

**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA**

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

**FILE** P.I. # 0006276 **OFFICE** Design Policy & Support  
CSSTP-0006-00(276)  
Gwinnett County  
GDOT District 1 - Gainesville **DATE** February 6, 2013  
Hospital Drive Connector Road – LCI Project

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

**TO** SEE DISTRIBUTION

**SUBJECT** APPROVED REVISED CONCEPT REPORT

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

Attachment

**DISTRIBUTION:**

Bobby Hilliard, Program Control Administrator  
Genetha Rice-Singleton, State Program Delivery Engineer  
Glenn Bowman, State Environmental Administrator  
Cindy VanDyke, State Transportation Planning Administrator  
Kathy Zahul, State Traffic Engineer  
Angela Robinson, Financial Management Administrator  
Lisa Myers, State Project Review Engineer  
Charles "Chuck" Hasty, State Materials Engineer  
Jeff Baker, State Utilities Engineer  
Ken Thompson, Statewide Location Bureau Chief  
Tamaya Huff, State Pedestrian and Bicycle Coordinator  
Bayne Smith, District Engineer  
Brent Cook, District Preconstruction Engineer  
Neil Kantner, District Utilities Engineer  
Charner Rodgers Register, Project Manager  
BOARD MEMBER - 7th Congressional District  
FHWA – attn: Rodney Barry, Georgia Division Administrator

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

Project Type: New Connector  
 GDOT District: 1  
 Federal Route Number: N/A

P.I. Number: 0006276  
 County: Gwinnett  
 State Route Number: N/A

This revised concept report revises the project termini and the typical section. The beginning of the project has been revised to connect to the completed roundabout at the intersection of West Lawrenceville Street/McClure Bridge Road and Irvindale Road. The extension of Ridgeway Road and the roundabout were constructed with local funds and are deleted from this concept. Also, The Atlanta Regional Commission has recommended the 5-ft sidewalk be revised to a 10-ft Multi-Use Path.

**Submitted for approval:**

Adolfo A. Guzman  
 Adolfo A. Guzman, P.E. - Clark Patterson Lee

11/19/2012  
 DATE

Massi M. Muscato  
 City of Duluth

11/19/2012  
 DATE

Manuel P. ...  
 State Program Delivery Engineer

12/7/2012  
 DATE

Manuel ...  
 GDOT Project Manager

12/2/2012  
 DATE

**Recommendation for approval:**

\* Glenn Bowman  
 State Environmental Administrator

10/23/2012  
 DATE

\* Kathy Zahul  
 State Traffic Engineer

10/12/2012  
 DATE

N/A  
 State Bridge Design Engineer

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).

\* Cindy VanDyke  
 State Transportation Planning Administrator

10/12/2012  
 DATE

\* Recommendations on file - MOA  
 \* Originally submitted on 10/1/2012

## PLANNING, APPROVED CONCEPT, & BACKGROUND DATA

**Project Justification Statement:** The proposed project would construct on new location, an east-west connector between the just built roundabout at McClure Bridge Road/West Lawrenceville Road/Irwindale Road and SR 120/Abbotts Bridge Road at the proposed new entrance to Duluth High School.

The need for the proposed project is to improved traffic operation by developing a grid system of streets within the City center that will improve traffic congestion, pedestrian access to downtown and enhance connectivity. This project, coupled with the other local projects within the city, will also provide an expedient, direct pedestrian link from the neighborhoods into the city center including access to Duluth High and Middle Schools, the Town Green, Taylor Park, City Hall and Duluth Police Dept. The project is included in the State Transportation Improvement Program (FY 2016) of the adopted Atlanta Regional Transportation Plans project Number GW-AR242

**Description of the approved concept:** This project will extend Ridgeway Road north on new location to the proposed Roundabout at the intersection of McClure Bridge Road and Lawrenceville Road. The project will then continue on new location as an east-west connector between the McClure Bridge Road and West Lawrenceville Road intersection and SR 120/Abbotts Bridge Road at the proposed new entrance to Duluth High School.

