

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

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

FILE P.I. #0009723
GDOT District 7 - Metro Atlanta
Clayton County
I-75 Northbound at SR 3/US 41
Operational Improvements

OFFICE Design Policy & Support

DATE May 9, 2012

FROM  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:

Genetha Rice-Singleton, Program Control Administrator
Bobby Hilliard, State Program Delivery Engineer
Cindy VanDyke, State Transportation Planning Administrator
Angela Robinson, Financial Management Administrator
Glenn Bowman, State Environmental Administrator
Kathy Zahul, State Traffic Engineer
Georgene Geary, State Materials & Research Engineer
Lisa Myers, State Project Review Engineer
Jeff Baker, State Utilities Engineer
Ken Thompson, Statewide Location Bureau Chief
Bryant Poole, District Engineer
Scott Lee, District Preconstruction Engineer
Jonathan Walker, District Utilities Engineer
Sue Anne Decker, Project Manager
BOARD MEMBER - 13th Congressional

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

Project Type: <u>Operational Improvements</u>	P.I. Number: <u>0009723</u>
GDOT District: <u>7</u>	County: <u>Clayton</u>
Federal Route Number: <u>19 & 41</u>	State Route Number: <u>3</u>

Project Description
Operational improvements are to be made to the northbound off-ramp of Interstate 75 (I-75) interchange with Old Dixie Road (SR 3) in Clayton County. Due to the limited storage the off-ramp provides for its heavily-used left-turn movement, an additional 12-foot lane, approximately 280-feet in length, will be added at this intersection. This lane is to be placed on the south side of the existing outermost left-turn lane, and located within the existing right-of-way for the interchange. The final configuration will consist of four lanes – dual left turn lanes, one through lane, and one right turn lane on the northbound approach. The radius of the right turn lane will also be increased to facilitate truck movements more freely.

Submitted for approval:
 Mark Wilkinson, P.E., American Engineers, Inc.

***Submission on file
 **3-9-12*

Consultant Designer & Firm or GDOT Concept/Design Phase Office Head & Office

Bobby Hilliard

DATE
2-28-2012

Office Head (GDOT Project Manager's Office)

Sue Anne Decker

DATE
2/28/2012

GDOT Project Manager

** Recommendation on file*
Recommendation for approval:

Program Control Administrator

** Glenn Bowman / KLP*

DATE
3-15-2012

State Environmental Administrator (recommendation required)

** Kathy Zahul / KLP*

DATE
3-16-2012

State Traffic Engineer (recommendation required for roundabout projects)

** Lisa Myers / KLP*

DATE
4-4-2012

Project Review Engineer

** Patrick Allen / KLP*

DATE
3-16-2012

FOR State Utilities Engineer

DATE

District Engineer (projects not originating in District Office)

DATE

State Transportation Financial Management Administrator

DATE

The concept as presented herein and submitted for approval is consistent with that which is included in the Regional Transportation Plan (RTP) and/or the State Transportation Improvement Program (STIP).

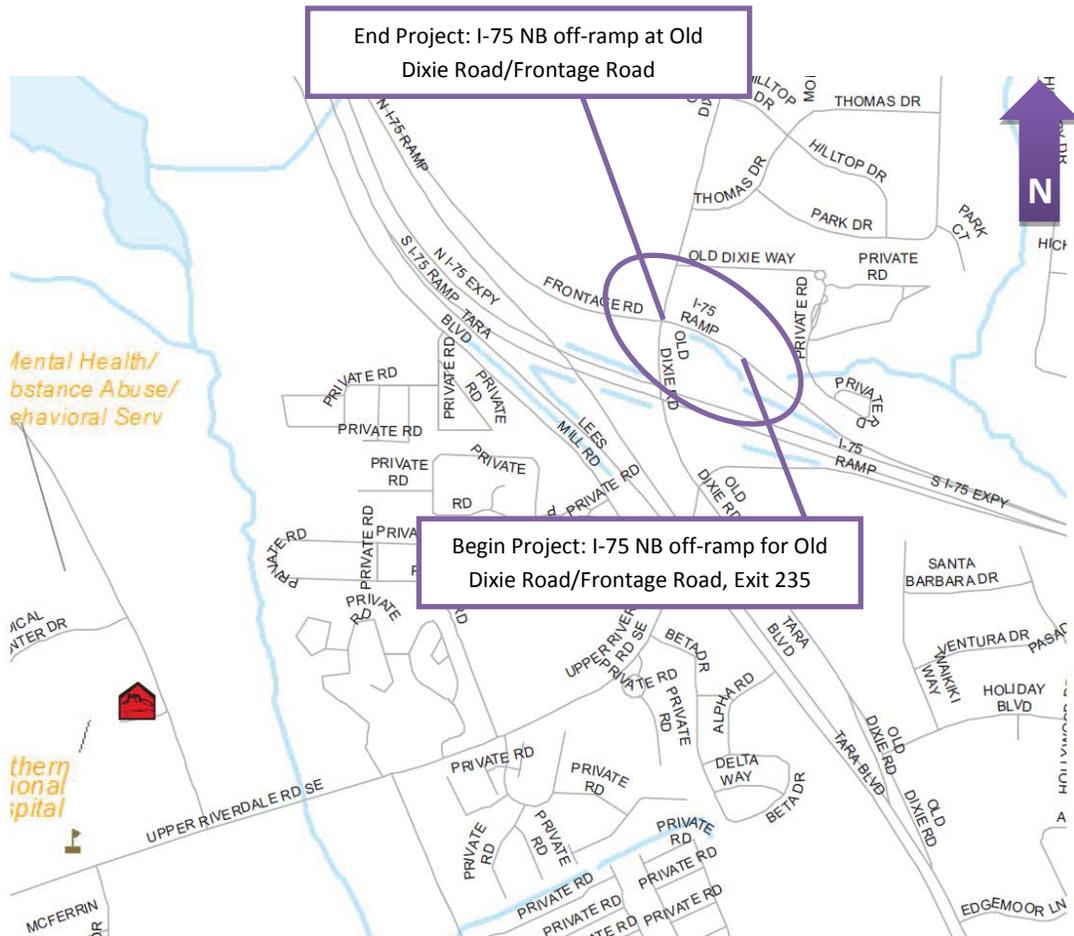
Cynthia L. Vandyke

3-22-12
 DATE

State Transportation Planning Administrator (recommendation required)

PROJECT LOCATION

I-75 northbound ramp between Interstate 75 and Old Dixie Road



Not to Scale

PLANNING & BACKGROUND DATA

Project Justification Statement:

The I-75 northbound ramp at SR 3/US 41/Old Dixie Road was identified for operational improvements and is to be included in the GDOT Operational Improvement Lump Sum Program from the Office of Traffic Operations. This proposed project was presented to and approved by the Operational Improvement Committee as a QUICK project.

SR 3/US 41/Old Dixie Road is an urban principal arterial south of the I-75 northbound ramp and urban minor arterial north of the ramp that serves a combination of industrial and residential developments parallel to I-75 in central Clayton County. At the ramp terminal intersection, SR 3/US 41/Old Dixie Road is a four lane highway with flush median which provides a two-way-left-turn lane. The I-75 northbound ramp is a single lane exit from I-75 which transitions to a single right, a shared through/right and left turn lane at the intersection of SR 3/US 41/Old Dixie Road. The useable storage length for the northbound ramp approach is approximately 180 feet. The traffic signal operates as a split phase with the NB ramp and opposing approach of the intersection.

Under the current signal operation and lane configuration, there is an acceptable Level of Service (LOS) D (am) and C (pm) in the existing year. The LOS for the design year is LOS E (am) and LOS D (pm). However, the northbound ramp experiences queues that exceed the storage capacity and thereby reducing the intersection efficiency. With 180 feet of available storage, the existing northbound ramp queue is 390 feet and the available storage capacity is blocked by the queue 27% of the time. In the design year, the average queue exceeds 1400 feet and the available storage capacity is blocked 42% of the time. Additionally, the 95% queue will spill back onto the I-75 mainline.

The proposed project adds an additional lane of storage which will provide for a single right turn lane, a single through lane, and dual left turn lanes. In addition to providing 300 of storage for each lane, the proposed lane configuration will allow for the removal of the split phase traffic signal operation. The proposed improvements improve intersection operation to LOS D (am) and LOS C (pm) in the design year with an average queue of 370 feet. The percent time the storage capacity is blocked is reduced from 42% to 20%.

Another operational issue at this intersection is that the radius return on the SE quadrant (NB to EB movement) is too small for trucks to turn efficiently. Therefore, some secondary benefits that the project is expected to provide include facilitating WB 50 truck movements more freely in the right turn lane.

Description of the proposed project:

The proposed project is located in the city of Forest Park, Clayton County, GA, and would involve operational improvements to the northbound off-ramp of I-75 interchange with SR 3/US 41 (Old Dixie Road). Currently, Old Dixie Road operates at a speed limit of 40 miles per hour, and is a four-lane, divided roadway with a center two-way left turn lane. The existing northbound off-ramp at Exit 235 of I-

75 consists of one 16-foot lane as it departs from the interstate. Approaching the intersection with Old Dixie Road, the roadway widens at a point approximately 180-feet from the intersection to provide three 12-foot lanes; these consist of one left turn only lane, one shared through/left turn lane, and one right turn lane. Currently, the intersection of the off-ramp with Old Dixie Road provides limited storage for the ramp’s heavily-utilized left-turn movement, resulting in queues blocking upstream vehicles. This impacts the overall operation of the ramp and intersection. Also, the radius for the right turn lane on the ramp is not sufficient for large trucks to turn efficiently without tracking over the existing curb and gutter.

The proposed project involves construction of an additional 12-foot lane at the intersection of the off-ramp with Old Dixie Road, using a 15:1 taper rate for widening to the inside of the ramp. This additional lane would be approximately 300-feet long, placed on the west side of the existing outermost left-turn lane, and located within the existing right of way for the interchange. The resulting configuration will consist of dual left-turn lanes, one through lane, and one right-turn lane. The right turn lane will be widened entering into the radius return and the radius return will be increased to facilitate WB 67 turning movements.

