00	0.0	16,000	0.0	1,000	0.0	1,000	0.0
N/A	#N/A	F.D. Asphalt	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
N/A	#N/A	F.D. Asphalt	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A

MEMORANDUM

Date: August 17, 2018

To: Scott Jordan, PE

From: Justin Bansen, PE and Brandon Kelley, PE – Kittelson & Associates, Inc.

Project: Buford Spring Connector Roundabout

Subject: Response to GDOT Comments

INTRODUCTION

At the request of Southeastern Engineering Inc. (SEI), Kittelson & Associates, Inc. (KAI) has provided roundabout peer review services related to a proposed roundabout along the Buford Springs Connector at Inwood Circle, immediately northeast of Peachtree Street. KAI previously provided comments to SEI pertaining to the VISSIM microsimulation and original concept design. GDOT staff also provided comments to SEI regarding these same items. KAI has worked with SEI to review potential lane configuration needs and to refine the conceptual roundabout layout to address GDOT's comments and verify feasibility of a roundabout at the study intersection.

Listed below are original comments submitted to SEI by Christina Barry at GDOT on June 4, 2018. KAI's response to each comment is also provided based upon our review and design support to SEI:

1. For the multilane design to be effective, the Buford Spring Connector entrance ramp needs to be a 2 lane exit from the roundabout. As currently shown, the inside lane of the roundabout is only useful for making the U-turn movement to go back to Peachtree. The extra capacity is needed for vehicles going to the on-ramp. The circulatory roadway does not necessarily have to be a constant two lanes.

   Response: Based upon additional SIDRA analyses, KAI concurs with this comment. The concept design has been updated to include two through lanes in each direction along the two BSC approaches.

2. The roundabout design is very radial (with the exception of the Inwood circle leg), which is causing a couple of problems:

   a. There is very little speed control coming into the roundabout. There is very little curvature to slow entering vehicles on the Peachtree Connector or the Buford Springs connector off-ramp. I think this is especially critical on the off-ramp entrance as these vehicles will be traveling at a higher rate of speed.

      Response: KAI's initial peer review identified a similar issue. The concept design has been updated to utilize an offset-left approach alignment on both BSC approaches to increase curvature and speed control.

   b. There is a path overlap problem on the Peachtree connector leg. The vehicles entering the roundabout in the outside lane are aligned to go into the inner lane of the roundabout, where they will cut off vehicles entering in the inside lane. This is likely to be a crash problem. Similarly, vehicles exiting the roundabout on this leg from the inside circulating lane may cut off drivers in the outside lane.

      Response: KAI's initial peer review identified a similar issue. The concept design has been updated to improve alignment of the entering lanes. Gore striping was also added to both multilane entries which should also help support lane discipline.

3. It would be helpful if we could see design checks for the roundabout (fastest path, sight distance, truck turning, path overlap).

   Response: A design check package has been prepared for the revised concept design to include fastest path speed checks, sight distance calculations (SSD and ISD), and design vehicle paths.

4. The splitter islands show cut thrus. However, they are too narrow (only about 4') to accommodate pedestrian crossings. Recommend making the splitter islands wider to increase the visibility of the roundabout as well as to allow for future pedestrian crossings if needed.

   Response: At the pedestrian crossing locations, all the splitter islands have been adjusted to provide sufficient width should pedestrian crossings be desired in the future. The current concept design does not include pedestrian crossings on any of the legs given the context of the site.

5. Depending on what the design vehicle is for Inwood Circle, you may need to consider blisters or a bypass lane. The right turn maneuver from this leg is a bit sharp to get onto the Buford Spring Connector.

   Response: WB-67 design vehicles were assumed for the through movements along BSC to/from Peachtree Street. For right and left-turns onto Inwood Circle and the adjacent development, WB-50 design vehicles were utilized. These design vehicles can be accommodated without the use of blisters; however, blisters may still need to be added if WB-67 vehicles are expected to utilize the minor street approaches.

6. Mary let me know that there will be changes to the traffic model that are ongoing (signal timings, reduced speed areas, etc.) and will be completed during the traffic impact analysis study, at which time we'll have another chance to review and provide comment. As long as we can get a design that will physically work, we are comfortable with moving forward to the traffic impact study with the understanding that these changes will be made at that time. I have also listed some of the high level comments that I have regarding the traffic/analysis are below.

   Response: KAI has not been provided an updated traffic impact study by SEI, as described in the above GDOT comment. However, SEI did provide KAI with updated traffic volume forecasts for the roundabout intersection that reflected the revised access configuration (to/from adjacent parcels) requested by GDOT. Updated SIDRA analysis was completed by KAI in June 2018 which resulted in further modifications to the roundabout lane configurations. The revised concept reflects the lane configurations identified by KAI to be needed to support the most recent traffic forecasts provided by SEI. The SIDRA analyses are attached.

7. Up to this point, all of the traffic diagrams that I have seen have included the driveway leg as a connection back to Peachtree. Now that that connection is not going to happen, we need to see new traffic diagrams and analysis because this will have an impact on the signalized intersection on Peachtree as well as the roundabout.

   Response: See response to Comment 6. Updated SIDRA analyses are attached which reflect revised roundabout traffic volumes provided by SEI for the updated access configuration. KAI has not been provided with full updated traffic diagrams for the overall system. This will need to be coordinated between GDOT and SEI separately.

8. Traffic waiting at the signal is backing though the roundabout.

   Response: There is potential for queues to periodically back into the roundabout. However, this topic will require further review, based upon the updated traffic analysis by SEI, in order to assess the potential frequency for queue spillback. Queue storage has been maximized between the Peachtree Street signal and the roundabout to the extent practical. Three lanes are provided for queue storage at the signal. Previous analysis by SEI had assumed split phasing at the Peachtree signal for the BSC approach. With use of split phasing, the center storage lane is proposed to be shared for both left and right turns along with an exclusive left-turn lane and exclusive right-turn lane on either side. The intent is to maximize utilization of the available storage throughout the day where the AM Peak has a high right-turn volume and the PM peak has a higher left-turn. The placement of the roundabout results in approximately 370 feet of queue storage in between the two intersections.

The combined three lanes of storage at the signal should be able to store approximately 40 to 50 vehicles per cycle before queue spillback might be expected (assuming full utilization of all lanes). During the critical 2040 AM peak hour, a total of 1165 vehicles are forecast to exit the roundabout towards the Peachtree signal. Actual queue lengths will be dependent on arrival patterns, signal timings, and lane utilization. However, we can make some rough approximations. Assuming uniform vehicle arrivals and a 120 second cycle length (30 cycles per hour) would result in roughly 38 vehicles queued per cycle (assuming no right-turns on red). Assuming a longer 180 second cycle length would result in a need to store 58 vehicles per cycle.

9. Consider whether a dual left is needed at the signal. There is no left turn currently allowed at this signal so I question whether a dual left is needed now. Would a dual right be more effective?

   Response: See response to Question 8: The proposed configuration would allow for both dual lefts and dual rights. Right-turn volumes are higher in the AM and left-turn demands are higher in the PM. The use of a shared center lane is intended to provide flexibility to adjust to these demands during each peak in order to maximize the use of all available storage between the two intersections.

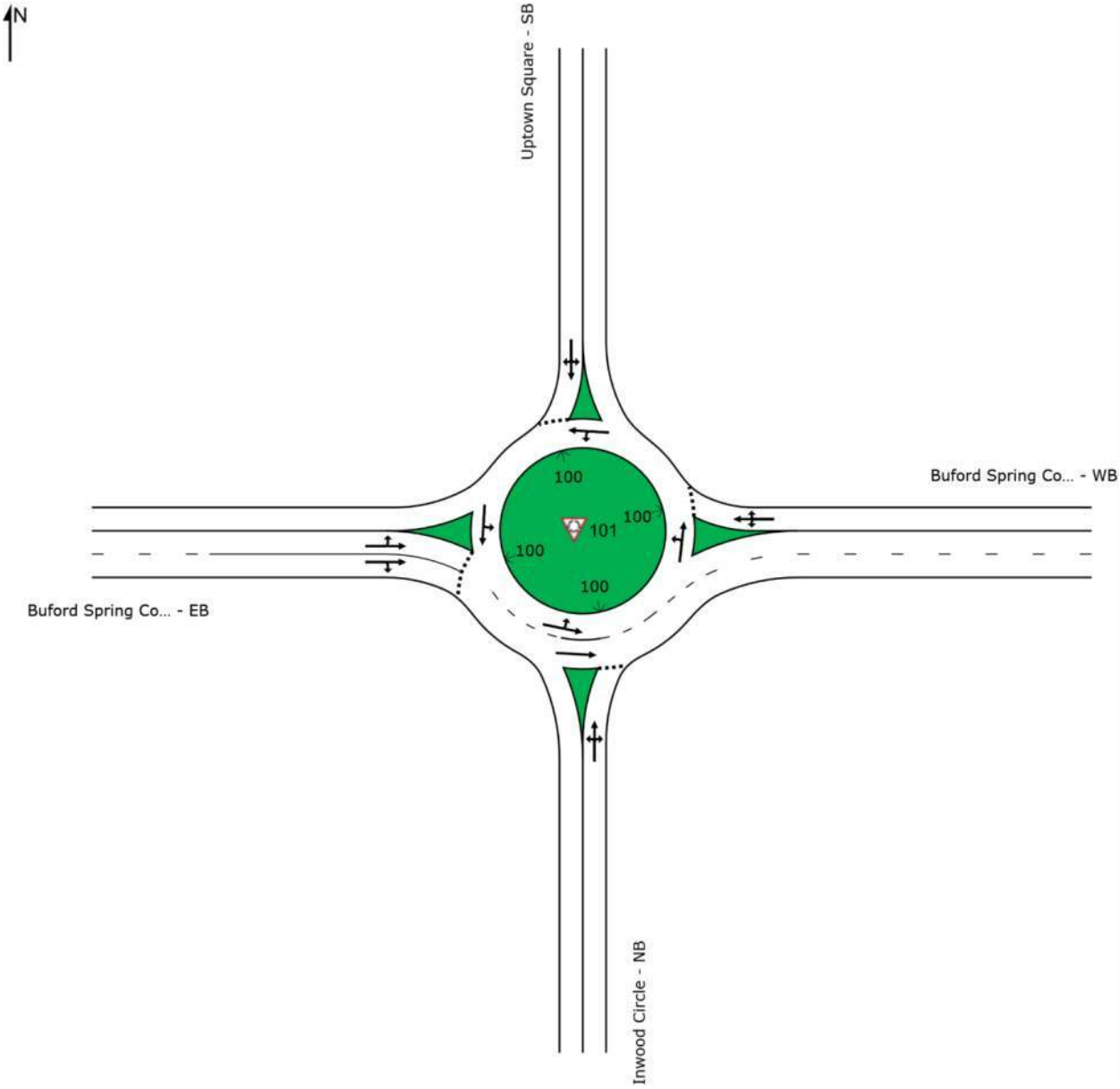
10. The right turn at the signal needs to be run as an overlap with the left turn from Peachtree. I believe that this is how it operates now.