**PDP Classification:**      Major                                      Minor

**Federal Oversight:**      Full Oversight      Exempt      State Funded      Other

**Projected Traffic as shown in the approved Concept Report: ADT**

Hospital Connector                     Open Year (2010): 9,500                     Design Year (2030): 14,120

**Updated Traffic: ADT**

Hospital Connector:                     Open Year (2016): 1,645                     Design Year (2036): 2,005  
 SR 120/Abbotts Bridge Road: Open Year (2016): 6,205                     Design Year (2036): 7,565

**Functional Classification (Mainline):** Urban Collector Street

**VE Study anticipated:**      No                      Yes                      Completed – Date:

## PROPOSED REVISIONS

Approved Features:	Proposed Features:
The approved project concept would extend Ridgeway Road north on new location to the proposed Roundabout at the intersection of W. Lawrenceville/McClure Bridge Road/Irwindale Road and construct a the new Hospital Connector from the Roundabout to SR 120/Abbotts Bridge	The proposed revised concept will construct the new Hospital Connector from the Roundabout at the intersection of West Lawrenceville/McClure Bridge Road/Irwindale Road to SR 120/Abbotts Bridge Road at the entrance to Duluth High School.

<p>Road at proposed new entrance to Duluth High School.</p> <p>The original Hospital Connector typical section would be one twelve-foot wide travel lane in each direction divided by a twelve-foot raised median with curb and gutter and sidewalk on both sides.</p>	<p>The proposed revise Hospital Connector typical section will be one twelve-foot wide travel lane in each direction divided by a twelve-foot raised median with curb and gutter and a ten foot Multi-Use path on both sides.</p>
<p><b>Reason(s) for change:</b> Previously, the southern project terminus was at the end of the existing Ridgeway Road. The City has constructed the roundabout and reevaluated the need of the Ridgeway extension project. The revise concept revises the southern termini to the completed roundabout project and the typical section was revised from a 5 foot sidewalk to a Multi-Use Path. The Multi Use Path was recommended by the Atlanta Regional Commission.</p>	

## ENVIRONMENTAL

### Air Quality:

Is the project located in a PM 2.5 Non-attainment area?  
Is the project located in an Ozone Non-attainment area?

No  
 No

Yes  
 Yes

This project is located in a Non-attainment area. As shown in the attached figure, the ARC Plan 2040 conforming model shows one lane in each direction between McClure Bridge Road/West Lawrenceville Road/Irwindale Road and SR 120/Abbotts Bridge Road. This matches the proposed project concept. Plan 2040 shows 2013 as the year the project will be open to traffic. This concept revision does not affect the air quality model from the approved concept report.

Updated air and Type I noise studies are anticipated due to new traffic studies.

**Potential environmental impacts of proposed revision:** This concept revision is required to comply with the NEPA document. Ecology history and archeology studies will required updates for the revised project concept, and have already been surveyed. No additional impacts are expected.

**Have proposed revisions been reviewed by environmental staff?**

No

Yes

**Environmental responsibilities (Studies/Documents/Permits):** The Consultant is responsible for the NEPA documentation and Special Studies.

### Environmental impacts by section:

**NEPA:** changes to the environmental document are anticipated due to the proposed project change.

**Ecology:** Additional stream and wetland impacts are anticipated due to the proposed project change. A stream buffer variance is anticipated. No additional field surveys are required as the proposed changes are within the area that was previously surveyed. Also, since the proposed project is a new location project, potential stream impacts will require coordination under Fish and Wildlife Coordination Act (FWC). The proposed impacts would likely be permitted under USACE Nationwide Permit 23. No impacts to protected species are anticipated.

**Archeology:** Previous surveys did not identify any archaeological resources within the project APE. No additional impacts to archaeological resources are anticipated due to the project change.

**History:** No additional impacts to historic resources are anticipated due to the project change.

**Air & Noise:** Updated noise and air studies are anticipated due to new traffic studies.

**Public Involvement:** No additional public involvement is required due to the project change.

## PROJECT COST & ADDITIONAL INFORMATION

Updated Cost Estimate		Date of Estimate
Base Construction Cost:	\$ 819,929.18	9/26/2012
Engineering and Inspection:	\$ 40,996.46	9/26/2012
Liquid AC Adjustment:	\$ 36,137.19	9/26/2012
<b>Total Construction Cost:</b>	<b>\$ 897,062.83</b>	
Right-of-Way:	\$ 1,993,000.00	7/3/2012
Utilities (reimbursable costs):	\$ 0.00	9/25/2012
Environmental Mitigation:	\$ 106,126.50	7/11/2012
<b>TOTAL PROJECT COST:</b>	<b>2,996,189.33</b>	