Federal Oversight: Full Oversight Exempt State Funded Other

MPO: N/A MPO - Atlanta Regional Commission (ARC)
MPO Project TIP # AR-106-2012

Note: This project is included within the lump sum project PI # 0007502 in the ARC TIP as AR-106-2012

Regional Commission: N/A RC – Atlanta Regional Commission
RC Project ID #

Congressional District(s): 13

Projected Traffic AADT:

SR3/US 41/Old Dixie Road

Current Year (2012): 21,950 Open Year (2014): 22,020 Design Year (2034): 26,870

I-75 NB Ramp

Current Year (2012): 10,605 Open Year (2014): 10,820 Design Year (2034): 13,205

Functional Classification:

Urban Principal Arterial: Old Dixie Road south of the I-75 NB Ramp

Urban Minor Arterial Street: Old Dixie Road north of the I-75 NB Ramp

Urban Local Road: I-75 NB Ramp

Is this project on a designated bike route? No YES

Is this project located on a pedestrian plan? No YES

Is this project located on or part of a transit network? No YES

DESIGN AND STRUCTURAL DATA

Mainline Design Features: US 19/US 41-SR 3/Old Dixie Road

Feature	Existing	Standard*	Proposed
Typical Section			
- Number of Lanes	4	N/A	4
- Lane Width(s)	12'	11-12'	Retain. Exist.
- Median Width & Type	12'/Flush	14'/Flush	Retain. Exist.
- Outside Shoulder Width & Type	10'/Urban	10-16'/Urban	10'/Urban
- Outside Shoulder Slope	6%	2%	2%
- Inside Shoulder Width & Type	N/A	N/A	N/A
- Sidewalks	5'	5'	5'
- Auxiliary Lanes	TWLT	N/A	TWLT
- Bike Lanes	None	N/A	None
Posted Speed	40 MPH		40 MPH
Design Speed	40 MPH	≤ 45 MPH	40 MPH
Min Horizontal Curve Radius	1160'	711	Retain. Exist.
Superelevation Rate	6%	4%	Retain Exist.
Grade	1.7%	7% Max.	Retain. Exist.
Access Control	LA	LA	LA
Right-of-Way Width	Variable	Variable	Variable
Maximum Grade – Crossroad	N/A	N/A	N/A
Design Vehicle	WB 40	WB 62	WB 62
<i>Additional Items as needed</i>			

Design Features: I-75 NB off-ramp

Feature	Existing	Standard*	Proposed
Typical Section			
- Number of Lanes	1	1	1
- Lane Width(s)	16'	16'	Retain. Exist.
- Median Width & Type	N/A	N/A	N/A
- Outside Shoulder Width & Type	Varies/Rural	12'/Rural	Retain Exist.
- Outside Shoulder Slope	6.25%	6%	Retain. Exist.
- Inside Shoulder Width & Type	4'/Rural	8'/Rural	8'/Rural
- Sidewalks	None	N/A	None
- Auxiliary Lanes	1 Lt & 1 Rt	Varies	2 Lt & 1 Rt
- Bike Lanes	None	N/A	None
Posted Speed	Not Posted		Not Posted
Design Speed	Varies	Varies	N/A
Min Horizontal Curve Radius	N/A	N/A	N/A
Superelevation Rate	8%	8%	Match Exist.
Grade	6%	Varies	Match Exist.
Access Control	LA	LA	LA
Right-of-Way Width	Variable	Variable	None
Maximum Grade – Crossroad	6%	N/A	N/A
Design Vehicle	WB 40	WB 62	WB 62
<i>Additional Items as needed</i>			

*According to current GDOT design policy if applicable

Major Structures: Existing 42" RCP Culvert under I-75 NB Ramp

Major Interchanges/Intersections: The ramp to be improved is the I-75 northbound off ramp, exit 235 off which intersects with US 19/US 41-SR 3 (Old Dixie Road).

Utility Involvements: Utility conflicts are not anticipated on the project.

Public Interest Determination Policy and Procedure recommended (Utilities)? YES NO

SUE Required: Yes No

Right-of-Way:

Required Right-of-Way anticipated: YES NO Undetermined
 Easements anticipated: Temporary Permanent Utility None

Anticipated number of impacted parcels: 0
 Anticipated number of displacements (Total): 0
 Businesses: 0
 Residences: 0
 Other: 0

Location and Design approval: Not Required Required

Off-site Detours Anticipated: No Yes Undetermined

Transportation Management Plan Anticipated: YES NO

Design Exceptions to FHWA/AASHTO controlling criteria anticipated:

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

Design Variances to GDOT standard criteria anticipated:

GDOT Standard Criteria	Reviewing Office	YES	Approval Date (if applicable)	NO	Undetermined
1. Access Control	DP&S	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>

- Median Opening Spacing					
2. Median Usage & Width	DP&S	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Intersection Skew Angle	DP&S	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
4. Lateral Offset to Obstruction	DP&S	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
5. Intersection Sight Distance	DP&S	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
6. Bike & Pedestrian Accommodations	DP&S	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
7. GDOT Drainage Manual	DP&S	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
8. Georgia Standard Drawings	DP&S	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
9. Rumble Strips/Safety Edge	DP&S	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>

VE Study anticipated: No Yes Completed – Date:

ENVIRONMENTAL DATA

Anticipated Environmental Document:

GEPA: NEPA: Programmatic Categorical Exclusion EA/FONSI EIS

Air Quality:

Is the project located in a PM 2.5 Non-attainment area? No Yes
 Is the project located in an Ozone Non-attainment area? No Yes

PM 2.5: While the proposed project has not yet been evaluated by the interagency group consisting of FHWA, EPA, EPD and the ARC, given the project type, it is anticipated that the project will NOT be a “Project of Concern” per the Transportation Conformity Rule and thus meet the statutory and regulatory requirements for PM2.5 hotspots without a qualitative analysis.

Ozone: The proposed project is LUMP SUM and is included in the FY 2012-2017 Transportation Improvement Program. The project, as proposed, is consistent with this description.

Environmental Permits/Variances/Commitments/Coordination anticipated:

Permit/ Variance/ Commitment/ Coordination Anticipated	YES	NO	Remarks
1. U.S. Coast Guard Permit	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2. Forest Service/Corps Land	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3. CWA Section 404 Permit	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
4. Tennessee Valley Authority Permit	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
5. Buffer Variance	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
6. Coastal Zone Management Coordination	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
7. NPDES	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
8. FEMA	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
9. Cemetery Permit	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
10. Other Permits	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
11. Other Commitments	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
12. Other Coordination	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Is a PAR required? No Yes Completed – Date:

NEPA/GEPA:

Special studies are currently underway. The anticipated level of NEPA documentation is Categorical Exclusion. Previous screening of project area identified no Section 4(f) resources in the corridor.

Ecology:

Ecology Survey Report will be prepared as part of NEPA effort and will include survey for protected species. Natural features field reconnaissance of the project area was conducted on January 30, 2012. Jurisdictional determination was completed by EPD on February 7, 2012. One stream section would require a 25-foot buffer (a small portion of Stream 2 that is east of the culvert [IS 2]). The current project concept would not involve this 25-foot buffer. In addition, EPD determined that the flumed portion of Stream 1 and Non-buffered state waters (NBSWs) A, B, and C do NOT require a 25-foot stream buffer. No protected species or appropriate habitats were identified as part of the field reconnaissance.

History:

No properties 50 years of age or older were identified within the proposed project's APE during a historic resources windshield survey. SHPO coordination of these findings has not yet been finalized; however, a "No Historic Properties Effected" is anticipated for the project.

Archeology:

Shovel testing of the APE has yet to be completed; however, given the nature of the APE (existing interstate ROW), the probability of encountering resources at the project site is considered low. No cemeteries are located within the APE.

Air & Noise:

Air: The project type will require preparation of an air impact assessment. Project will be exempt from PM2.5 hot spot requirements, is consistent with the TIP for ozone, but is of a type that will require carbon monoxide hot-spot analysis.

Noise: A "Noise Screening Assessment for Type III Projects" is anticipated given the project type.

Public Involvement:

Given the project type, it is anticipated that public involvement is not necessary for the project.

Major stakeholders:

Traveling public.

CONSTRUCTION

Issues potentially affecting constructability/construction schedule:

The construction schedule will be affected by AM/PM peak traffic hours and local school bus schedules. Due to very high traffic volumes, off-hour construction may be required.

Early Completion Incentives recommended for consideration:

No

Yes

PROJECT RESPONSIBILITIES

Project Activities:

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

Lighting required: No Yes

Concept Meeting:

The kick-off/concept meeting was held on December 19, 2011. Project details were discussed (see meeting minutes attached) and it was agreed that traffic counts would be collected during the week of January 9, 2012.

Other projects in the area: Project CSNHS-M003-00(714), PI No. M003714 is the resurfacing of SR 3/US 19 from Henry County Line to CR 1354/Old Dixie Way. Project CSSTP-M003-00(360), PI No. M0003360 is the milling and resurfacing of SR 3 Connector.

Other coordination to date: None

Project Cost Estimate and Funding Responsibilities:

	Breakdown of PE	ROW	Utility	CST*	Environmental Mitigation	Total Cost
By Whom	GDOT	GDOT	Util. Owners	GDOT	N/A	
\$ Amount	271,400.46	0.00	0.00	211,422.45	0.00	
Date of Estimate	2/16/10			3/5/2012		

*CST Cost includes: Construction, 5% Engineering and Inspection, and Liquid AC Cost Adjustment.

ALTERNATIVES DISCUSSION

Alternative selection:

Preferred Alternative: <i>Addition of a 300-foot long left turn lane and increasing radius of right turn lane of the NB off-ramp of I-75 intersecting Old Dixie Road.</i>			
Estimated Property Impacts:	N/A	Estimated Total Cost:	
Estimated ROW Cost:	N/A	Estimated CST Time:	6 Months
Rationale: <i>This alternative was selected because it meets all the operational improvement goals necessary,</i>			

with little to no property or environmental impacts, and is the most economical cost. The selected alternative will reduce intersection delay and congestion, especially during the AM/PM peak hours, by creating additional storage in the added left turn lane; eliminate the inefficient split signal phasing currently in place; and provide an effective radius for trucks to perform their right turn movements freely without overtopping the curb and gutter of the radius return.

No-Build Alternative: No changes made to intersection			
Estimated Property Impacts:	N/A	Estimated Total Cost:	N/A
Estimated ROW Cost:	N/A	Estimated CST Time:	N/A
Rationale: This alternative was not selected because, according to the traffic analysis conducted, during the open year of 2014 the intersection delay during the AM and PM peak hours would be 41.2 seconds and 32.0 seconds, respectively. During the design year of 2034, the analysis concluded that the intersection delay under no-build conditions during the AM and PM peak hours would be 69.6 seconds and 39.7 seconds. However, if proposed improvements were performed, these numbers would be reduced by 45% and 48%, respectively. The intersection would operate at LOS E in the no-build conditions. In addition, the queue length under no-build conditions would be approximately 1445-feet and it would face storage blocks 42% of the time, compared to 20% under the build conditions.			