    Response: Further review of existing timing information should be completed by SEI. The downside of the proposed BSC approach lane configurations (described in the response to Comment 8) is that it would not be conducive to running a right-turn overlap. Additional analysis by SEI and coordination with GDOT may be needed to further review various timing strategies and lane arrangements to reach agreement on the best configuration for the Peachtree signal operations.

11. The geometry of the roundabout needs to be updated when the design is updated and Peachtree needs to be updated to match the Peachtree restripe project.

    Response: This comment appears to be related to the VISSIM modeling. No updated VISSIM models have been provided to KAI for review. SEI to coordinate with GDOT regarding any additional VISSIM modeling updates that they would require.

Lane Configurations Previously Analyzed
(Matches KAI Concept from Feb 2018))



LANE SUMMARY

Site: 101 [2040 AM Existing Patterns (SIDRA EF=1.05) - 2nd EB Through]

2040 PM
Site Category: (None)
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Inwood Circle - NB													
Lane 1[d]	695	3.5	705	0.986	100	54.5	LOS F	24.9	640.4	Full	1600	0.0	0.0
Approach	695	3.5		0.986		54.5	LOS F	24.9	640.4				
East: Buford Spring Connector - WB													
Lane 1[d]	865	3.5	857	1.010	100	55.2	LOS F	43.8	1125.2	Full	1600	0.0	0.0
Approach	865	3.5		1.010		55.2	LOS F	43.8	1125.2				
North: Uptown Square - SB													
Lane 1[d]	230	3.5	387	0.594	100	25.2	LOS D	6.1	156.0	Full	1600	0.0	0.0
Approach	230	3.5		0.594		25.2	LOS D	6.1	156.0				
West: Buford Spring Connector - EB													
Lane 1	398	3.5	1208	0.329	100	6.1	LOS A	2.3	60.0	Full	1600	0.0	0.0
Lane 2[d]	457	3.5	1388	0.329	100	5.5	LOS A	2.4	61.9	Full	1600	0.0	0.0
Approach	855	3.5		0.329		5.8	LOS A	2.4	61.9				
Intersection	2645	3.5		1.010		36.4	LOS E	43.8	1125.2				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

LANE SUMMARY

Site: 101 [2040 AM Existing Patterns (HCM 6) - 2nd EB Through]

2040 PM
Site Category: (None)
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Inwood Circle - NB													
Lane 1[d]	695	3.5	676	1.028	100	66.8	LOS F	28.5	732.1	Full	1600	0.0	0.0
Approach	695	3.5		1.028		66.8	LOS F	28.5	732.1				
East: Buford Spring Connector - WB													
Lane 1[d]	865	3.5	841	1.029	100	60.8	LOS F	43.2	1111.3	Full	1600	0.0	0.0
Approach	865	3.5		1.029		60.8	LOS F	43.2	1111.3				
North: Uptown Square - SB													
Lane 1[d]	230	3.5	434	0.531	100	19.9	LOS C	2.8	71.4	Full	1600	0.0	0.0
Approach	230	3.5		0.531		19.9	LOS C	2.8	71.4				
West: Buford Spring Connector - EB													
Lane 1	428	3.5	1189	0.360	100	6.5	LOS A	1.9	48.4	Full	1600	0.0	0.0
Lane 2[d]	428	3.5	1189	0.360	100	6.5	LOS A	1.9	48.4	Full	1600	0.0	0.0
Approach	855	3.5		0.360		6.5	LOS A	1.9	48.4				
Intersection	2645	3.5		1.029		41.3	LOS E	43.2	1111.3				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

LANE SUMMARY

Site: 101 [2040 PM Existing Patterns (SIDRA EF=1.05) - 2nd EB Through]

2040 PM
Site Category: (None)
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Inwood Circle - NB													
Lane 1[d]	490	3.5	520	0.943	100	54.6	LOS F	15.7	404.1	Full	1600	0.0	0.0
Approach	490	3.5		0.943		54.6	LOS F	15.7	404.1				
East: Buford Spring Connector - WB													
Lane 1[d]	590	3.5	1043	0.565	100	10.7	LOS B	5.0	128.7	Full	1600	0.0	0.0
Approach	590	3.5		0.565		10.7	LOS B	5.0	128.7				
North: Uptown Square - SB													
Lane 1[d]	520	3.5	670	0.776	100	25.4	LOS D	12.3	315.9	Full	1600	0.0	0.0
Approach	520	3.5		0.776		25.4	LOS D	12.3	315.9				
West: Buford Spring Connector - EB													
Lane 1	598	3.5	1072	0.558	100	10.3	LOS B	4.8	122.4	Full	1600	0.0	0.0
Lane 2[d]	707	3.5	1266	0.558	100	9.2	LOS A	4.8	124.0	Full	1600	0.0	0.0
Approach	1305	3.5		0.558		9.7	LOS A	4.8	124.0				
Intersection	2905	3.5		0.943		20.3	LOS C	15.7	404.1				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

LANE SUMMARY

Site: 101 [2040 PM Existing Patterns (HCM 6) - 2nd EB Through]

2040 PM
Site Category: (None)
Roundabout

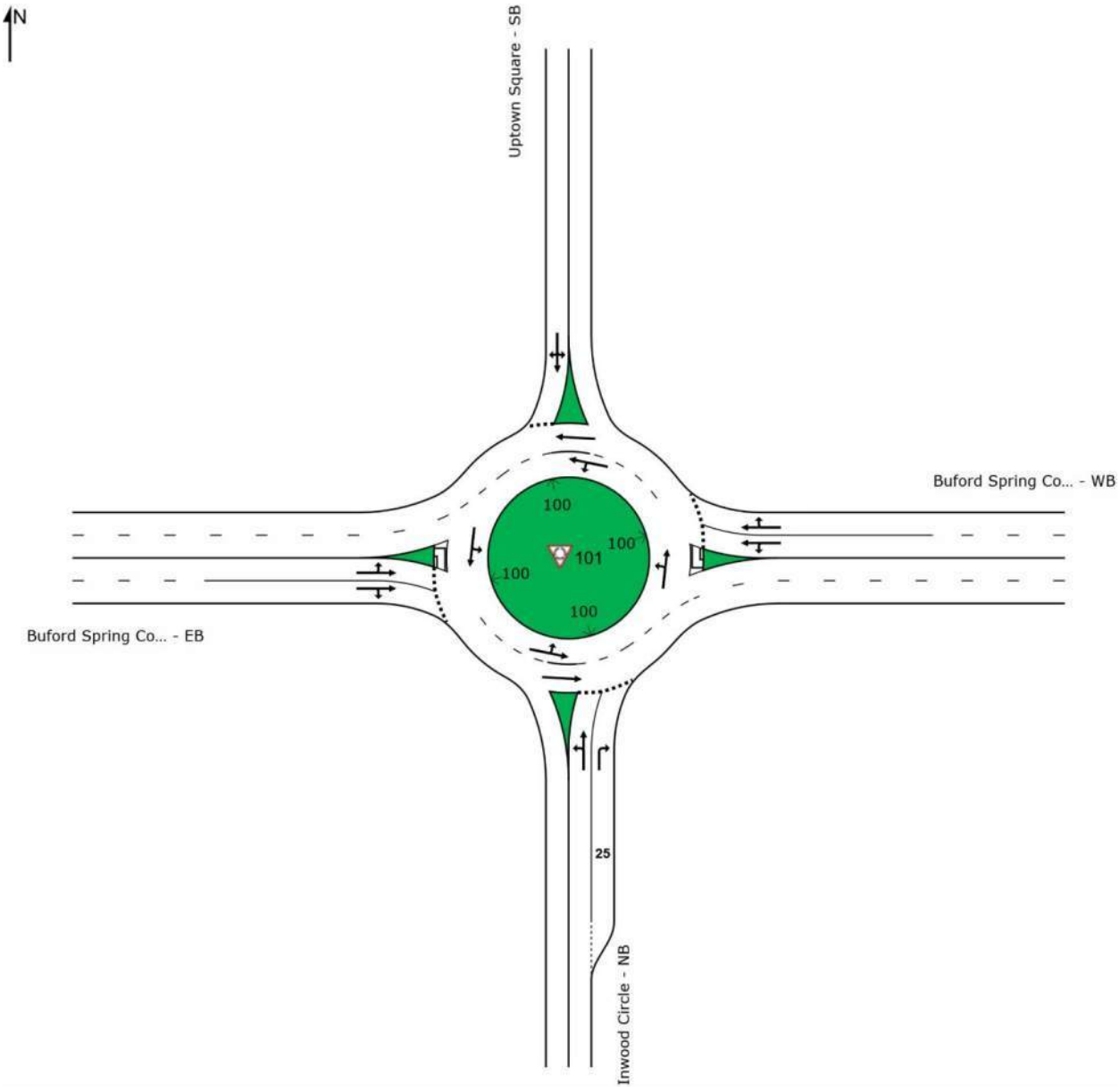
Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Inwood Circle - NB													
Lane 1[d]	490	3.5	473	1.036	100	80.7	LOS F	20.0	514.9	Full	1600	0.0	0.0
Approach	490	3.5		1.036		80.7	LOS F	20.0	514.9				
East: Buford Spring Connector - WB													
Lane 1[d]	590	3.5	1034	0.571	100	10.9	LOS B	4.7	119.7	Full	1600	0.0	0.0
Approach	590	3.5		0.571		10.9	LOS B	4.7	119.7				
North: Uptown Square - SB													
Lane 1[d]	520	3.5	606	0.858	100	35.9	LOS E	11.7	301.6	Full	1600	0.0	0.0
Approach	520	3.5		0.858		35.9	LOS E	11.7	301.6				
West: Buford Spring Connector - EB													
Lane 1	653	3.5	1049	0.622	100	12.0	LOS B	6.7	172.8	Full	1600	0.0	0.0
Lane 2[d]	652	3.5	1049	0.622	100	12.0	LOS B	6.7	172.8	Full	1600	0.0	0.0
Approach	1305	3.5		0.622		12.0	LOS B	6.7	172.8				
Intersection	2905	3.5		1.036		27.6	LOS D	20.0	514.9				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Alternative Lane Configurations Based Upon Updated Volumes Provided by SEI (June 2018)