**Recommendation:** Recommend that the proposed revision to the concept be approved for implementation.

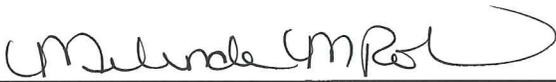
**Comments:**

**Attachments:**

1. Sketch Map
2. Project Layout
3. Cost Estimate(s)
4. Traffic Diagrams
5. Typical sections
6. Conforming plan's network schematics showing thru lanes (required for projects in non-attainment areas only)
7. Traffic Study Report

**APPROVALS**

Concur:   
Director of Engineering

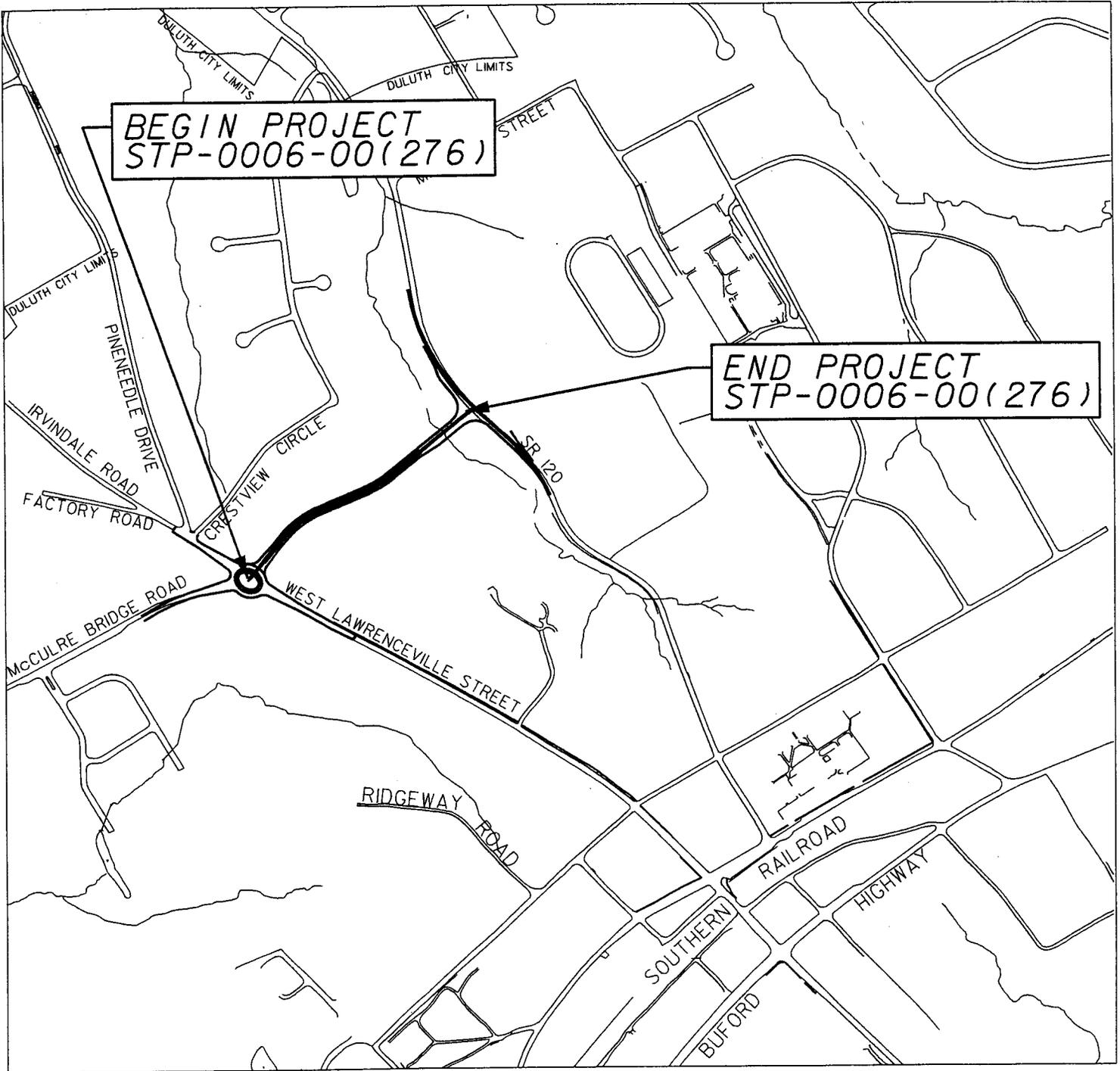
Approve:   
for Division Administrator, FHWA