Comments:

Attachments:

1. Concept Layout
2. Typical sections
3. Detailed Cost Estimates:
 - a. Construction including Engineering and Inspection
 - b. Completed Fuel & Asphalt Price Adjustment forms
4. Traffic diagrams
5. Summary of TE Study including Crash Summaries and Capacity Analysis
6. Conforming plan's network schematics showing thru lanes.
7. Minutes of Concept meetings
8. Traffic Engineering Report (Approval Pending)

APPROVALS

Exempt Projects

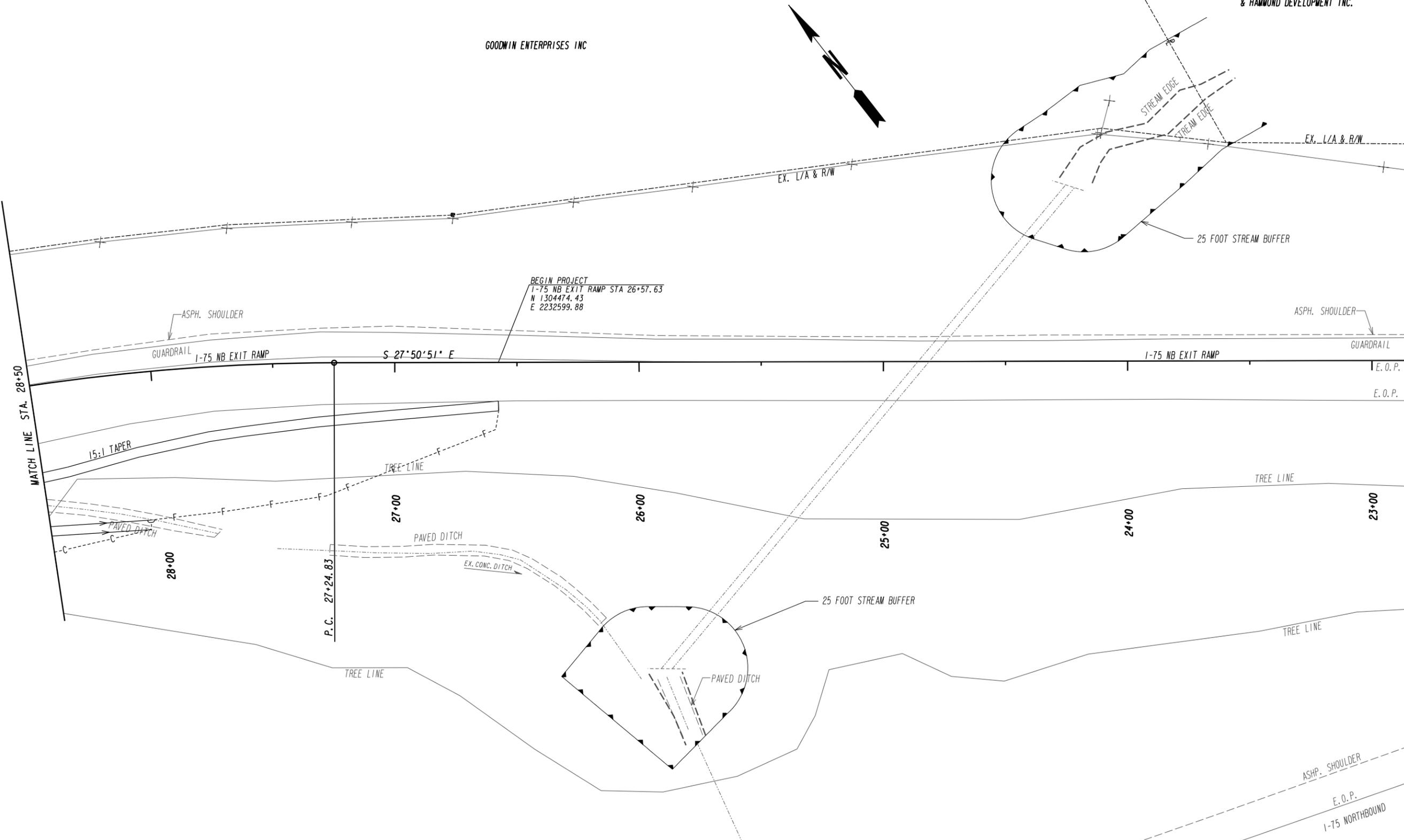
Concur: Bill R M: M
Director of Engineering

Approve: Dee MR
Chief Engineer

5-8-12
Date

CLAYTON COUNTY PARTNERS LP
& HAMMOND DEVELOPMENT INC.

GOODWIN ENTERPRISES INC



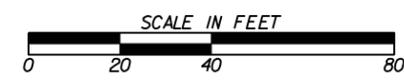
BEGIN PROJECT
I-75 NB EXIT RAMP STA 26+57.63
N 1304474.43
E 2232599.88

PROPERTY AND EXISTING R/W LINE
 REQUIRED R/W LINE
 CONSTRUCTION LIMITS
 EASEMENT FOR CONSTR
 & MAINTENANCE OF SLOPES
 EASEMENT FOR CONSTR OF SLOPES
 EASEMENT FOR CONSTR OF DRIVES

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BEGIN LIMIT OF ACCESS.....BLA
 END LIMIT OF ACCESS.....ELA
 LIMIT OF ACCESS
 REQ'D R/W & LIMIT OF ACCESS

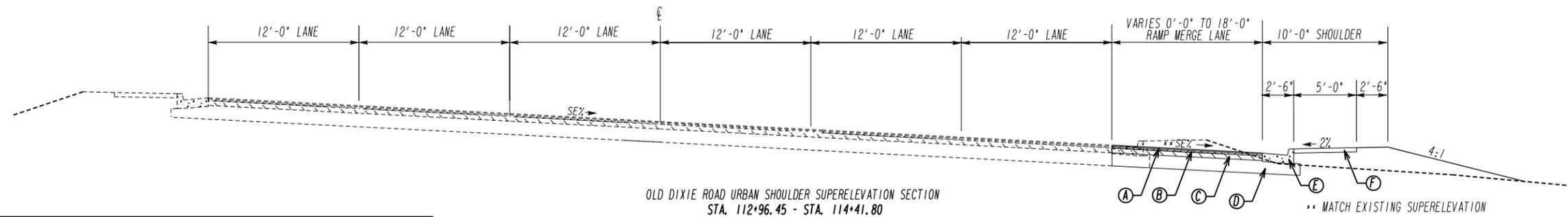
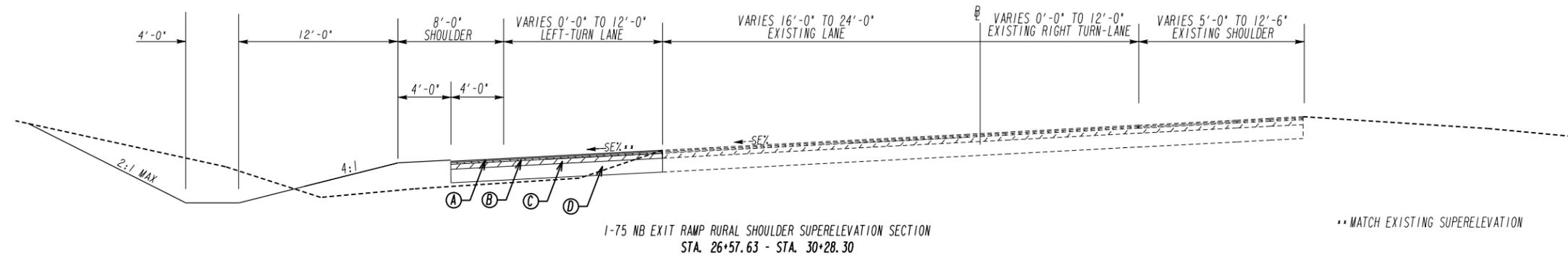
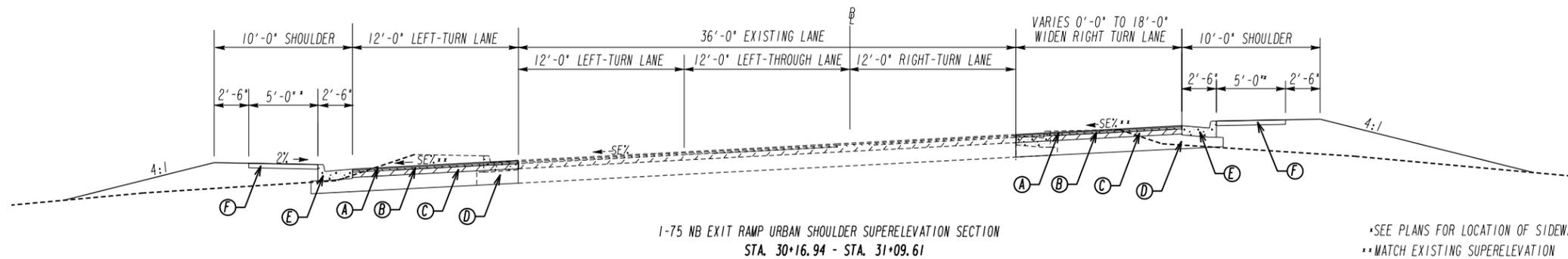
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REVISION DATES	

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE:
CONCEPT LAYOUT

DRAWING No.



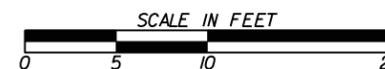
- Ⓐ RECYCLED ASPHALTIC 9.5mm SUPERPAVE, TYPE 1, GP 1 OR BL 1, INCL BM & HL (140lbs/sy)
- Ⓑ RECYCLED ASPHALTIC 19mm SUPERPAVE, GP 1 OR 2, INCL BM & HL (220lbs/sy)
- Ⓒ RECYCLED ASPHALTIC 25mm SUPERPAVE, GP 1 OR 2, INCL BM & HL (880lbs/sy)
- Ⓓ GRADED AGGREGATE BASE COURSE 12 IN INCL MATL
- Ⓔ CONCRETE CURB & GUTTER / 8"x30" TYPE 2
- Ⓕ CONCRETE SIDEWALK, 4 IN.