LANE SUMMARY

Site: 101 [2040 AM Existing Patterns (SIDRA EF=1.05) - 2 Lanes on BSC]

2040 PM
Site Category: (None)
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Inwood Circle - NB													
Lane 1[d]	380	3.5	918	0.414	100	8.7	LOS A	2.3	59.2	Full	1600	0.0	0.0
Lane 2	315	3.5	771	0.409	100	9.9	LOS A	2.2	56.5	Short	25	0.0	NA
Approach	695	3.5		0.414		9.3	LOS A	2.3	59.2				
East: Buford Spring Connector - WB													
Lane 1	389	3.5	915	0.426	100	9.0	LOS A	3.0	78.1	Full	1600	0.0	0.0
Lane 2[d]	476	3.5	1117	0.426	100	7.7	LOS A	3.2	83.4	Full	1600	0.0	0.0
Approach	865	3.5		0.426		8.3	LOS A	3.2	83.4				
North: Uptown Square - SB													
Lane 1[d]	230	3.5	577	0.399	100	12.4	LOS B	2.2	57.2	Full	1600	0.0	0.0
Approach	230	3.5		0.399		12.4	LOS B	2.2	57.2				
West: Buford Spring Connector - EB													
Lane 1	398	3.5	1218	0.327	100	6.0	LOS A	2.2	57.0	Full	1600	0.0	0.0
Lane 2[d]	457	3.5	1399	0.327	100	5.5	LOS A	2.3	58.5	Full	1600	0.0	0.0
Approach	855	3.5		0.327		5.7	LOS A	2.3	58.5				
Intersection	2645	3.5		0.426		8.1	LOS A	3.2	83.4				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

LANE SUMMARY

Site: 101 [2040 AM Existing Patterns (HCM 6) - 2 Lanes on BSC]

2040 PM
Site Category: (None)
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Inwood Circle - NB													
Lane 1[d]	380	3.5	676	0.562	100	14.8	LOS B	3.6	91.7	Full	1600	0.0	0.0
Lane 2	315	3.5	606	0.520	100	14.8	LOS B	3.0	77.0	Short	25	0.0	NA
Approach	695	3.5		0.562		14.8	LOS B	3.6	91.7				
East: Buford Spring Connector - WB													
Lane 1	433	3.5	902	0.479	100	10.0	LOS B	3.1	79.3	Full	1600	0.0	0.0
Lane 2[d]	433	3.5	902	0.479	100	10.0	LOS B	3.1	79.3	Full	1600	0.0	0.0
Approach	865	3.5		0.479		10.0	LOS B	3.1	79.3				
North: Uptown Square - SB													
Lane 1[d]	230	3.5	526	0.437	100	14.2	LOS B	2.0	50.8	Full	1600	0.0	0.0
Approach	230	3.5		0.437		14.2	LOS B	2.0	50.8				
West: Buford Spring Connector - EB													
Lane 1	428	3.5	1186	0.361	100	6.5	LOS A	1.9	48.5	Full	1600	0.0	0.0
Lane 2[d]	428	3.5	1186	0.361	100	6.5	LOS A	1.9	48.5	Full	1600	0.0	0.0
Approach	855	3.5		0.361		6.5	LOS A	1.9	48.5				
Intersection	2645	3.5		0.562		10.5	LOS B	3.6	91.7				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

LANE SUMMARY

Site: 101 [2040 PM Existing Patterns (SIDRA EF=1.05) 2 Lanes on BSC]

2040 PM
Site Category: (None)
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Inwood Circle - NB													
Lane 1	220	3.5	551	0.399	100	12.9	LOS B	2.2	56.7	Full	1600	0.0	0.0
Lane 2[d]	270	3.5	701	0.385	100	10.3	LOS B	2.2	57.4	Short	25	0.0	NA
Approach	490	3.5		0.399		11.4	LOS B	2.2	57.4				
East: Buford Spring Connector - WB													
Lane 1	272	3.5	1103	0.246	100	5.6	LOS A	1.6	40.8	Full	1600	0.0	0.0
Lane 2[d]	318	3.5	1292	0.246	100	4.9	LOS A	1.7	42.5	Full	1600	0.0	0.0
Approach	590	3.5		0.246		5.2	LOS A	1.7	42.5				
North: Uptown Square - SB													
Lane 1[d]	520	3.5	738	0.705	100	19.2	LOS C	7.3	188.3	Full	1600	0.0	0.0
Approach	520	3.5		0.705		19.2	LOS C	7.3	188.3				
West: Buford Spring Connector - EB													
Lane 1	598	3.5	1080	0.554	100	10.2	LOS B	4.6	117.0	Full	1600	0.0	0.0
Lane 2[d]	707	3.5	1275	0.554	100	9.0	LOS A	4.7	120.2	Full	1600	0.0	0.0
Approach	1305	3.5		0.554		9.6	LOS A	4.7	120.2				
Intersection	2905	3.5		0.705		10.7	LOS B	7.3	188.3				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

LANE SUMMARY

Site: 101 [2040 PM Existing Patterns (HCM 6) 2 Lanes on BSC]

2040 PM
Site Category: (None)
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Inwood Circle - NB													
Lane 1	220	3.5	412	0.534	100	21.0	LOS C	2.6	65.8	Full	1600	0.0	0.0
Lane 2[d]	270	3.5	473	0.571	100	20.1	LOS C	2.9	75.6	Short	25	0.0	NA
Approach	490	3.5		0.571		20.5	LOS C	2.9	75.6				
East: Buford Spring Connector - WB													
Lane 1	295	3.5	1089	0.271	100	5.9	LOS A	1.2	31.8	Full	1600	0.0	0.0
Lane 2[d]	295	3.5	1089	0.271	100	5.9	LOS A	1.2	31.8	Full	1600	0.0	0.0
Approach	590	3.5		0.271		5.9	LOS A	1.2	31.8				
North: Uptown Square - SB													
Lane 1[d]	520	3.5	709	0.733	100	21.4	LOS C	7.1	182.4	Full	1600	0.0	0.0
Approach	520	3.5		0.733		21.4	LOS C	7.1	182.4				
West: Buford Spring Connector - EB													
Lane 1	653	3.5	1049	0.622	100	12.0	LOS B	6.7	172.8	Full	1600	0.0	0.0
Lane 2[d]	652	3.5	1049	0.622	100	12.0	LOS B	6.7	172.8	Full	1600	0.0	0.0
Approach	1305	3.5		0.622		12.0	LOS B	6.7	172.8				
Intersection	2905	3.5		0.733		13.9	LOS B	7.1	182.4				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

MS4 CONCEPT REPORT SUMMARY

GDOT PI Number:	0016894	Submittal Date:	MM/DD/YYYY
Project Name:	BSC Roundabout	Project Let Date:	MM/DD/YYYY
Coordinates:	33.7992 -84.3897	Agency/Company:	Heath & Lineback Engi
County:	Fulton County, GA	Contact Person:	Matt Calak
GDOT District:	District 7	Contact Phone:	(770) 424-1668

HSGs: ☐ A ☐ B ☐ C ☐ D

Notes: No soil information available on soil survey. Labeled as Urban Land.