1/22/13  
Date

Approve:   
Chief Engineer

2/4/13  
Date

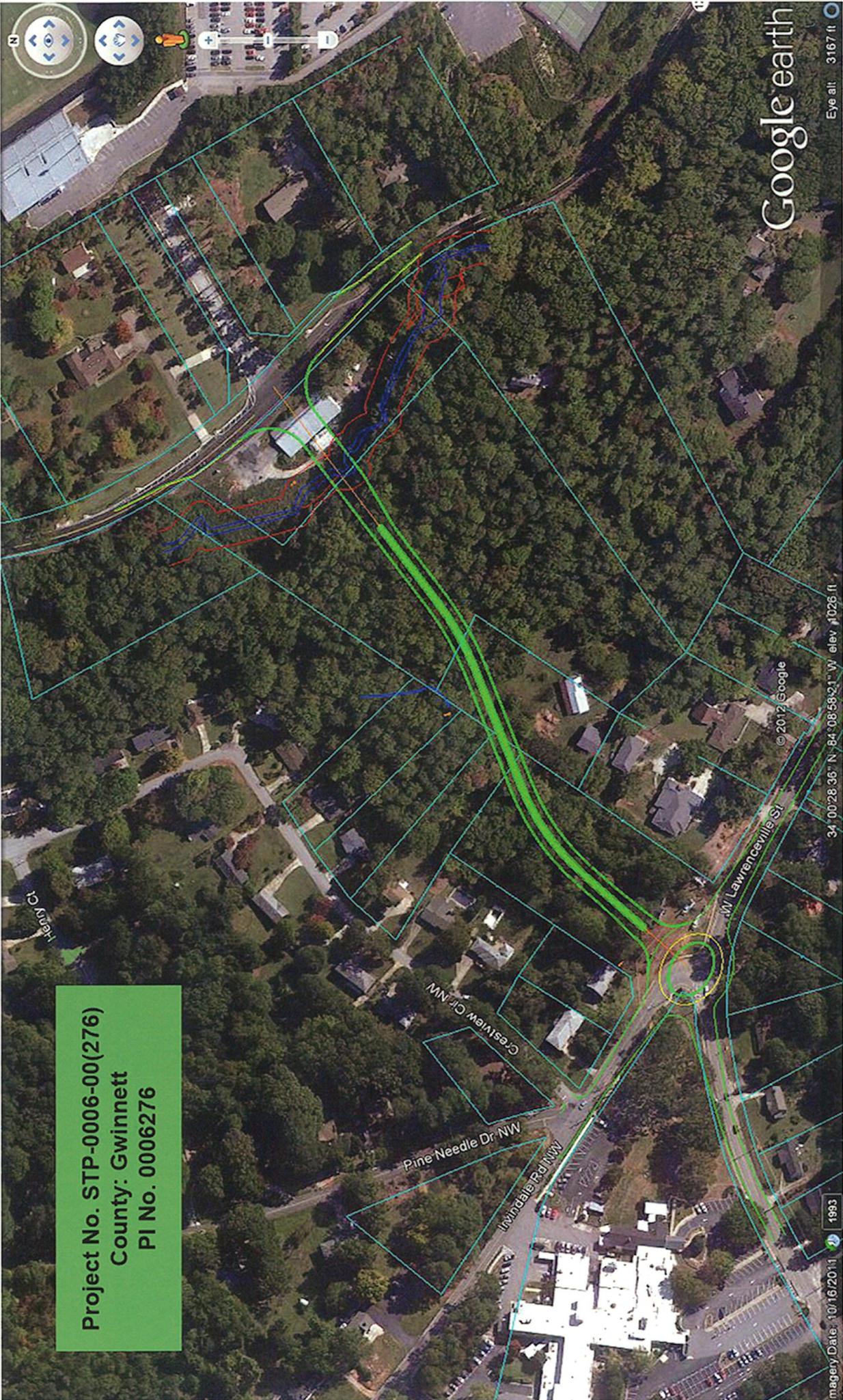
# LOCATION SKETCH



PROJECT NO: STP-0006-00(276)