PLANS PREPARED AND SUBMITTED BY:

AEI

AMERICAN ENGINEERS, INC.
DESIGN CONSULTANT

PROFESSIONAL ENGINEERING



REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

OFFICE:

TYPICAL SECTIONS

US 19/41/SR 3 OLD DIXIE

DRAWING No.
05-01

STATE HIGHWAY AGENCY

DATE : 04/04/2012

PAGE : 1

JOB ESTIMATE REPORT

JOB NUMBER : 0009723 SPEC YEAR: 01
 DESCRIPTION: OLD DIXIE ROAD @ I-75 NB EXIT RAMP

COST GROUPS FOR JOB 0009723

COST GROUP	DESCRIPTION	QUANTITY	PRICE	AMOUNT	ACTIVE?
ASPH	ASPHALT (TN)				Y
BASE	BASE/AGGREGATE (TN)				Y
EROC	EROSION CONTROL (SY)				Y
ERTHCY	EARTHWORK (CY)				Y
DRNGEA	DRAINAGE (EA)				Y
CURB	CURB & GUTTER (LF)				Y
PFPL	PREFORMED PLASTIC STRIPES				Y
RPMK	RAISED PAVEMENT MARKING				Y
THSL	THERMO PLASTIC LINEAR PAVEMENT MARKING				Y
ACTIVE COST GROUP TOTAL				0.00	
INFLATED COST GROUP TOTAL				0.00	

ITEMS FOR JOB 0009723

LINE	ITEM	ALT	UNITS	DESCRIPTION	QUANTITY	PRICE	AMOUNT
0005	150-1000		LS	TRAFFIC CONTROL - PI 0009723	1.000	15000.00	15000.00
0010	201-1500		LS	CLEARING & GRUBBING - PI 0009723	1.000	15000.00	15000.00
0015	210-0100		LS	GRADING COMPLETE - PI 0009723	1.000	25000.00	25000.00
0020	310-1101		TN	GR AGGR BASE CRS, INCL MATL	800.000	22.27	17817.21
0025	402-3121		TN	RECYL AC 25MM SP,GP1/2,BM&HL	300.000	73.97	22193.23
0030	402-3130		TN	RECYL AC 12.5MM SP,GP2,BM&HL	100.000	84.90	8490.10
0035	402-3190		TN	RECYL AC 19 MM SP,GP 1 OR 2 ,INC BM&HL	175.000	81.32	14231.08
0036	413-1000		GL	BITUM TACK COAT	250.000	3.19	798.79
0040	441-0104		SY	CONC SIDEWALK, 4 IN	125.000	56.83	7104.70
0045	441-0204		SY	PLAIN CONC DITCH PAVING, 4 IN	100.000	35.24	3524.41
0050	441-0303		EA	CONC SPILLWAY, TP 3	2.000	2075.34	4150.69
0055	441-5002		LF	CONC HEADER CURB, 6", TP 2	100.000	16.00	1600.12
0060	441-6022		LF	CONC CURB & GUTTER, 6"X30"TP2	430.000	13.93	5992.70
0065	647-1000		LS	TRAF SIGNAL INSTALLATION NO - PI 0009723	1.000	25000.00	25000.00
0070	611-3000		EA	RECONSTR CATCH BASIN, GROUP 1	1.000	1978.23	1978.23
0075	611-5551		EA	RESET SIGN	4.000	785.00	3140.00
0080	653-0110		EA	THERM PVMT MARK, ARROW, TP 1	3.000	71.15	213.46
0085	653-0120		EA	THERM PVMT MARK, ARROW, TP 2	8.000	73.20	585.63
0090	653-1501		LF	THERMO SOLID TRAF ST 5 IN, WHI	700.000	0.71	503.38
0095	653-1704		LF	THERM SOLID TRAF STRIPE,24",WH	50.000	4.67	233.93
0100	653-1804		LF	THERM SOLID TRAF STRIPE, 8",WH	400.000	1.89	756.75
0104	654-1003		EA	RAISED PVMT MARKERS TP 3	16.000	3.79	60.65
0105	657-1244		LF	PRF PL SD PVMT MKG,24",WH,TPPB	40.000	21.43	857.21
0110	163-0232		AC	TEMPORARY GRASSING	0.250	62.50	15.63

STATE HIGHWAY AGENCY

DATE : 04/04/2012

PAGE : 2

JOB ESTIMATE REPORT

0115	163-0240	TN	MULCH	5.000	285.89	1429.47
0120	163-0300	EA	CONSTRUCTION EXIT	2.000	1339.47	2678.95
0125	163-0541	EA	CONSTR & REM ROCK FILTER DAMS	15.000	215.79	3236.96
0130	165-0030	LF	MAINT OF TEMP SILT FENCE, TP C	500.000	0.77	389.55
0135	165-0101	EA	MAINT OF CONST EXIT	2.000	413.87	827.75
0140	165-0110	EA	MAINT OF ROCK FILTER DAM	15.000	97.14	1457.24
0145	167-1500	MO	WATER QUALITY INSPECTIONS	6.000	384.05	2304.32
0150	171-0030	LF	TEMPORARY SILT FENCE, TYPE C	1000.000	2.79	2793.26
0155	700-6910	AC	PERMANENT GRASSING	0.500	333.40	166.70
0160	700-7000	TN	AGRICULTURAL LIME	1.000	26.01	26.02
0165	700-8000	TN	FERTILIZER MIXED GRADE	0.100	451.72	45.17
0170	700-8100	LB	FERTILIZER NITROGEN CONTENT	100.000	2.17	217.68
0175	710-9000	SY	PERM SOIL REINFORCING MAT	250.000	3.47	869.68

ITEM TOTAL

190690.64

INFLATED ITEM TOTAL

190690.64

TOTALS FOR JOB 0009723

ESTIMATED COST:

190690.65

CONTINGENCY PERCENT (0.0):

0.00

ESTIMATED TOTAL:

190690.65

PROJ. NO.

[Redacted]

CALL NO.

9/29/2009

P.I. NO.

0009723

DATE

2/14/2011

INDEX (TYPE)	DATE	INDEX
REG. UNLEADED	Feb-12	\$ 3.481
DIESEL		\$ 3.796
LIQUID AC		\$ 604.00

Link to Fuel and AC Index:

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

LIQUID AC ADJUSTMENTS

$PA = [((APM - APL) / APL)] \times TMT \times APL$

Asphalt

Price Adjustment (PA)				10419	\$	10,419.00
Monthly Asphalt Cement Price month placed (APM)	Max. Cap	60%	\$	966.40		
Monthly Asphalt Cement Price month project let (APL)			\$	604.00		
Total Monthly Tonnage of asphalt cement (TMT)				28.75		

ASPHALT	Tons	%AC	AC ton
Leveling	0	5.0%	0
12.5 OGFC	0	5.0%	0
12.5 mm	100	5.0%	5
9.5 mm SP	0	5.0%	0
25 mm SP	300	5.0%	15
19 mm SP	175	5.0%	8.75
	575		28.75

BITUMINOUS TACK COAT

Price Adjustment (PA)				\$	389.14	\$	389.14
Monthly Asphalt Cement Price month placed (APM)	Max. Cap	60%	\$	966.40			
Monthly Asphalt Cement Price month project let (APL)			\$	604.00			
Total Monthly Tonnage of asphalt cement (TMT)							1.07377523

Bitum Tack

Gals	gals/ton	tons
250	232.8234	1.07377523

PROJ. NO.

[Redacted]

CALL NO.

9/29/2009

P.I. NO.

0009723

DATE

2/14/2011

BITUMINOUS TACK COAT (surface treatment)

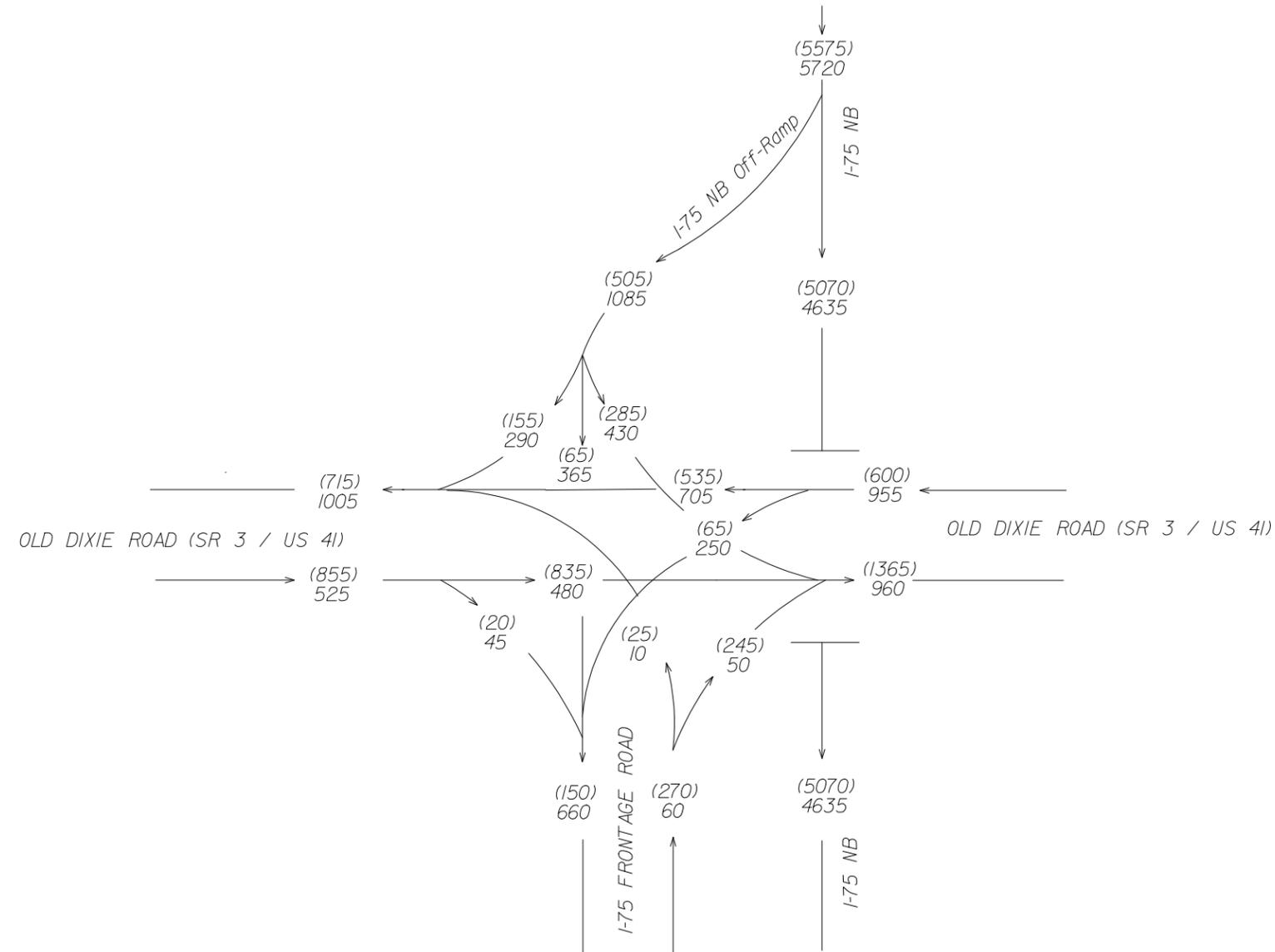
Price Adjustment (PA)				389.1361435		\$	389.14
Monthly Asphalt Cement Price month placed (APM)		Max. Cap	60%	\$	966.40		
Monthly Asphalt Cement Price month project let (APL)				\$	604.00		
Total Monthly Tonnage of asphalt cement (TMT)					1.07377523		