Milestone Submittal: ☑ Concept ☐ PFPR ☐ FFPR ☐ Addendum

MS4 Post-Construction Exclusions

Is there a Project Level Exclusion (PLE) that applies to this project? ☐ Yes ☑ No

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

- ☐ PLE 1: Roadway not owned or operated by GDOT
- ☐ PLE 2: Project location not within a designated MS4 area
- ☐ PLE 3: Maintenance and safety project (multiple unconnected sites disturbing < 1 ac)
- ☐ PLE 4: Project with environmental documents approved or R/W plans submitted on or before 1/30/2012
- ☐ PLE 5: Road project disturbing < 1 ac or for site development project adding < 5,000 ft^2 of impervious area
- ☐ PLE 6: Projects in MS4 areas added to the 2017 MS4 permit with concept approval before 1/3/2018

Note: At a minimum, this MS4 Concept Report Summary must be submitted with the Concept Report. If the project does not have a PLE, it is recommended that this Tool be used to estimate sizing of potential post-construction stormwater BMPs. It is understood, however, that the level of detail known about the project can vary at this stage of design and the information will likely be approximate. Therefore, the delineation of basins and estimation of sizing of post-construction stormwater BMPs is to be completed at the discretion of the Project Engineer. If basins are delineated and sizing of post-construction stormwater BMPs are completed, submit a drainage basin map(s) and a summary table of the proposed post-construction stormwater BMPs (Attachment B).Outfall level exclusions and infeasibilities are not applied at this time unless the designer is 100% certain they will apply in final design.

Discharge Information

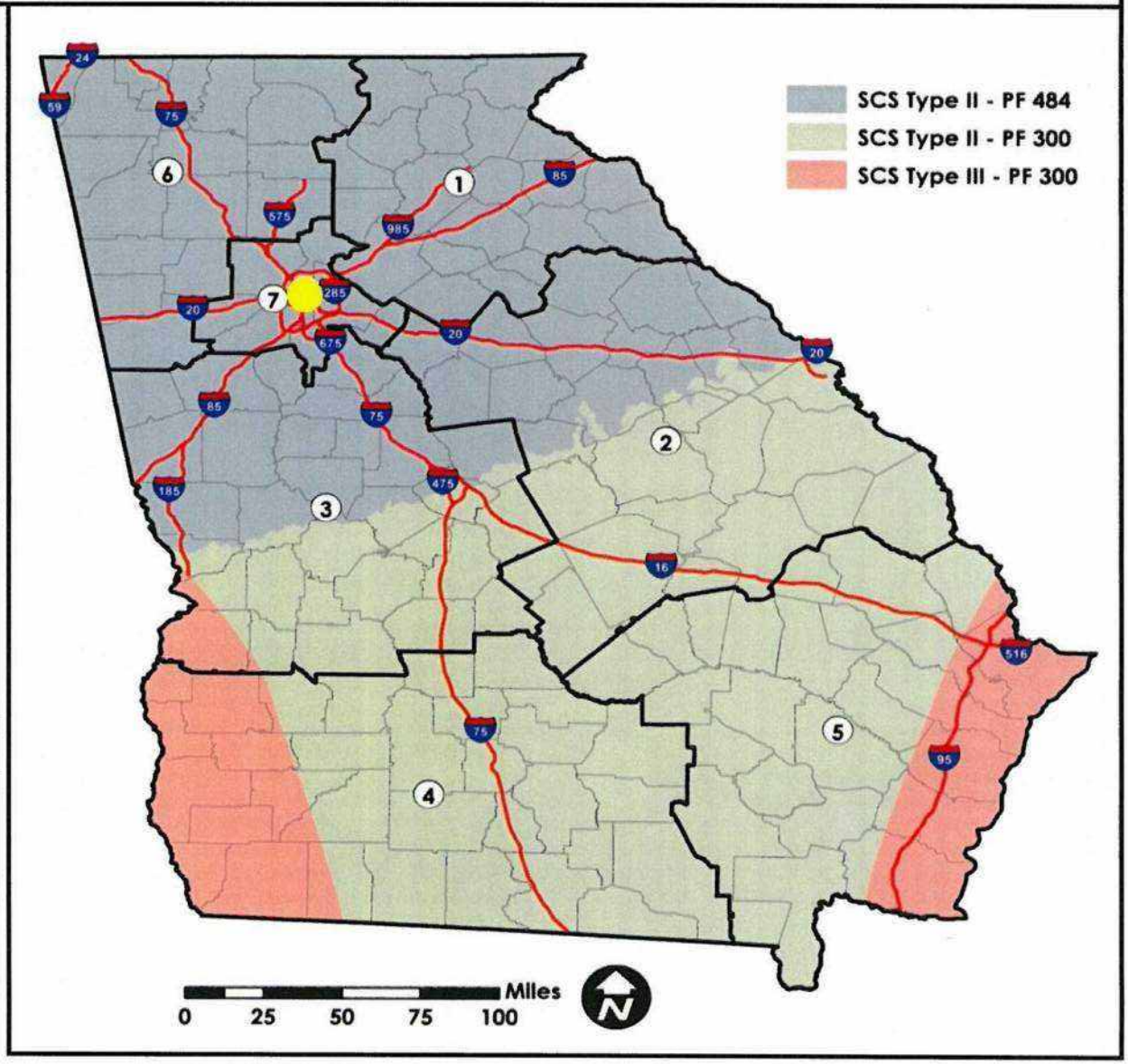
Y	N	
☐	☑	Does the project discharge to a trout stream?

☐☐

The location auto-populates based on information entered in the Project tab. Review the map and select the appropriate SCS peaking factor. Click on the NOAA Atlas 14 button to be redirected to the NOAA reference, where you can obtain the appropriate precipitation data to be entered here.

Coordinates:	33.7992 -84.3897
County:	Fulton County, GA
GDOT District:	District 7
SCS Distribution Type:	Type II
Peaking Factor:	484
$P_{1\text{-yr, 24-hr}}$ (in.):	3.29
$P_{2\text{-yr, 24-hr}}$ (in.):	3.69
$P_{10\text{-yr, 24-hr}}$ (in.):	5.01
$P_{25\text{-yr, 24-hr}}$ (in.):	5.91
$P_{50\text{-yr, 24-hr}}$ (in.):	6.65
$P_{100\text{-yr, 24-hr}}$ (in.):	7.43

NOAA ATLAS 14



Attachment B: Post-Construction BMP Summary

Drainage Area Characteristics						Applicable MS4 Requirements						Planning Considerations					Location and Identification			Maintenance Responsibility
Outfall Area (Drainage Basin)	Drainage Basin Name	Receiving Water	Impaired (Yes or No)	Impairment	Approved TMDL (Yes or No)	OLE (Yes/ No) (see Note 1)	RRv (✓ or X)	WQv (✓ or X)	CP_v (✓ or X)	Q_{p25} (✓ or X)	Q_p (✓ or X)	Infeasible BMP(s)	Applicable Infeasibility (see Note 2)	Feasible (Selected) BMP(s)	Stormwater BMP Infiltration Report? (Applicable BMP) (see Note 3)	BMP(s) required for commitments to another agency?	Station (Begin - End)	Offset (Left/ Right)	Plan Sheet	
DA_1	Basin 1	Tanyard Branch	Yes	4a	Yes	Yes (OLE 6)	X	X	X	X	X			DS					13-0001	
DA_2	Basin 2	Clear Creek	Yes	4a	Yes	No	✓	✓	✓	✓	✓			DB					13-0002 to 13-0004	

Note 1: If an Outfall Level Exclusion is claimed, include the exclusion number (as listed in the *Post-Construction Stormwater Guidance section of the PCSR template*) and provide supporting evidence in Attachment C.

Note 2: If a BMP is identified as infeasible, include the infeasibility number (as listed in the *Post-Construction Stormwater Report Guidance section of the PCSR template*) and provide supporting evidence in Attachment C.

Note 3: See Appendix J of the GDOT Drainage Design for Highways Manual for guidance on infiltration testing and the Stormwater BMP Infiltration Report.