COUNTY: GWINNETT

PI: 0006276



Project No. STP-0006-00(276)  
County: Gwinnett  
PI No. 0006276



Google earth

Eye alt. 3167 ft

© 2012 Google  
34°00'28.36" N 84°08'59.21" W elev. 1026 ft

imagery Date: 10/16/2011 1993

Henry Ct

Pine Needle Dr NW

Inwindale Rd NW

Crestview Ct NW

W Lawrenceville St

JOB ESTIMATE REPORT

JOB NUMBER : 9512  
DESCRIPTION: HOSPITAL CONNECTOR

SPEC YEAR: 01

ITEMS FOR JOB 9512

LINE	ITEM	ALT	UNITS	DESCRIPTION	QUANTITY	PRICE	AMOUNT
0005	150-1000		LS	TRAFFIC CONTROL - HOSPITAL CONNECTOR	1.000	30000.00	30000.00
0010	201-1500		LS	CLEARING & GRUBBING - HOSPITAL CONNECTOR	1.000	30000.00	30000.00
0015	205-0001		CY	UNCLASS EXCAV	22910.000	4.66	106947.77
0020	206-0002		CY	BORROW EXCAV, INCL MATL	7475.000	3.86	28861.87
0025	207-0203		CY	FOUND BK FILL MATL, TP II	120.000	36.10	4332.63
0030	310-1101		TN	GR AGGR BASE CRS, INCL MATL	3796.000	17.92	68052.68
0035	318-3000		TN	AGGR SURF CRS	500.000	15.81	7906.65
0040	402-3121		TN	RECYL AC 25MM SP, GP1/2, BM&HL	1084.000	70.74	76689.22
0045	402-3130		TN	RECYL AC 12.5MM SP, GP2, BM&HL	406.000	74.53	30261.58
0050	402-3190		TN	RECYL AC 19 MM SP, GP 1 OR 2 , INC BM&HL	542.000	77.05	41763.73
0055	413-1000		GL	BITUM TACK COAT	690.000	3.10	2140.18
0060	441-0104		SY	CONC SIDEWALK, 4 IN	2678.000	30.91	82782.90
0065	441-0754		SY	CONC MEDIAN, 7 1/2 IN	36.000	52.89	1904.35
0070	441-6022		LF	CONC CURB & GUTTER, 6"X30"TP2	2445.000	14.90	36430.55
0075	441-6740		LF	CONC CURB & GUTTER/ 8"X30" TP7	1708.000	15.81	27018.41
0080	634-1200		EA	RIGHT OF WAY MARKERS	32.000	107.99	3455.87
0085	641-1200		LF	GUARDRAIL, TP W	1098.000	17.45	19163.56
0090	641-5001		EA	GUARDRAIL ANCHORAGE, TP 1	2.000	615.00	1230.01
0095	641-5012		EA	GUARDRAIL ANCHORAGE, TP 12	2.000	1827.88	3655.76
0100	163-0232		AC	TEMPORARY GRASSING	3.000	331.88	995.66
0105	163-0300		EA	CONSTRUCTION EXIT	2.000	1167.91	2335.83
0110	163-0327		EA	CNST/REM RIP RAP CKDM, STN P RIPRAP/SN BG	16.000	233.96	3743.49
0115	163-0550		EA	CONS & REM INLET SEDIMENT TRAP	15.000	137.74	2066.19
0120	165-0010		LF	MAINT OF TEMP SILT FENCE, TP A	365.000	0.75	275.13
0125	165-0030		LF	MAINT OF TEMP SILT FENCE, TP C	995.000	0.74	739.40
0130	165-0041		LF	MAINT OF CHECK DAMS - ALL TYPES	240.000	1.93	464.23
0135	165-0101		EA	MAINT OF CONST EXIT	2.000	471.46	942.94
0140	165-0105		EA	MAINT OF INLET SEDIMENT TRAP	15.000	44.31	664.77
0145	167-1000		EA	WATER QUALITY MONITORING AND SAMPLING	2.000	236.18	472.37
0150	167-1500		MO	WATER QUALITY INSPECTIONS	12.000	772.11	9265.34
0155	171-0010		LF	TEMPORARY SILT FENCE, TYPE A	730.000	1.52	1113.94
0160	171-0030		LF	TEMPORARY SILT FENCE, TYPE C	1990.000	2.75	5489.63
0165	716-2000		SY	EROSION CONTROL MATS, SLOPES	6210.000	0.87	5460.76
0170	636-1020		SF	HWY SGN, TP1MAT, REFL SH TP3	42.000	14.41	605.59
0175	636-1033		SF	HWY SIGNS, TP1MAT, REFL SH TP 9	76.000	18.84	1432.41
0180	636-2070		LF	GALV STEEL POSTS, TP 7	192.000	7.84	1505.87
0185	653-1501		LF	THERMO SOLID TRAF ST 5 IN, WHI	4000.000	0.55	2221.12
0190	653-1502		LF	THERMO SOLID TRAF ST, 5 IN, YEL	2860.000	0.57	1641.13
0195	653-1704		LF	THERM SOLID TRAF STRIPE, 24", WH	72.000	4.86	350.53
0200	653-1804		LF	THERM SOLID TRAF STRIPE, 8", WH	1000.000	1.85	1859.14