Bitum Tack	SY	Gals/SY	Gals	gals/ton	tons
Single Surf. Trmt.	1250	0.20	250	232.8234	1.07377523
Double Surf.Trmt.		0.44	0	232.8234	0
Triple Surf. Trmt		0.71	0	232.8234	0
					1.07377523

TOTAL LIQUID AC ADJUSTMENT						\$	11,197.27
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FIGURE 1

EXISTING YEAR (2012) - DESIGN HOURLY VOLUMES (DHV)



TRUCK % - I-75 NB OFF-RAMP

AM PEAK
T = 14.3%
S.U. = 13.6%
COMB. = 0.7%

PM PEAK
T = 15.8%
S.U. = 13.3%
COMB. = 2.5%

TRUCK % - OLD DIXIE RD.

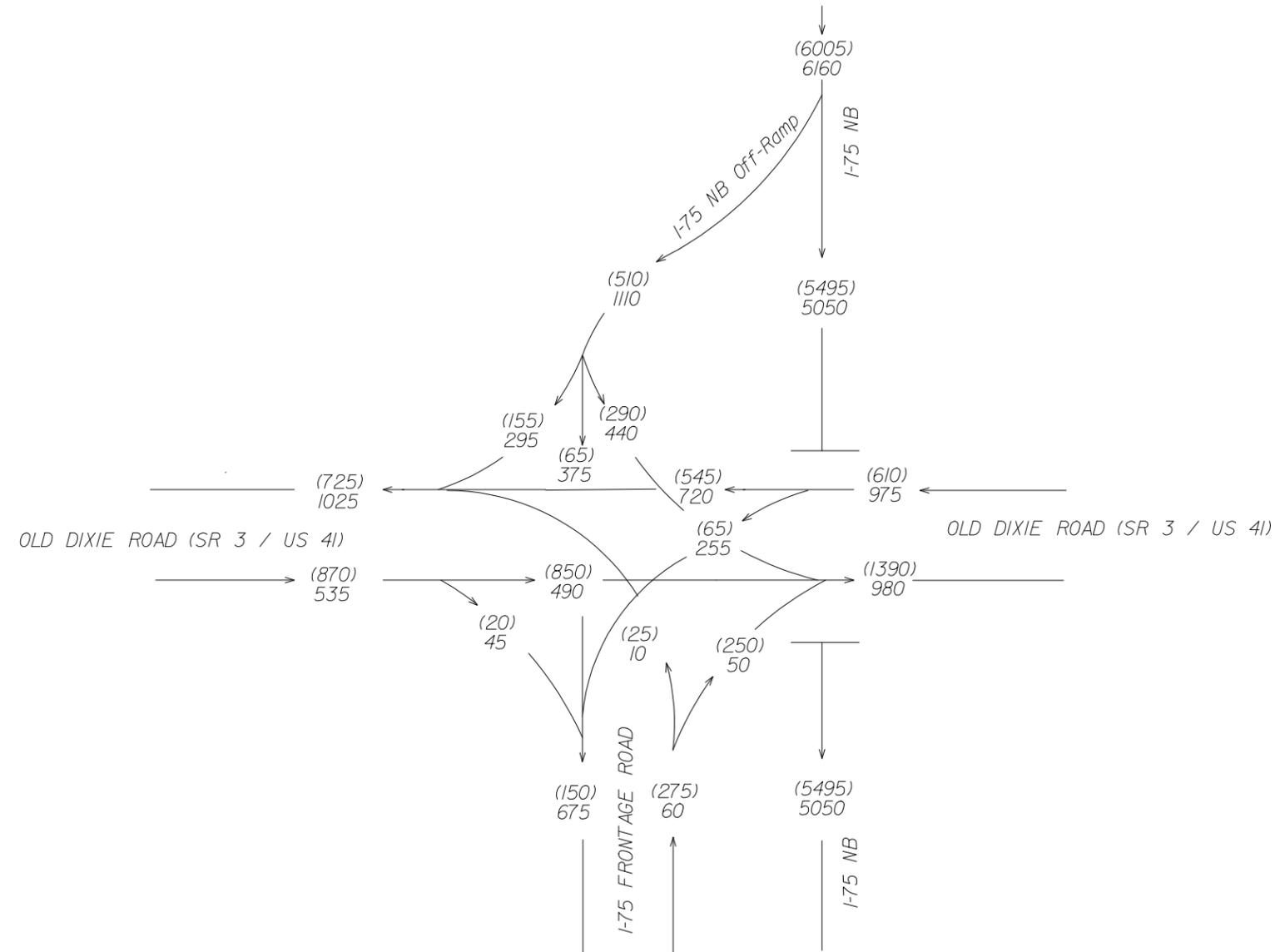
AM PEAK
T = 9.2%
S.U. = 6.4%
COMB. = 2.8%

PM PEAK
T = 8.6%
S.U. = 5.8%
COMB. = 2.8%

P.I. # 0009723
TASK ORDER #: 1
CLAYTON COUNTY
OLD DIXIE RD. (SR 3/US 41)
AT I-75 NB OFF-RAMP
OPERATIONAL IMPROVEMENTS
2012 AM DHV = 000
2012 PM DHV = (000)

FIGURE 3

NO-BUILD & BUILD OPEN YEAR (2014) - DESIGN HOURLY VOLUMES (DHV)



TRUCK % - I-75 NB OFF-RAMP

AM PEAK
T = 14.3%
S.U.= 13.6%
COMB.= 0.7%

PM PEAK
T = 15.8%
S.U.= 13.3%
COMB.= 2.5%

TRUCK % - OLD DIXIE RD.

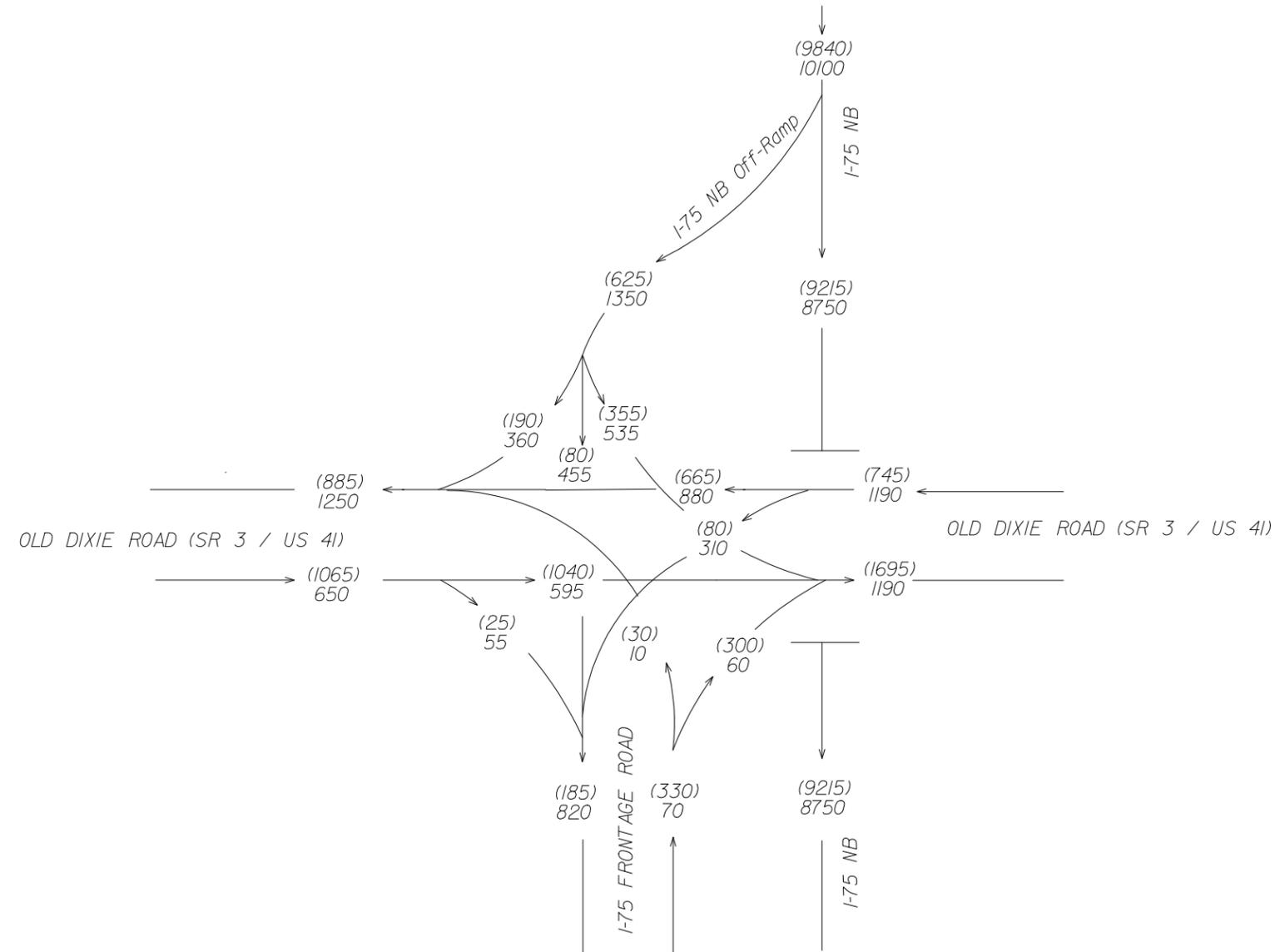
AM PEAK
T = 9.2%
S.U.= 6.4%
COMB.= 2.8%

PM PEAK
T = 8.6%
S.U.= 5.8%
COMB.= 2.8%

P.I. # 0009723
TASK ORDER #: 1
CLAYTON COUNTY
OLD DIXIE RD. (SR 3/US 41)
AT I-75 NB OFF-RAMP
OPERATIONAL IMPROVEMENTS
2014 AM DHV =000
2014 PM DHV =(000)

FIGURE 4

NO-BUILD & BUILD DESIGN YEAR (2034) - DESIGN HOURLY VOLUMES (DHV)



TRUCK % - I-75 NB OFF-RAMP

AM PEAK
T = 14.3%
S.U. = 13.6%
COMB. = 0.7%

PM PEAK
T = 15.8%
S.U. = 13.3%
COMB. = 2.5%

TRUCK % - OLD DIXIE RD.