Attachment B-1: Pre- versus Post- Development Drainage Area Summary

Outfall Area (Drainage Basin)	Pre-Development			Post-Development			Peak Flow Rate					Runoff Volumes			
	Overall Drainage Area (ac)	Curve Number	Tc (min)	Overall Drainage Area (ac)	Curve Number	Tc (min)	1-Yr	25-Yr		100-Yr		25-Yr		100-Yr	
							Post (cfs)	Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)	Pre (cuft)	Post (cuft)	Pre (cuft)	Post (cuft)
DA_1	4.24	93	6	4.27	93	6	17.4	35.0	35.3	45.4	45.8	78,399	78,954	101,540	102,259
DA_2	9.78	90	6	11.06	93	6	45.1	75	91	99	119	168,925	204,504	221,709	264,867

DATE$$$ TIME$$$ $PRFB$ DGN P. I. No. 0016894

$USER$

OUTFALL BASIN 1
EXIST 24" RCP

℄ PEACHTREE CONNECTOR

℄ EXIT RAMP

℄ ENTRANCE RAMP

END PROJECT
BSC ENTRANCE RAMP
STA 405+70.00
N 1382533.4966
E 2229295.9975

BEGIN PROJECT
PEACHTREE CONNECTOR
STA 100+28.52
N 1381640.1037
E 2228529.3179

STA 400+00 ℄ ENTRANCE RAMP
STA 250+00 ℄ INWOOD DR

OUTFALL BASIN 2
EXIST 36" RCP

BASIN 1

BASIN 2

℄ INWOOD DR

STA 700+57.71 W. PEACHTREE ST.
STA 506+18.50 INWOOD DRIVE

℄ W. PEACHTREE ST

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SCALE IN FEET
0 60 120 240

REVISION DATES

MS4 DRAINAGE AREA MAP - POST
BUFORD SPRING CONNECTOR & ROUNDABOUT

CHECKED:		DATE:	DRAWING No.
BACKCHECKED:		DATE:	21-MS4
CORRECTED:		DATE:	
VERIFIED:		DATE:	

7/31/2015 GPLN

DRAINAGE AREA SUMMARY: DA_1 Drainage Basin Name: Basin 1

Section 1 - Identify Drainage Area

Station Begin:	100+63	Receiving Water:	Tanyard Branch	Check all that apply:	
Station End:	102+40	Impaired:	Yes	RR_v	☐
Plan Sheet(s):	13-0001	Impairment(s):	4a	WQ_v	☐
Applicable Outfall Level Exclusion (OLE):	☑	Approved TMDL(s):	Yes	CP_v	☐
Applicable OLE:	OLE 6	Net impervious surface area within the outfall's drainage area has been reduced or remains the same as pre-developed conditions.		Q_{p25}	☐
				Q_f	☐

Appropriate BMP(s): DB, DS, IT, SF
Selected BMP(s): DS
Add'l DA Notes:

Section 2 - Calculate Weighted Curve Number for Overall Drainage Basin

Pre-Development Condition

Cover Type	HSG	CN	Area (ac)
Impervious		98	1.09
Open space, good condition (grass cover > 75%)	D	80	0.57
Streets and roads: paved; open ditches (including ROW)	D	93	2.58
- select a land cover type -			
- select a land cover type -			
Other			
Other			
Total Area (ac)			4.24
Weighted CN			93
% Impervious			25.7
Pond & Swamp Areas (%)			0.0
Ponding Factor, F_P			1.00
Potential Maximum Retention after Runoff, S (in.)			0.75
Initial Abstraction, I_a (in.)			0.15

Post-Development Condition

Cover Type	HSG	CN	Area (ac)
Impervious		98	1.12
Open space, good condition (grass cover > 75%)	D	80	0.57
Streets and roads: paved; open ditches (including ROW)	D	93	2.58
- select a land cover type -			
- select a land cover type -			
- select a land cover type -			
Other			
Total Area (ac)			4.27
Weighted CN			93
% Impervious			26.2
Pond & Swamp Areas (%)			0.0
Ponding Factor, F_P			1.00
Potential Maximum Retention after Runoff, S (in.)			0.75
Initial Abstraction, I_a (in.)			0.15

Notes

Section 3 - Calculate Weighted Curve Number for On-Site Areas in the Drainage Basin

Pre-Development Condition

Cover Type	HSG	CN	Area (ac)
Impervious		98	1.09
- select a land cover type -			
- select a land cover type -			
- select a land cover type -			
- select a land cover type -			
Other			
Other			
Total Area (ac)			1.09
Weighted CN			98
% Impervious			97.3
Pond & Swamp Areas (%)			0.0
Ponding Factor, F_P			1.00
Potential Maximum Retention after Runoff, S (in.)			0.20
Initial Abstraction, I_a (in.)			0.04

Post-Development Condition

Cover Type	HSG	CN	Area (ac)
Pre-Construction Impervious Area in Post Basin		98	1.09
Proposed New Impervious Area		98	0.03
- select a land cover type -			
- select a land cover type -			
- select a land cover type -			
- select a land cover type -			-
Other			
Total Area (ac)			1.12
Weighted CN			98
% Impervious			100.0
Pond & Swamp Areas (%)			0.0
Ponding Factor, F_P			1.00
Potential Maximum Retention after Runoff, S (in.)			0.20
Initial Abstraction, I_a (in.)			0.04

Notes

Section 4 - Calculate Travel Time (T_t) and Time of Concentration (T_c)

Pre-Development Condition

Flow Type	Length (ft)	Slope (ft/ft)	Surface Cover	Manning's n	Flow Area, A (ft²)	Wetted P., P (ft)	Velocity, V (ft/s)	Travel Time, T_t (min)
Sheet (limited to 100 ft)	100	0.040	Smooth Surface	0.011			1.95	0.9
Sheet (limited to 100 ft)								
Shallow Concentrated	806	0.046	Paved Surface				4.36	3.1
Shallow Concentrated								0.0
Open Channel								0.0
Open Channel								0.0
Open Channel								0.0
Open Channel								0.0
					Time of Concentration, T_c (min)			**6.0**
					Approx. Lag time (min)			3.6
					User Override T_c (min)			

Post-Development Condition

Flow Type	Length (ft)	Slope (ft/ft)	Surface Cover	Manning's n	Flow Area, A (ft²)	Wetted P., P (ft)	Velocity, V (ft/s)	Travel Time, T_t (min)
Sheet (limited to 100 ft)	100	0.040	Smooth Surface	0.011			1.95	0.9
Sheet (limited to 100 ft)								
Shallow Concentrated	806	0.046	Paved Surface				4.36	3.1
Shallow Concentrated								0.0
Open Channel								0.0
Open Channel								0.0
Open Channel								0.0
Open Channel								0.0
					Time of Concentration, T_c (min)			**6.0**
					Approx. Lag time (min)			3.6
					User Override T_c (min)			

Section 5 - Calculate Runoff Flow Rate and Volume based on Inputs and Computed Values in Sections 2 and 3

Water Quality & Runoff Reduction	Pre	Post
Runoff Coefficient, R_V	0.926	0.950
Runoff Reduction Volume, RR_V (ft^3)	**98**	
Water Quality Volume, WQ_V (ft^3)	**118**	
Water Quality Volume, WQ_V (in.)	**0.029**	

WQ_V Peak Flow	
WQ CN	70.5
I_a/P	0.70
Est. q_u ($ft^3/s/mi^2/in.$)	508
Q_{WQ} (ft^3/s)	**0.03**

Peak Flow:	2 YR	10 YR
P (in.)	3.69	5.01
I_a/P	0.04	0.03
Est. q_u	1,032	1,036
Q_P (ft^3/s)	**20.09**	**29.08**

	Channel Protection CP_V (1-yr, 24-hr)		Overbank Flood Protection Q_P (25-yr, 24-hr)		Extreme Flood Protection Q_f (50-yr, 24-hr)		Q_f (100-yr, 24-hr)	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Rainfall Depth, P (in.)	3.29		5.91		6.65		7.43	
Runoff, Q (in.)	2.53	2.53	5.09	5.09	5.82	5.82	6.60	6.60
Runoff Vol. (ft^3)	38,976	39,251	78,399	78,954	89,652	90,286	101,540	102,259
I_a/P	0.05	0.05	0.03	0.03	0.02	0.02	0.02	0.02
Est. Unit Peak Discharge, q_u ($ft^3/s/mi^2/in.$)	1,030	1,030	1,038	1,038	1,039	1,039	1,039	1,039
Peak Discharge, Q_P (ft^3/s)	17.3	17.4	35.0	35.3	40.1	40.4	45.4	45.8
Percent Change in Q_P	+1%		+1%		+1%		+1%	
Peak outflow/inflow ratio, q_o/q_i	0.021		0.99		0.99		0.99	
Peak outflow discharge ratio, V_s/V_r	0.65		0.09		0.09		0.09	
Volume, V_s (ft^3)	**25,620**		**7,257**		**8,298**		**9,399**	

Section 6 - Evaluate BMP Alternatives

CODE	BMP	Appropriate	Selected	Infeasible	Infeasible No.	Infiltration Testing Required	Required by Other Agency	Maintenance Responsibility	Station (Begin-End)	Offset (Left/Right)	Explanation for why a BMP is not appropriate for the basin
BB	Bioretention Basin	☐	☐	☐		☐	☐				Although this BMP is applicable, it is expensive and high maintenance compared with other options.
BS	Bioslope	☐	☐	☐		☐	☐				Pavement runoff is captured by curb and gutter instead of sheet flow required by bioslope, therefore bioslope is not an appropriate BMP for this basin.
DB	Dry Detention Basin	☑	☐	☐		☐	☐				
DS	Enhanced Dry Swale	☑	☑	☐		☐	☐				
WS	Enhanced Wet Swale	☐	☐	☐		☐	☐				Although this BMP could be applicable, however, maintaining the permanent pool and safety concerns with standing water may pose difficulty.
GC	Grass Channel	☐	☐	☐		☐	☐				Although this BMP could be applicable, it would need to be paired with another BMP due to the removal of TSS lower than desired.
IT	Infiltration Trench	☑	☐	☐		☐	☐				
OG	OGFC	☐	☐	☐		☐	☐				OGFC is not approved by GDOT OMAT.
SF	Sand Filter	☑	☐	☐		☐	☐				
WP	Wet Detention Pond	☐	☐	☐		☐	☐				Although this BMP could be applicable, however, maintaining the permanent pool and safety concerns with standing water may pose difficulty.
SW	Stormwater Wetland	☐	☐	☐		☐	☐				This BMP is applicable. However, the footprint, ROW, counstruction, and maintenance cost of this BMP is higher than Dry Detention Basin.
FS	Veg. Filter Strip	☐	☐	☐		☐	☐				This section of proposed roadway has curb and gutter, therefore filter strip isn't applicable for this basin as it requires sheet flow.
U1	[Enter user-defined BMP]	☐	☐	☐		☐	☐				
U2	[Enter user-defined BMP]	☐	☐	☐		☐	☐				
U3	[Enter user-defined BMP]	☐	☐	☐		☐	☐				