Hospital Connector Cost Est.txt  
STATE HIGHWAY AGENCY

DATE : 09/26/2012  
PAGE : 2

JOB ESTIMATE REPORT

ITEM	DESCRIPTION	QTY	UNIT	EST. COST	EST. COST	EST. COST
0205	GLF	653-3501			152.06	
0210	SY	653-6006			504.63	
0215	EA	654-1001			206.64	
0220	EA	654-1003			37.42	
0225	LF	550-1180			40272.50	
0230	LF	550-1360			9616.60	
0235	CY	500-3101			45731.02	
0240	LB	511-1000			10809.70	
0245	EA	550-4218			450.32	
0249	EA	550-4236			1982.32	
0255	EA	573-2006			3240.66	
0260	EA	668-1100			30047.04	
0265	EA	668-2100			1871.77	
0270	TN	163-0240			12899.46	
0275	SY	603-2180			9537.51	
0280	SY	603-7000			1442.24	
0285	AC	700-6910			3088.49	
0290	TN	700-7000			192.63	
0295	TN	700-8000			1285.77	
0300	LB	700-8100			317.20	
-----						
ITEM TOTAL					819929.17	
INFLATED ITEM TOTAL					819929.18	
-----						
TOTALS FOR JOB 9512					819929.18	
ESTIMATED COST:					0.00	
CONTINGENCY PERCENT ( 0.0 ):					819929.18	
ESTIMATED TOTAL:						



STP-0006-00(276)	CALL NO.
0006276	
9/26/2012	

PROJ. NO.  
P.I. NO.  
DATE

**BITUMINOUS TACK COAT (surface treatment)**

Price Adjustment (PA) 0 \$  
 Monthly Asphalt Cement Price month placed (APM) 60% \$ 921.60  
 Monthly Asphalt Cement Price month project let (APL) \$ 576.00  
 Total Monthly Tonnage of asphalt cement (TMT) 0

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

**TOTAL LIQUID AC ADJUSTMENT** \$ **36,137.19**

**PROJECT NO. CSSTP-0006-00(276)**

**P.I. NO. 0006276**

**DATE: November 09, 2012**

<b>BASE CONSTRUCTION COST:</b>	<b>\$819,929.18</b>
<b>ENGINEERING &amp; INSPECTION (5%):</b>	<b>\$40,996.46</b>
<b>CONSTRUCTION CONTINGENCY:</b>	<b>\$0.00</b>
<b>LIQUID AC ADJUSTMENT:</b>	<b>\$36,137.19</b>

<b>TOTAL CONSTRUCTION COST:</b>	<b>\$897,062.83</b>
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<b>RIGHT OF WAY COST:</b>	<b>\$1,993,000.00</b>
<b>UTILITY COST:</b>	<b>\$0.00</b>
<b>ENVIRONMENTAL MITIGATION COST:</b>	<b>\$106,126.50</b>

<b>TOTAL PROJECT COST:</b>	<b>\$2,996,189.33</b>
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**GEORGIA DEPARTMENT OF TRANSPORTATION  
PRELIMINARY ROW COST ESTIMATE SUMMARY**

Date: 7/3/2012 Project: CSSTP-0006-00(276)  
 Revised: County: Gwinnett  
 PI: 6276