AM PEAK
T = 9.2%
S.U. = 6.4%
COMB. = 2.8%

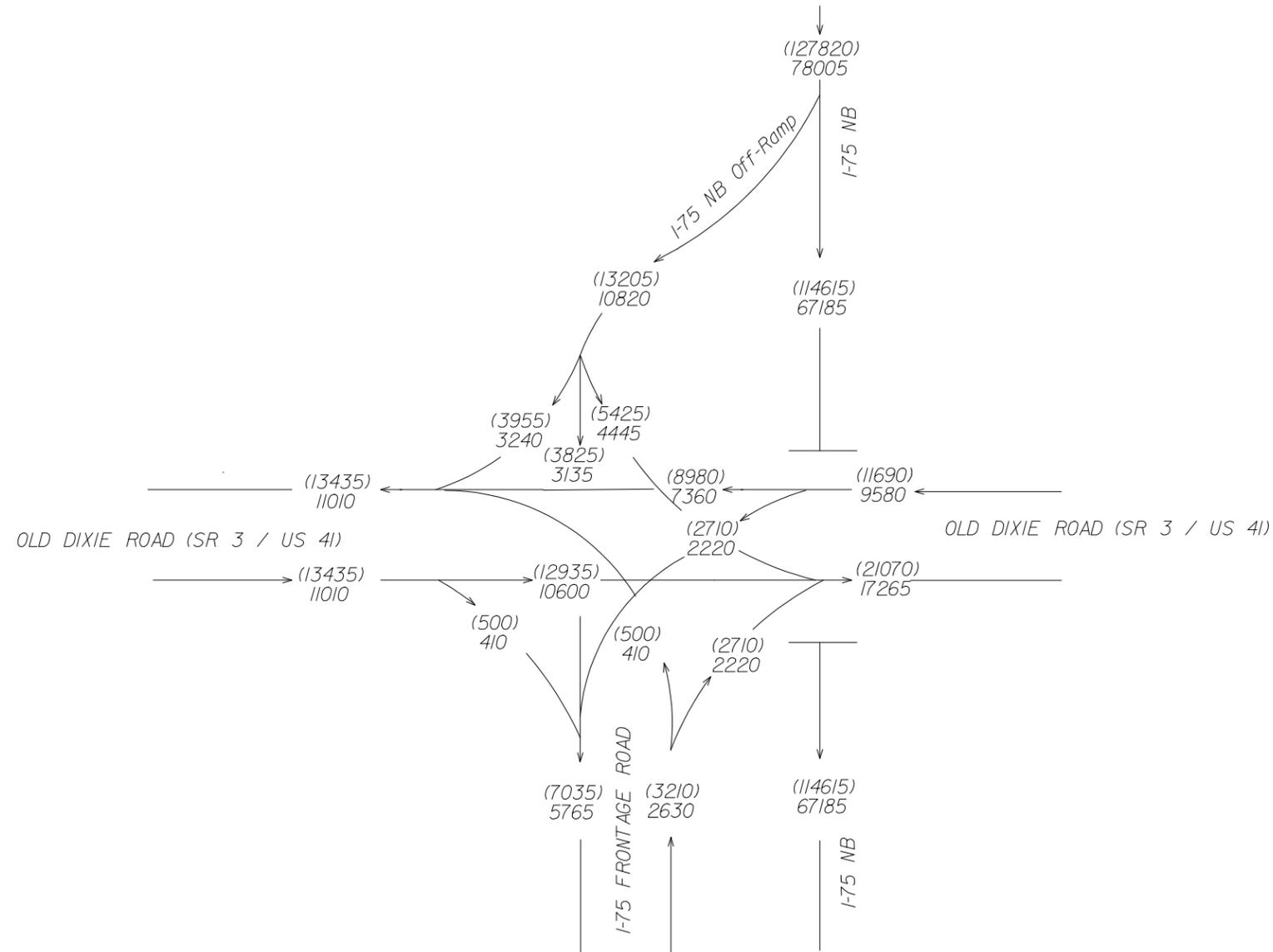
PM PEAK
T = 8.6%
S.U. = 5.8%
COMB. = 2.8%

P.I. # 0009723
TASK ORDER #: 1
CLAYTON COUNTY
OLD DIXIE RD. (SR 3/US 41)
AT I-75 NB OFF-RAMP
OPERATIONAL IMPROVEMENTS

2034 AM DHV = 000
2034 PM DHV = (000)

FIGURE 5

NO-BUILD & BUILD OPEN YEAR (2014) & DESIGN YEAR (2034)
 - AVERAGE DAILY TRAFFIC (ADT)



TRUCK % - I-75 NB OFF-RAMP

24 HRS T = 16.0%
 S.U.= 14.2%
 COMB.= 1.8%

TRUCK % - OLD DIXIE RD.

24 HRS T = 8.8%
 S.U.= 6.3%
 COMB.= 2.5%

P.I. # 0009723
 TASK ORDER #: 1
 CLAYTON COUNTY
 OLD DIXIE RD. (SR 3/US 41)
 AT I-75 NB OFF-RAMP
 OPERATIONAL IMPROVEMENTS

2014 ADT = 000
 2034 ADT = (000)



ARCADIS U.S., Inc.
2410 Paces Ferry Road
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Atlanta
Georgia 30339
Tel 770 431 8666
Fax 770 435 2666

MEMO

To:
Sue Anne H. Decker, P.E.

Copies:
Paul DeNard, GDOT
Doug Tilt, ARCADIS
Prasoon Sinha, ARCADIS

ARCADIS U.S., Inc.

From:
Koushik Arunachalam, P.E.

Date:
January 24, 2012

ARCADIS Project No.:
IS110001.1000

Subject:
Operational improvements at I-75 northbound off-ramp to Old Dixie Road (US 41 / SR 3)
(P.I. 0009723)

The scope of this memorandum is to summarize the results of traffic analysis of operational improvements at the intersection of I-75 northbound (NB) off-ramp and Old Dixie Road (US 41 / SR 3) (P.I. 0009723)

The traffic study was conducted at the intersection of Old Dixie Road (US 41 / SR 3) and I-75 NB off ramp / Frontage Road, located in Clayton County, Georgia. Old Dixie Road (US 41 / SR 3) is a four-lane, divided roadway with a center two-way left-turn lane (TWLTL) and operates at a speed limit of 40 miles per hour (mph) in the vicinity of the study area.

Field Observations:

Field observations were conducted during the weekday peak hours and the findings from these observations are summarized below.

- ❖ AM is the critical peak hour for I-75 NB off ramp approach.
- ❖ Currently, the signal at the I-75 NB off ramp and I-75 Frontage Road operates on split phasing.
- ❖ The heavy left-turn traffic from I-75 NB off ramp to Old Dixie Road was observed during the morning peak hours. Because of this left-turn traffic and short storage length, queues (approximately 500 feet from stop bar) were observed on I-75 NB off-ramp. These queues do block up to point where the one lane off ramp opens up to create the existing turn lanes.

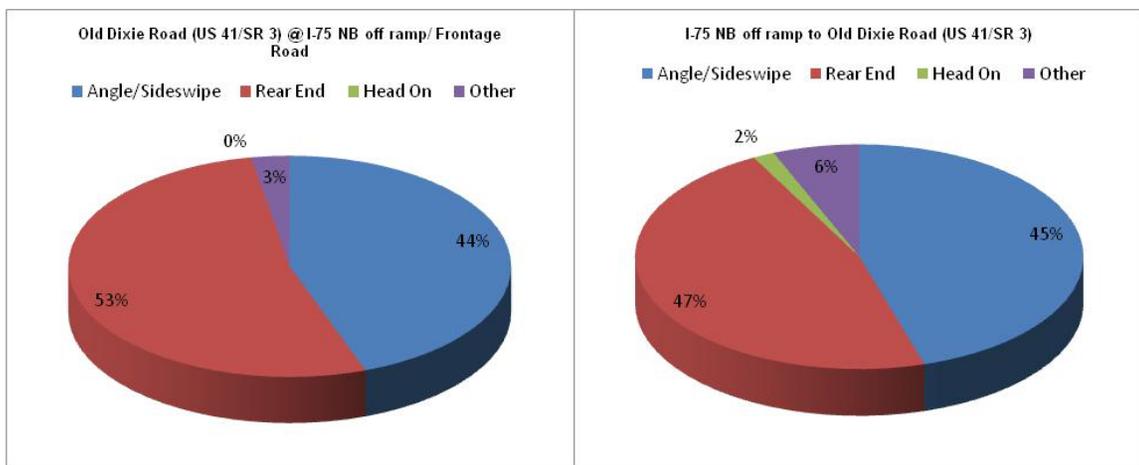
Crash Data Analysis:

The latest three years (2007 through 2009) of crash data for the intersection of Old Dixie Road (US 41 / SR 3) and I-75 NB off amp /Frontage Road and for the I-75 NB off-ramp to Old Dixie Road (US 41 / SR 3) was obtained from Georgia Department of Transportation (Georgia DOT). The collected three years crash data was used to summarize the crashes by crash type and severity. The crash summary by crash type and severity are summarized in the Table 1 and Figure 1.