Section 7 - Assess BMP Effectiveness Versus Goals

	Select BMP	RR Rating (RR%)	TSS Rating (TSS%)	Direct Drainage to BMP: Onsite Perv (ac)	Onsite Imp (ac)	Offsite (ac)	Max BMP Sizing Basis (cu-ft)	Min BMP Sizing Basis (cu-ft)	BMP Treatment/ Storage Volume (cu-ft)	TSS Removal via RR (TSS cu-ft units)	Adj TSS % Removal of Treated Water	TSS Removal via Treatment (TSS cu-ft units)	Total TSS Removal (TSS cu-ft units)
BMP 1	Dry Detention Basin	0%	60%	0.00	1.12	0.00	4,635	118		0	60%	0	
BMP 2	Enhanced Dry Swale, w/ capped unde	100%	100%	0.00	1.12	0.00	9,270	118	118	118	100%	0	118
BMP 3	Infiltration Trench	100%	100%	0.00	1.12	0.00	13,787	0		0	100%	0	
BMP 4	Sand Filter	0%	80%	0.00	1.12	0.00	18,422	0		0	80%	0	

Onsite Direct Drainage Area Exceeds Area in Sec 3 Above

Water Quality Volume (cu-ft)	118
TSS Removal Target (%)	80%
TSS Removal Target (TSS units in cu-ft)	94
Sum of TSS Removed (TSS units in cu-ft)	**118**
Target Achieved?	**YES**

NOTE: WATER QUALITY VOLUME CANNOT BE OVER CONVEYED TO A BMP THAT DOES NOT REDUCE RUNOFF TEMPERATURE (WET SWALE, PONDS, WETLANDS, OGFC) IF DISCHARGING TO A TROUT STREAM.

Section 8 - Review Basin Summary Tables

	1-yr, 24-hr	25-yr, 24-hr	100-yr, 24-hr
Pre-Development (ft^3/s)	17.3	35.0	45.4
Post-Development (ft^3/s)	17.4	35.3	45.8
Change (Post - Pre) (ft^3/s)	0.1	0.2	0.3
% Change	0.7%	0.7%	0.7%

Stormwater Runoff Quality/Reduction	
On-Site Drainage Area (ac)	1.12
Pre-Construction Impervious Area in Post Basin (ac)	1.09
Proposed New Impervious Area (ac)	0.03
Pre-Developed % Impervious	97.3
Post-Developed % Impervious	100.0
Net Rv	0.024
Target RR_V (ft^3)	98
Target WQ_V (ft^3)	118

Channel Protection	
Target CP_V (ft^3)	25,620
1-yr, 24-hr Peak Discharge (ft^3/s)	17.4

DRAINAGE AREA SUMMARY: DA_2 Drainage Basin Name: Basin 2

Section 1 - Identify Drainage Area

Station Begin:	102+40	Receiving Water:	Clear Creek	Check all that apply:	
Station End:	405+31	Impaired:	Yes	RR_v	☑
Plan Sheet(s):	13-0002 to 13-0004	Impairment(s):	4a	WQ_v	☑
Applicable Outfall Level Exclusion (OLE):	☐	Approved TMDL(s):	Yes	CP_v	☑
				Q_{p25}	☑
				Q_f	☑

Appropriate BMP(s): DB
Selected BMP(s): DB
Add'l DA Notes:

Section 2 - Calculate Weighted Curve Number for Overall Drainage Basin

Pre-Development Condition

Cover Type	HSG	CN	Area (ac)
Impervious		98	1.95
Open space, good condition (grass cover > 75%)	D	80	1.12
Streets and roads: paved; open ditches (including ROW)	D	93	4.05
Open space, poor condition (grass cover < 50%)	D	89	1.34
Wood/forest, good cover	D	77	1.32
Other			
Other			
Total Area (ac)			9.78
Weighted CN			90
% Impervious			19.9
Pond & Swamp Areas (%)			0.0
Ponding Factor, F_P			1.00
Potential Maximum Retention after Runoff, S (in.)			1.11
Initial Abstraction, I_a (in.)			0.22

Post-Development Condition

Cover Type	HSG	CN	Area (ac)
Impervious		98	4.38
Open space, good condition (grass cover > 75%)	D	80	0.56
Streets and roads: paved; open ditches (including ROW)	D	93	4.00
Open space, poor condition (grass cover < 50%)	D	89	1.34
Wood/forest, good cover	D	77	0.78
- select a land cover type -			
Other			
Total Area (ac)			11.06
Weighted CN			93
% Impervious			39.6
Pond & Swamp Areas (%)			0.0
Ponding Factor, F_P			1.00
Potential Maximum Retention after Runoff, S (in.)			0.75
Initial Abstraction, I_a (in.)			0.15

Notes

Section 3 - Calculate Weighted Curve Number for On-Site Areas in the Drainage Basin

Pre-Development Condition

Cover Type	HSG	CN	Area (ac)
Impervious		98	1.95
Other			
Other			
Total Area (ac)			1.95
Weighted CN			98
% Impervious			44.5
Pond & Swamp Areas (%)			0.0
Ponding Factor, F_P			1.00
Potential Maximum Retention after Runoff, S (in.)			0.20
Initial Abstraction, I_a (in.)			0.04

Post-Development Condition

Cover Type	HSG	CN	Area (ac)
Pre-Construction Impervious Area in Post Basin		98	1.95
Proposed New Impervious Area		98	2.43
Other			
Total Area (ac)			4.38
Weighted CN			98
% Impervious			100.0
Pond & Swamp Areas (%)			0.0
Ponding Factor, F_P			1.00
Potential Maximum Retention after Runoff, S (in.)			0.20
Initial Abstraction, I_a (in.)			0.04

Notes

Section 4 - Calculate Travel Time (T_t) and Time of Concentration (T_c)

Pre-Development Condition

Flow Type	Length (ft)	Slope (ft/ft)	Surface Cover	Manning's n	Flow Area, A (ft²)	Wetted P., P (ft)	Velocity, V (ft/s)	Travel Time, T_t (min)
Sheet (limited to 100 ft)	100	0.080	Smooth Surface	0.011			2.57	0.6
Sheet (limited to 100 ft)								
Shallow Concentrated	376	0.061	Paved Surface				5.02	1.2
Shallow Concentrated								0.0
Open Channel	510	0.143		0.022	1.77	4.71	13.31	0.6
Open Channel								0.0
Open Channel								0.0
Open Channel								0.0
						Time of Concentration, T_c (min)		**6.0**
						Approx. Lag time (min)		3.6
						User Override T_c (min)		

Post-Development Condition

Flow Type	Length (ft)	Slope (ft/ft)	Surface Cover	Manning's n	Flow Area, A (ft²)	Wetted P., P (ft)	Velocity, V (ft/s)	Travel Time, T_t (min)
Sheet (limited to 100 ft)	100	0.080	Smooth Surface	0.011			2.57	0.6
Sheet (limited to 100 ft)								
Shallow Concentrated	376	0.061	Paved Surface				5.02	1.2
Shallow Concentrated								0.0
Open Channel	510	0.143		0.022	1.77	4.71	13.31	0.6
Open Channel								0.0
Open Channel								0.0
Open Channel								0.0
						Time of Concentration, T_c (min)		**6.0**
						Approx. Lag time (min)		3.6
						User Override T_c (min)		

Section 5 - Calculate Runoff Flow Rate and Volume based on Inputs and Computed Values in Sections 2 and 3

Water Quality & Runoff Reduction	Pre	Post
Runoff Coefficient, R_V	0.451	0.950
Runoff Reduction Volume, RR_V (ft^3)	**7,939**	
Water Quality Volume, WQ_V (ft^3)	**9,527**	
Water Quality Volume, WQ_V (in.)	**0.599**	

WQ_V Peak Flow	
WQ CN	92.8
I_a/P	0.13
Est. q_u ($ft^3/s/mi^2/in.$)	999
Q_{WQ} (ft^3/s)	**4.10**

Peak Flow:	2 YR	10 YR
P (in.)	3.69	5.01
I_a/P	0.04	0.03
Est. q_u	1,032	1,036
Q_P (ft^3/s)	**52.05**	**75.32**