Table 1: Crash Summary by Crash Type and Severity

Old Dixie Road (US 41/SR 3) @ I-75 NB off ramp/ Frontage Road						
Year	Angle/Sideswipe	Rear End	Head On	Other	Injuries	Fatalities
2007	3	6	0	0	5	0
2008	9	8	0	1	8	0
2009	4	5	0	0	2	0
Average (2007-2009)	5	6	0	0	5	0
I-75 NB off ramp to Old Dixie Road (US 41/SR 3)						
Year	Angle/Sideswipe	Rear End	Head On	Other	Injuries	Fatalities
2007	10	11	0	2	10	1
2008	8	13	1	1	3	0
2009	11	6	0	1	10	0
Average (2007-2009)	10	10	0	1	8	0

Figure 1: Crash Summary by Crash Type



Findings:

- On an average (2007 through 2009), the intersection of Old Dixie Road (US 41 / SR 3) and I-75 NB off-ramp experienced approximately 11 crashes annually which included 5 injuries. The most predominant crash type occurred ever year at this intersection are the rear-end crashes (approx. 53%).
- On an average (2007 through 2009), the I-75 off-ramp to Old Dixie Road experienced 21 crashes annually which included 8 injuries. Rear-end (approx. 47%) and angle/sideswipe (approx. 45%) crashes are the most common crash type at this location.
- One fatality was recorded in 2007 along I-75 NB off ramp.

Traffic Operational Analysis

Existing (2012) Conditions:

The information related to the existing conditions lane geometry, turn lane storage lengths, speed limits, field signal timing and phasing information were used to create a traffic simulation model in Synchro 7. The traffic volumes (pending approval by Georgia DOT Office of Planning) were input to Synchro 7 to perform intersection capacity analysis. Queuing analysis was performed for the existing traffic conditions using Sim Traffic 7. Refer Appendix A for the raw traffic counts. Refer Appendix B for the existing conditions volume diagrams.

Detailed capacity analysis was performed for the morning and afternoon peak hours. The intersection capacity analysis was performed in accordance with the Highway Capacity Manual methodologies. The results of the existing conditions capacity analysis is summarized in Table 2.

Table 2: Existing Year (2012) Conditions Capacity Analysis Summary

Peak Hour	Old Dixie Road (SR 3 / US 41) at I-75 NB Ramp/Frontage Road	
	Intersection Delay (Sec/Veh)	Intersection LOS
AM	40.1	D
PM	31.9	C

Findings:

- As shown in Table 2, the intersection of Old Dixie Road (US 41 / SR 3) and I-75 NB off-ramp currently operates at LOS D or better during the both morning and afternoon peak hours.
- The critical movement at this intersection during the morning peak hours is the westbound left-turn movement from I-75 NB off-ramp to Old Dixie Road. Currently, the model results indicate that the left-turn movement for the westbound approach operates at its capacity (LOS E) during the morning peak hours.
- Based on queuing analysis, the existing average queue length for the morning peak hour traffic on the I-75 NB off-ramp is approximately 390 ft, with 27 percent of the time that this off ramp facing storage blocks due to the short left turn lane. This is the key issue at this location and the scope of operational improvements would be to minimize this impact.

Open Year (2014) Conditions:

In order to evaluate the traffic operations in the future year, it is necessary to estimate the growth rate in the study area. An annual growth rate of 1.0 percent was estimated along Old Dixie Road based on Atlanta Regional Commission’s Plan 2040 model, Georgia DOT STARS data and traffic projections from relevant studies/ projects in the vicinity of the study area. The scope of the build condition was to evaluate the need and impact of additional westbound left- turn lane at the intersection of Dixie Road (US 41 / SR 3) and I-75 NB off-ramp. Existing traffic volumes were grown at the estimated annual growth rate as part of open year (2014) traffic projections. Refer Appendix B for the open year no-build and build conditions volume diagrams.

The results of open year (2014) no-build and build conditions are summarized in Table 3.

Table 3: Open Year (2014) Conditions Capacity Analysis Summary

Peak Hour	Old Dixie Road (SR 3 / US 41) at I-75 NB Ramp/Frontage Road					
	No-Build		Build		Change in Delay	Percent Change in Delay
	Intersection Delay (Sec)	Intersection LOS	Intersection Delay (Sec)	Intersection LOS		
AM	41.2	D	30.2	C	11.0	27%
PM	32.0	C	19.6	B	12.4	39%

Findings:

- The results of open year (2014) traffic analysis indicate that no-build and build conditions would operate at LOS D or better during the both morning and afternoon peak hours.
- By eliminating the split phasing on side streets, reconfiguring the shared through/left lane as through only lane and adding an additional left-turn bay on I-75 NB off-ramp, the intersection would be reduced by approximately 27 percent and 33 percent over the no-build conditions for the both morning and afternoon peak hours respectively.
- As defined in the existing conditions, the operational issue is to minimize this impact of the blocked lane due to short left turn bay length. Based on the results of queuing analysis, the additional left turn lane would reduce the queue length to 230 feet as compared to the no-build conditions (530 feet). The percent time this off ramp would face storage blocks would reduce from 27 percent under no-build to 7% under the build condition.
- Providing a longer left turn lane would eliminate the storage block time, however, the stream at approximately 300 feet from the ramp termini would be the restrictive condition.

Design Year (2034) Conditions:

The design year analysis was based on design year no-build and build conditions volume diagrams (Refer Appendix B). The results of traffic analysis and queuing analysis from the design year conditions were used to recommend storage length for the proposed turn lane.

The results of Design year (2034) no-build and build conditions are summarized in Table 4.

Table 4: Design Year (2034) Conditions Capacity Analysis Summary

Peak Hour	Old Dixie Road (SR 3 / US 41) at I-75 NB Ramp/Frontage Road					
	No-Build		Build		Change in Delay	Percent Change in Delay
	Intersection Delay (Sec)	Intersection LOS	Intersection Delay (Sec)	Intersection LOS		
AM	69.6	E	38.4	D	31.2	45%
PM	39.7	D	20.8	C	18.9	48%

Findings:

- The study intersection would operate at LOS E in the no-build conditions. The proposed additional left turn lane would improve the intersection LOS to D.
- In the build scenario, on an average, the intersection delay would be reduced by approximately 46 percent as compared to the no-build conditions during the both morning and afternoon peak hours.
- Based on the design year (2034) queuing analysis results, the average queue length during the morning peak hours on I-75 NB off-ramp would reduce significantly in the build conditions (370 feet) as compared to the no-build conditions (1445 feet). The percent time this off ramp would face storage blocks would reduce from 42 percent under no-build to 20% under the build condition.

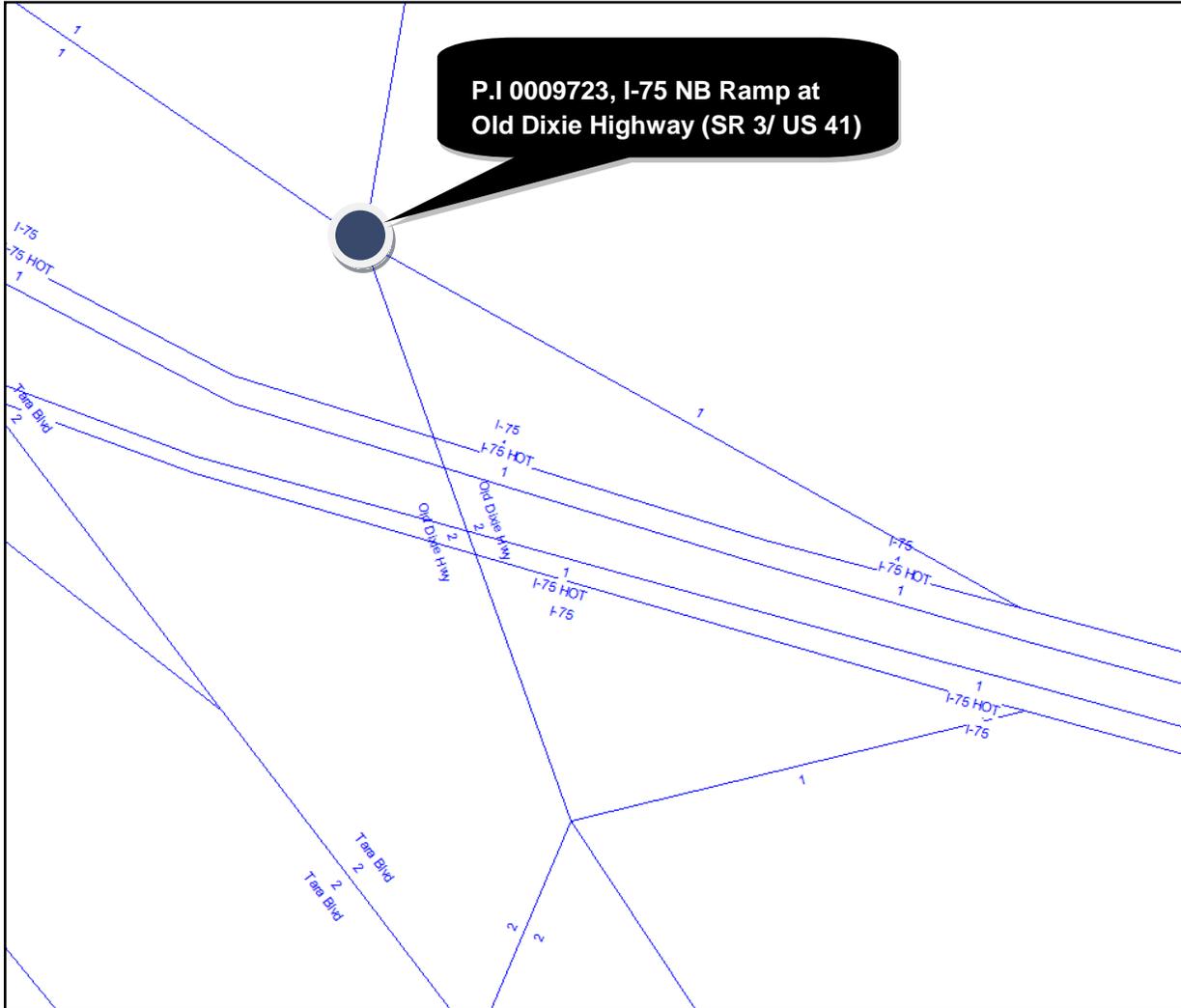
Conclusion and Recommendation:

- The key issue along I-75 NB off ramp under existing conditions and future conditions is related to storage blockage due to the short left turn lane and subsequent queuing.
- With the additional left turn lane, the percent time I-75 NB off ramp would face storage blocks would reduce to 7 percent as compared to 27 percent under no-build condition during the open year. Similarly, the percent time I-75 NB off ramp would face storage blocks would reduce from 42 percent under no-build to 20% under the build condition during the design year.
- The proposed operational improvement would improve the traffic operations during the open year (2014) and design year (2034) as evident with the reduction in intersection delay. Secondary benefits would include elimination of split phasing.
- It is recommended to provide a left turn storage length of approximately 200-250 feet, excluding taper, without impacting the stream located approximately 300 feet from the ramp termini

Conforming Plan Network Schematic:

P.I 0009723, I-75 NB ramp at Old Dixie Highway (SR 3 / US 41) is in the non-attainment area. The conforming plan network schematics from the Atlanta Regional Commission's (ARC) Plan 2040 model, showing the number of through lanes, is shown in Figure x.