	Channel Protection CP_V (1-yr, 24-hr)		Overbank Flood Protection Q_p (25-yr, 24-hr)		Extreme Flood Protection Q_f (50-yr, 24-hr)		Q_f (100-yr, 24-hr)	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Rainfall Depth, P (in.)	3.29		5.91		6.65		7.43	
Runoff, Q (in.)	2.25	2.53	4.76	5.09	5.48	5.82	6.25	6.60
Runoff Vol. (ft^3)	79,953	101,668	168,925	204,504	194,563	233,857	221,709	264,867
I_a/P	0.07	0.05	0.04	0.03	0.03	0.02	0.03	0.02
Est. Unit Peak Discharge, q_u ($ft^3/s/mi^2/in.$)	1,022	1,030	1,033	1,038	1,035	1,039	1,036	1,039
Peak Discharge, Q_P (ft^3/s)	35.2	45.1	75.1	91.3	86.6	104.5	98.9	118.5
Percent Change in Q_P	+28%		+22%		+21%		+20%	
Peak outflow/inflow ratio, q_o/q_i	0.021		0.82		0.83		0.83	
Peak outflow discharge ratio, V_s/V_r	0.65		0.17		0.17		0.16	
Volume, V_s (ft^3)	**66,359**		**34,345**		**38,733**		**43,340**	

Section 6 - Evaluate BMP Alternatives

CODE	BMP	Appropriate	Selected	Infeasible	Infeasible No.	Infiltration Testing Required	Required by Other Agency	Maintenance Responsibility	Station (Begin-End)	Offset (Left/Right)	Explanation for why a BMP is not appropriate for the basin
BB	Bioretention Basin	☐	☐	☐		☐	☐				This BMP has a maximum basin size of 5 acres, therefore bioretention basin isn't an applicable BMP.
BS	Bioslope	☐	☐	☐		☐	☐				Pavement runoff is captured by curb and gutter instead of sheet flow required by bioslope, therefore bioslope is not an appropriate BMP for this basin.
DB	Dry Detention Basin	☑	☑	☐		☐	☐				
DS	Enhanced Dry Swale	☐	☐	☐		☐	☐				This BMP has a maximum basin size of 5 acres, therefore enhanced dry swale isn't an applicable BMP.
WS	Enhanced Wet Swale	☐	☐	☐		☐	☐				This BMP has a maximum basin size of 5 acres, therefore enhanced wet swale isn't an applicable BMP.
GC	Grass Channel	☐	☐	☐		☐	☐				This BMP has a maximum basin size of 5 acres, therefore grass channel isn't an applicable BMP.
IT	Infiltration Trench	☐	☐	☐		☐	☐				This BMP has a maximum basin size of 5 acres, therefore infiltration trench isn't an applicable BMP.
OG	OGFC	☐	☐	☐		☐	☐				OGFC is not approved by GDOT OMAT.
SF	Sand Filter	☐	☐	☐		☐	☐				This BMP has a maximum basin size of 10 acres, therefore this sand filter isn't an applicable BMP.
WP	Wet Detention Pond	☐	☐	☐		☐	☐				Although this BMP may apply, maintaining the permanent pool, safety concerns with standing water, and cost of maintenance may be high.
SW	Stormwater Wetland	☐	☐	☐		☐	☐				This BMP is applicable. However, the footprint, ROW, counstruction, and maintenance cost is higher than Dry Detention Basin, so it will not be studied.
FS	Veg. Filter Strip	☐	☐	☐		☐	☐				This section of proposed roadway has curb and gutter, therefore filter strip isn't applicable for this basin as it requires sheet flow.
U1	[Enter user-defined BMP]	☐	☐	☐		☐	☐				
U2	[Enter user-defined BMP]	☐	☐	☐		☐	☐				
U3	[Enter user-defined BMP]	☐	☐	☐		☐	☐				

Section 7 - Assess BMP Effectiveness Versus Goals

	Select BMP	RR Rating (RR%)	TSS Rating (TSS%)	Direct Drainage to BMP: Onsite Perv (ac)	Onsite Imp (ac)	Offsite (ac)	Max BMP Sizing Basis (cu-ft)	Min BMP Sizing Basis (cu-ft)	BMP Treatment/ Storage Volume (cu-ft)	TSS Removal via RR (TSS cu-ft units)	Adj TSS % Removal of Treated Water	TSS Removal via Treatment (TSS cu-ft units)	Total TSS Removal (TSS cu-ft units)
BMP 1	Dry Detention Basin	0%	60%	0.00	4.38	0.00	18,125	9,527	12,750	0	60%	7,650	7,650
BMP 2													
BMP 3													
BMP 4													

Water Quality Volume (cu-ft)	9,527
TSS Removal Target (%)	80%
TSS Removal Target (TSS units in cu-ft)	7,622
Sum of TSS Removed (TSS units in cu-ft)	**7,650**
Target Achieved?	**YES**

NOTE: WATER QUALITY VOLUME CANNOT BE OVER CONVEYED TO A BMP THAT DOES NOT REDUCE RUNOFF TEMPERATURE (WET SWALE, PONDS, WETLANDS, OGFC) IF DISCHARGING TO A TROUT STREAM.

Section 8 - Review Basin Summary Tables

	1-yr, 24-hr	25-yr, 24-hr	100-yr, 24-hr
Pre-Development (ft^3/s)	35.2	75.1	98.9
Post-Development (ft^3/s)	45.1	91.3	118.5
Change (Post - Pre) (ft^3/s)	9.9	16.2	19.7
% Change	28.2%	21.6%	19.9%

Stormwater Runoff Quality/Reduction

On-Site Drainage Area (ac)	4.38
Pre-Construction Impervious Area in Post Basin (ac)	1.95
Proposed New Impervious Area (ac)	2.43
Pre-Developed % Impervious	44.5
Post-Developed % Impervious	100.0
Net Rv	0.499
Target RR_V (ft^3)	7,939
Target WQ_V (ft^3)	9,527

Channel Protection

Target CP_V (ft^3)	66,359
1-yr, 24-hr Peak Discharge (ft^3/s)	45.1

2019-05-01- GDOT Kick-off and Coordination

Wednesday, May 01, 2019 9:46 PM

Heath & Lineback Engineers, Inc.
2390 CANTON ROAD • BUILDING 200 • MARIETTA, GEORGIA 30066-5393
hle@heath-lineback.com • phone (770) 424-1668

Meeting Minutes

Date: May 1, 2019 **Time**: 2:00 PM

Location: GDOT District 7

Meeting Topic: Kick-off Meeting for Special Encroachment Permit Process

Buford Springs Connector / Peachtree Street Intersection - Dewberry Capital

Meeting Intent: Introduce Design-build Project Team and Outline Special Encroachment Process and Requirements

Attendees:

- ☑ Paul DeNard- D7 Preconstruction Engineer
- ☑ Kathy Zahul- D7 District Engineer
- ☑ Davinna Williams- D7 Traffic Operations Manager
- ☑ Justin Hatch- D7 Traffic Engineer
- ☑ Andrew Heath- State Traffic Operations Engineer
- ☑ Kimberly Nesbitt- State Program Delivery Administrator
- ☑ Albert Shelby- Director of Program Delivery
- ☑ Allen Harp- North Georgia Concrete
- ☑ Allen Krivsky- Heath & Lineback Engineers
- ☑ Matt Calak- Heath & Lineback Engineers
- ☑ Teresa Epple- Southeastern Engineering
- ☑ Scott Jordan- Southeastern Engineering

Notes by:

- ☑ Phil Ravotti/Allen Krivsky

History of project and change to design-build delivery. Owner has entered into agreement with contractor and designers (DBT) to advance the project faster based on GDOT general agreement with the traffic modeling and concept. The project is 100% privately funded by Dewberry Capital, owner John Dewberry. The concept design as currently presented has addressed all GDOT comments from last GDOT email dated 6/4/18 except for updated traffic modeling with current traffic counts. Traffic counts and traffic modeling is currently being updated.

The design-build team desires to clarify Special Encroachment Permit process, GDOT reviews and any other requirements. Kim Nesbitt provided documents and guidance that OPD has recently developed for similar Encroachment Permits. This is high level guidance.

Required items and tasks:

1. Oversight agreement (MOA) between GDOT and Dewberry Capital for PE coordination, review and handling that will include costs to be paid to GDOT.
2. Kim will request a PI# from OFM for project programming and will need the project description and concept layout.

3. DBT shall provide an abbreviated schedule for project programming.
4. Construction agreement between GDOT and Dewberry Capital for construction inspections and certifications that will include costs to be paid to GDOT.
5. Limited Scope Concept is required but most content will be not-applicable. The previous traffic data and modeling with the updated concept layout will suffice and should include any Design Variances required.
6. Utility coordination and utility agreements by owner.
7. Any required right of way? No, all property involved is owners and will be deeded to GDOT.
8. Roundabouts on-system require photometric analysis and lighting.
9. Based on ADT, pavement evaluation may be required. All pavement will be full depth except for 100 ft or so of overlay to tie in. Pavement evaluation is not anticipated to be required. Should be able to use minor pavement type selection. DBT will coordinate with OMAT.
10. Environmental scope should follow local funded requirements, identify jurisdictional waters and required permits. Noise analysis is not anticipated unless historic property is identified.
11. Public Involvement can be directed at specific property owners and Midtown Alliance. No open meeting is required. DBT shall send letters following form letter and comment section provided by Kim.
12. Evaluate need for IMR short form with Kim. The ramp termini are not changed.
13. One formal plan review will be performed through Engineering Services and will include applicable SMEs.
    a. Traffic Operations, OGC, D7
    b. Bridge Office for retaining walls
    c. Roadway Design, OGC, D7 Preconstruction
    d. Lighting Group
    e. OMAT
    f. Utility Office, D7

Other statements:

1. DBT shall deliver P,S&E package for D7 to issue Special Encroachment Permit.
2. For limited access breaks, the road should connect to public right of way road.
    a. The west leg of roundabout will be discussed and coordinated.
    b. Inwood Circle ties to public right of way and right of way for Inwood will be deeded to State or COA.
3. The Buford Springs Connector ramps are on frontage road right of way and not on Interstate ROW. FHWA does not review. Potentially to send to FHWA as a courtesy.
4. The Encroachment Permit will include a bonding requirement for private entity. If City of Atlanta is the applicant, no bonding is required.
5. Discussion about City of Atlanta involvement related to applicant and right of way. Conclusion was to not involve COA if at all possible and general consensus was COA does not need to be involved.
6. Consider construction inspection to be handled by DBT with third party similar to GDOT design-build projects.

Schedule:
DBT is planning Encroachment Permit approval for construction to start 11/30/2019.
DBT will move 90% Plans up to 8/1/19 for FPR scheduling request.

Value engineering:
HL presented initial ideas to improve maintenance of traffic, constructability and reduce wall heights.

1. Suggest tilting roundabout at 2% instead of flat in order to help profile.
2. Suggest raising elevation of roundabout 4 to 5 ft and increase entrance ramp grade above 10%, from current 9.5%. (Max grade of Urban Arterial at 25 mph is 10%)

Initial feedback was positive but drawings are need to evaluate. HL will perform more VE with contractor and send drawings for consideration. A Design Variance is already needed for 9.5%.

PREVIOUS ACTION ITEMS:

None	

NEW ACTION ITEMS:

Send out meeting minutes – H&L	Phil Ravotti
DBT will review documents provided by Kim and discuss, clarify and confirm- DBT (WAK)	Allen Krivsky
DBT will send Kim project description and concept layout- DBT, HL (PR)	Phil Ravotti
Kim will request PI# and program project- OPD, KIM	Kim Nesbitt
DBT will develop detailed schedule and send to Kim and all attendees- DBT, HL (WAK)	Allen Krivsky
MOA for PE oversight- Kim, DBT (WAK/KIM)	Kim Nesbitt/Allen Krivsky
MOA/Construction agreement- D7, DBT (Later)	TBD
DBT draft Limited Scope Concept Report with Design Variances- DBT (PR)	Phil Ravotti
Confirm limited access break and tie-ins- DBT, HL	Phil Ravotti
Determine pavement type selection- DBT, HL	Phil Ravotti
Confirm environmental items- DBT, HL	Allen Krivsky

Meeting Minutes

By: Heath & Lineback Engineers / North Georgia Concrete / Dewberry Capital Group

Meeting Topic: **PI#0016894, Fulton County - Buford Springs Connector**

CONCEPT TEAM MEETING

Date: July 30, 2019 **Time**: 10:00 AM

Attendees (Sign-in sheet attached)

Purpose: This meeting is to discuss the draft concept report, address items needed to deliver the project and produce a concept report that is ready to be submitted to GDOT Design Policy and Support.

1) **Introductions**

2) **Discussion:**

a) **Project Overview –** Allen Krivsky provided history of project and planning/traffic/concept efforts to date.
   i) Summer 2014 SEI working with Dewberry Capital studying and modeling midtown/uptown traffic for potential development sites
   ii) In 2016 SEI studied different concepts, traffic projections and modeling for a potential access road and modification to the limited access on Buford Spring Connector ramps to Peachtree Road.
   iii) In 2017 and 2018 SEI worked closely with GDOT Traffic Operations, District 7 and roundabout expert peer reviewers to obtain acceptance of the concept.
   iv) Late 2018, Dewberry Capital wanted to expedite the project and decided to move to Design-Build delivery method and hired North Georgia Concrete Construction firm. NGC and CWM are partnered to deliver the project.
   v) Early 2019, NGC hired Heath & Lineback Engineers to move the project through the D-B delivery method and Special Encroachment Permit Process.
   vi) May 1, 2019, H&L held kick-off meeting with District 7 staff, State Traffic Ops staff and OPD to get full understanding of requirements for Special Encroachment Permit, present our schedule and begin coordination and collaboration with all offices
   vii) July 11, 2019, H&L met with OPD (Sr. Project Manager- Davida White), Kim, Merishia, State Traffic Ops, D7 Precon & Traffic to introduce project to PM, Program Manager and emphasize schedule and progress.
   viii) Dewberry Capital is ready to move on this PRIVATELY funded project and we are here to help. To provide GDOT with the necessary studies, designs, permits, agreements, etc. to satisfy the District 7 Special Encroachment Permit and oversight reviews by other GDOT offices.

   ix) Design overview and status – Matt Calak described the concept design and layout.

b) **Pavement/Geotechnical**

i) No soil survey or pavement evaluation is planned because all the pavement is proposed to be replaced full depth. Wall Foundation Investigations will be performed for 2 walls and soil material will be evaluated. Four soil borings will be performed in cut areas.
ii) The project is on-system except for Inwood Circle, which will be on the local system.
iii) Flexible pavement is proposed and will follow the pavement guidelines for roundabouts.
iv) The intersection with Peachtree Road is US 19, on the national highway system.

Questions and discussion about 4th leg of roundabout. From TMC and District perspective, the 4th leg could be used as a cut-through to Peachtree Road. Design-build team explained that the 4th leg is not intended to be open unless the parcel is developed. Paul DeNard suggested to not show the 4th leg if it will not be open.

c) **Design and Structural**
   i) Three retaining walls are proposed; 1 standard, 1 special design cast in place concrete, 1 MSE.
   ii) A comment was made about rock out cropping.
d) **Utilities**
   i) A GUPS permit will be required since the roads are on-system
   ii) Design-build team will deliver utility no-conflict letters or relocation plans.
   iii) Utilities will be relocated at the expense of the developer.
e) **Right of Way**
   i) Property needed to construct the project is or will be owned by Dewberry Capital.
   ii) Right of way will be Quit Claim deeded to the State and City (Inwood Circle).
   iii) District ROW stated that an appraisal by GDOT certified appraiser is required and a letter stating the value and details of the donated ROW.
f) **Environmental**
   i) Mike Murdoch questioned the funding. The team explained the entire project is privately funded. No jurisdictional waters exist on the site. So, no studies or permits are anticipated.
   ii) Mike asked if there is any public controversy? The team is not aware of any controversy.
   iii) Is any public information needed? There was coordination with the Mid-Town Alliance previously but not recently.
   iv) It was recommended that a public information meeting be held by coordinating through the Alliance in order to provide community awareness. Construction will impact traffic patterns to some degree.
   v) The team stated there has been coordination with the City of Atlanta and a letter of support is on file.
g) **Schedule**
   i) Allen Krivsky presented the schedule. We are behind and trying to catch up.
   ii) The concept report will be submitted as final in a week.
   iii) A preliminary plan review request is planned in 3rd week of August.
   iv) Construction is scheduled to begin by end of year.
   v) Merishia asked that the schedule be updated with current actual dates. The DB team will update.

3) Other Discussion

Davida White is drafting the PE oversight agreement. After this agreement is in place, she will draft the Construction oversight agreement.

4) Action Items:
a) Conduct public information through Mid-Town Alliance for community awareness - HLE
b) Update schedule with current actual dates - HLE
c) Submit Final Concept Report in a week - HLE

GDOT Georgia Department of Transportation

MEETING SIGN-IN SHEET

Project: 0016894	**Meeting Date/Time:** July 30, 2019 @ 10:00 am
Facilitator: Davida White	**Place/Room:** OGC Board Room Lounge

Name	Company	Phone	E-Mail
Davida White	GDOT OPD	770-631-1530	dwhite@dot.ga.gov
Sio H Jordan	Southeastern Engineering SEI	770-702-7025	sjordan@seengineering.com
Allen Krivsky	Heath & Linebaek Eng	7704241668	akrivsky@heath-linebaek.com
MATT CALAK	HEATH + LINEBACK	770 424 1668	mcalak@heath-linebaek.com
DEREK W. LINOSAY	WOOD PLC	(478) 251-6705	DLINOSAY@dot.ga.gov
GENE McKISSICK	D7-UTILITIES (SAM)	706-741-0448	gmckissick@dot.ga.gov
Kim Morgan	JACOBS D7 CONST	4705125209	KMORGAN@DOT.GA.GOV
Dave Peters	GDOT - Design Policy	404/631-1733	dpeters@dot.ga.gov
David Miller	GDOT-D7 ROW	770-216-3962	damiller@dot.ga.gov
Jean Hee Barrett	ARC	470-378-1573	jbarrett@atlaudareginal.org
Mary Thumaty	Southeastern SEI Engineering	770-595-1502	mthumaty@seengineering.com
Daniel DeVos	GDOT - Planning	~~404-631~~ -	ddevos@dot.ga.gov
Porshia Hayden	GDOT - OPD	770-631-1573	phayden@dot.ga.gov
Ian RISH	GDOT - Pavement OMAT	404-608-4849	irish@dot.ga.gov
Justin Hatch	GDOT - D7 T.O.	770-216-3989	juhatch@dot.ga.gov
michael Murdoch	GDOT - Enviro Services	404-631-1178	mmurdoch@dot.ga.gov
Merishia Robinson	GDOT - OPD	404-631-1710	mrobinson@dot.ga.gov
Paul DeNard	GDOT - D7 Precon	770-216-3890	pdenard@dot.ga.gov
David Norwood	GDOT - Exe Asst to Chief Eng	404-631-1927	dnorwood@dot.ga.gov