Figure x: Conforming Plan Network Schematic





ARCADIS U.S., Inc.
2410 Paces Ferry Road
#400
Atlanta
Georgia 30339
Tel 770 431 8666
Fax 770 435 2666

MEETING REPORT

Subject:
Kick-off meeting for GDOT On-call Operational Improvements, Task Order #1, P.I 0009723

Department:
Strategic Services

ARCADIS Project No.:
IS110001.1000

Place/Date of Meeting:
Georgia DOT TMC / December 19, 2011

Report No.:
1

Minutes by:
Koushik Arunachalam, ARCADIS

Issue Date:
December 19, 2011

Participants:
Sue Anne Decker, GDOT
Paul DeNard, GDOT
Doug Tilt, ARCADIS
Prasoon Sinha, ARCADIS
Mark Wilkinson, American Engineering

Not Present:
Andy Pitman, Edwards-Pitman

Copies:
File

The kickoff meeting for GDOT On-call Operational Improvements, Task Order #1, P.I 0009723 was held on December 19, 2011, at Georgia DOT TMC. Following is a summary of the discussions in the meeting.

- ✓ GDOT and ARCADIS agreed upon collecting the traffic counts during the week of January 09, 2012
- ✓ The open year and design year will be 2014 and 2034 respectively.
- ✓ The concept report will follow the new format. Sue Anne confirmed with Cindy VanDyke that the concept does not have to include need and purpose discussion, instead should have a brief project justification statement. Need and purpose will be needed for the NEPA document.
- ✓ GDOT indicated that the scope of this concept report will not include roundabouts.
- ✓ This project would have to be coordinated with the interchange improvement project at Tara Boulevard at I-75. GDOT PM on this interchange improvement project is Albert Shelby.
- ✓ This project is not a federal full oversight project.
- ✓ GDOT confirmed that an Interchange Modification Report (IMR) will not be necessary for this project.
- ✓ The 1st and 2nd utility submittal will be combined. GDOT would coordinate with Jonathan Walker for utilities coordination.
- ✓ The results of traffic analysis will be presented by ARCADIS to GDOT in the next monthly meeting scheduled for January 24, 2012.
- ✓ Invoicing should be done by phase indicating the percent completed. Additionally, ARCADIS will provide the invoice from the sub-consultants to validate project progress.
- ✓ A recurring status meeting will be held the 4th Tuesday of every month.

Action Items:

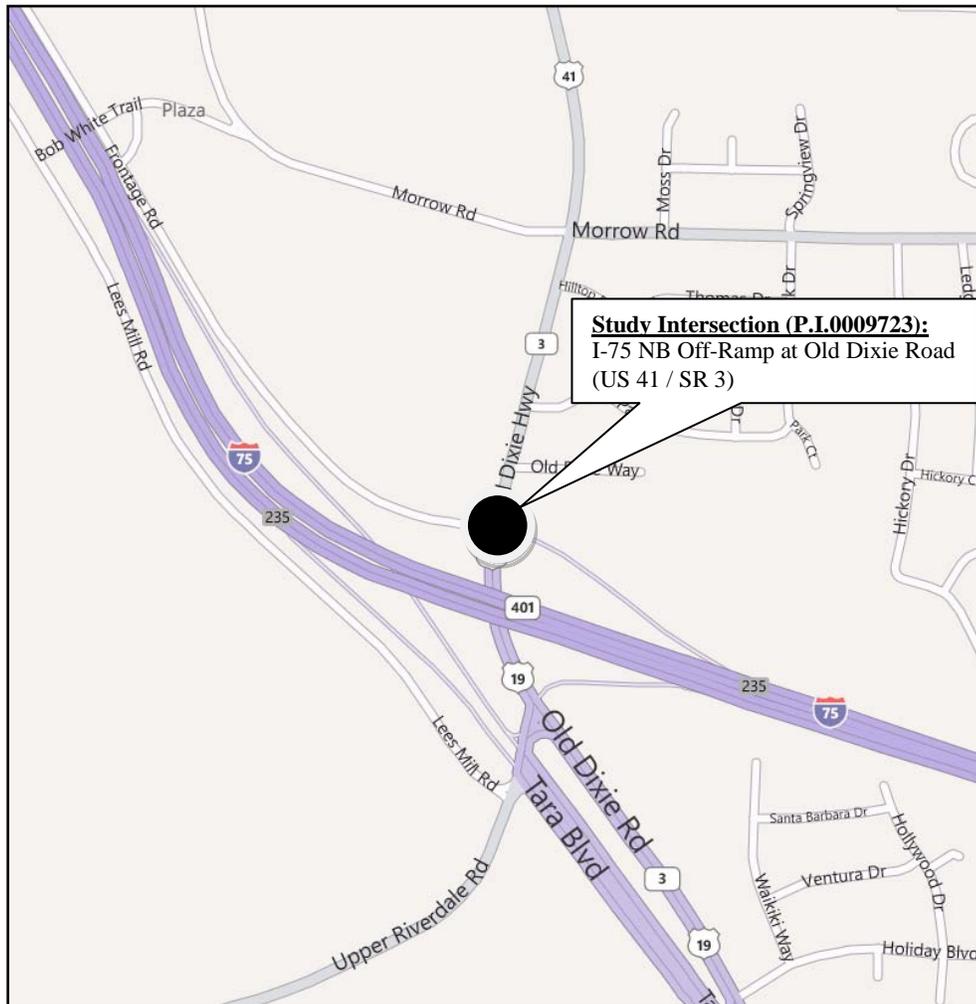
- Sue Anne will provide a copy of the preconstruction schedule to ARCADIS
- Paul DeNard will provide sample concept report from other operational improvement projects.
- All to review need for requesting a waiver for needing the environmental document prior to the PFPR
- ARCADIS will update the SharePoint website to include this task order and provide access to Sue Anne Decker and Mark Wilkinson.
- Mark Wilkinson and Doug Tilt will schedule meeting with Jonathan Walker (District 7 utilities) after concept layout is available.

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

TRAFFIC ENGINEERING REPORT

For the intersection of:

I-75 Northbound (NB) Off-Ramp at Old Dixie Road
(SR 3 / US 41), County of Clayton



Map Source: Bing Maps

Report prepared by:

ARCADIS

2410 Paces Ferry Road, Suite 400

Atlanta, GA 30339

Telephone Number: 770.431.8666

Fax Number: 770.435.2666

Date report prepared: February 14, 2012

Location:

The study intersection is I-75 northbound (NB) off-ramp and Old Dixie Road (US 41 / SR 3), located in Clayton County, Georgia.

Reason for the investigation:

The existing traffic pattern during the morning peak hours at this intersection indicates that approximately 40 percent, 34 percent and 26 percent of the I-75 NB off-ramp traffic turn left, thru and right respectively. Currently the lane geometry on I-75 NB off ramp approach is: one left turn lane, one shared through/left turn lane and one right turn lane. The existing left turn lane has a storage length of approximately 180 feet. The limited storage serving the heavy left turn volume (430 vph) from I-75 NB off-ramp results in queues blocking upstream vehicles. The intersection capacity and queuing analysis indicates that by providing one additional left turn lane the extent of queue blocking would be significantly reduced. With the construction of the second left turn lane, the split phase operation would also be eliminated.

Description of the intersection:

Old Dixie Road (US 41 / SR 3) is a four lane roadway with a speed limit of 40 mph in the vicinity of the study area. I-75 NB off-ramp approach currently operates with one left turn lane, one shared through/left turn lane and one right turn lane.

Traffic volumes in vehicles per day (vpd):

- Existing (2012)
 - Old Dixie Road (US 41 / SR 3) – 21,590 vpd
 - I-75 NB Off-ramp – 10,605 vpd
- Open Year (2014)
 - Old Dixie Road (US 41 / SR 3) – 22,020 vpd
 - I-75 NB off-ramp – 10,820 vpd
- Design Year (2034)
 - Old Dixie Road (US 41 / SR 3) – 26,870 vpd
 - I-75 NB off-ramp – 13,205 vpd
- Percent Daily Trucks
 - Old Dixie Road (US 41 / SR 3) – 8.8%
 - I-75 NB off-ramp – 16%

Existing traffic control:

The intersection of I-75 NB off-ramp and Old Dixie Road (US 41 / SR 3) is currently signalized.

Vehicular speeds:

The posted speed limit on Old Dixie Road (US 41 / SR 3) is 40 mph.

Pedestrian movements:

Pedestrian activities were observed and are expected at this intersection. Sidewalks exist along both sides of Old Dixie Road (US 41 / SR 3). All legs of the intersection except for the inside leg of the diamond interchange currently have cross walks.

Other modes of transportation present (bicycle facilities, transit, bus stops, etc.):

N/A

Parking:

N/A

Adjacent intersections:

There are two signalized intersections adjacent to the study intersection. The intersection of the I-75 southbound on-ramp and Old Dixie Road (US 41 / SR 3) is approximately 1010 feet to the south, and the intersection of Morrow Road and Old Dixie Road (US 41 / SR 3) is approximately 1640 feet to the north.

Warrant analysis:

N/A

Conclusion:

I-75 NB off-ramp at Old Dixie Road (US 41 / SR 3) currently operates as a signalized intersection. The proposed modifications along I-75 NB off-ramp approach to construct one additional left turn lane would minimize the queue blockage time by approximately 20% and 22% during the open year (2014) and design year (2034) respectively as compared to the no-build conditions. The proposed improvements would also eliminate the split phasing operation at this intersection. In summary the proposed improvements will require signal improvements/modifications to accommodate the additional left-turn lane.

Approval Pending

RECOMMENDED BY: _____ **DATE:** _____
District Traffic Engineer

RECOMMENDED BY: _____ **DATE:** _____
State Traffic Safety and Design Engineer

APPROVED BY: _____ **DATE:** _____
Director of Operations