Description: Construction of new the Hospital Connector  
 Project Termini: Duluth Roundabout and SR 120

Existing ROW:  
 Required ROW:  
 Parcels: 9

Land and Improvements \_\_\_\_\_ \$0.00  
*Proximity Damage :\$0.00*  
*Consequential Damage :\$0.00*  
*Cost to Cures :\$0.00*  
*Trade Fixtures :\$0.00*  
*Improvements :\$0.00*  
 Valuation Services \_\_\_\_\_ \$1,812,500.00  
 Legal Services \_\_\_\_\_ \$81,075.00  
 Relocation \_\_\_\_\_ \$18,000.00  
 Demolition \_\_\_\_\_ \$0.00  
 Administrative \_\_\_\_\_ \$80,500.00  
 TOTAL ESTIMATED COSTS \_\_\_\_\_ \$1,992,075.00  
**TOTAL ESTIMATED COSTS (ROUNDED) \_\_\_\_\_ \$1,993,000.00**

Preparation Credits	Hours	Signature

Prepared By: \_\_\_\_\_ CG#: \_\_\_\_\_  
 Approved By: *[Signature]* CG#: 286999 9/17/2012

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



**Duluth**  
Capture the Spirit  
of Good Living

September 25, 2012

Ms. Charner Rodgers Register PH.D  
Project Manager  
Georgia Department of Transportation  
Office of Program Delivery  
600 West Peachtree Street, 25<sup>th</sup> Floor.  
Atlanta, Georgia 30308

RE: **Hospital Connector Project - City of Duluth, Gwinnett County**  
**GDOT Project No. STP-0006-00(276) P.I. No. 0006276**  
**Preliminary Utility Cost Estimate**

Dear Charner:

As required by the Department, we are furnishing you with a Preliminary Utility Cost Estimate for each utility with facilities potentially located within the project limits of the above reference project.

FACILITY OWNER	NON-REIMBURSABLE	REIMBURSABLE
Georgia Power Co.	\$0.00	\$0.00
AT&T	\$0.00	\$0.00
Atlanta Gas Light	\$0.00	\$0.00
Gwinnett County Water	\$5,000.00	
Charter Communication	\$0.00	\$0.00
Total Estimated Cost:	\$5,000.00	\$0.00

If you have any questions, please do not hesitate to contact this office.

Sincerely,

Melissa Muscato  
City Engineer

## Adolfo Guzman

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**From:** Njie, Marie [Marie.Njie@jacobs.com]  
**Sent:** Wednesday, July 11, 2012 12:01 PM  
**To:** Adolfo Guzman  
**Cc:** Melissa Muscato  
**Subject:** RE: Duluth Hospital Connector Revised Concept Report Updated Cost Estimate

Hello Adolfo,

See below for the proposed environmental mitigation cost estimates:

Ecology : 1190.9 stream credits - \$99,526.5  
0.24 Wetland credits - \$1800  
History: medium format photography (Summerour House, Anderson House and Van Horn House) – \$4,800

Let me know if there are any other questions. Thanks.

\*\*\*\*\*  
N. Marie Njie, Ph.D. | **JACOBS** | NEPA Specialist, Georgia - Transportation | 770.455.8555 main | 678.333.0378 direct |  
[marie.njie@jacobs.com](mailto:marie.njie@jacobs.com) | [www.jacobs.com](http://www.jacobs.com)

**From:** Adolfo Guzman [<mailto:AGuzman@ClarkPatterson.com>]  
**Sent:** Wednesday, July 11, 2012 10:51 AM  
**To:** Njie, Marie  
**Cc:** Melissa Muscato  
**Subject:** Duluth Hospital Connector Revised Concept Report Updated Cost Estimate

Good Morning Marie,  
Hope you are doing well!

GDOT require that we provide an Environmental Mitigation Cost with the revised concept report. Do you know what will be that cost if any?

Thanks,

Adolfo A. Guzman, P.E.  
Principal  
800.274.9000 ext. 3005



Clark Patterson Lee  
DESIGN PROFESSIONALS

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# Department of Transportation State of Georgia

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## INTERDEPARTMENT CORRESPONDENCE

**FILE** CSSTP-0006-00(276), Gwinnett County                      **OFFICE** Planning  
P.I. # 0006276  
**DATE** April 20, 2012

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

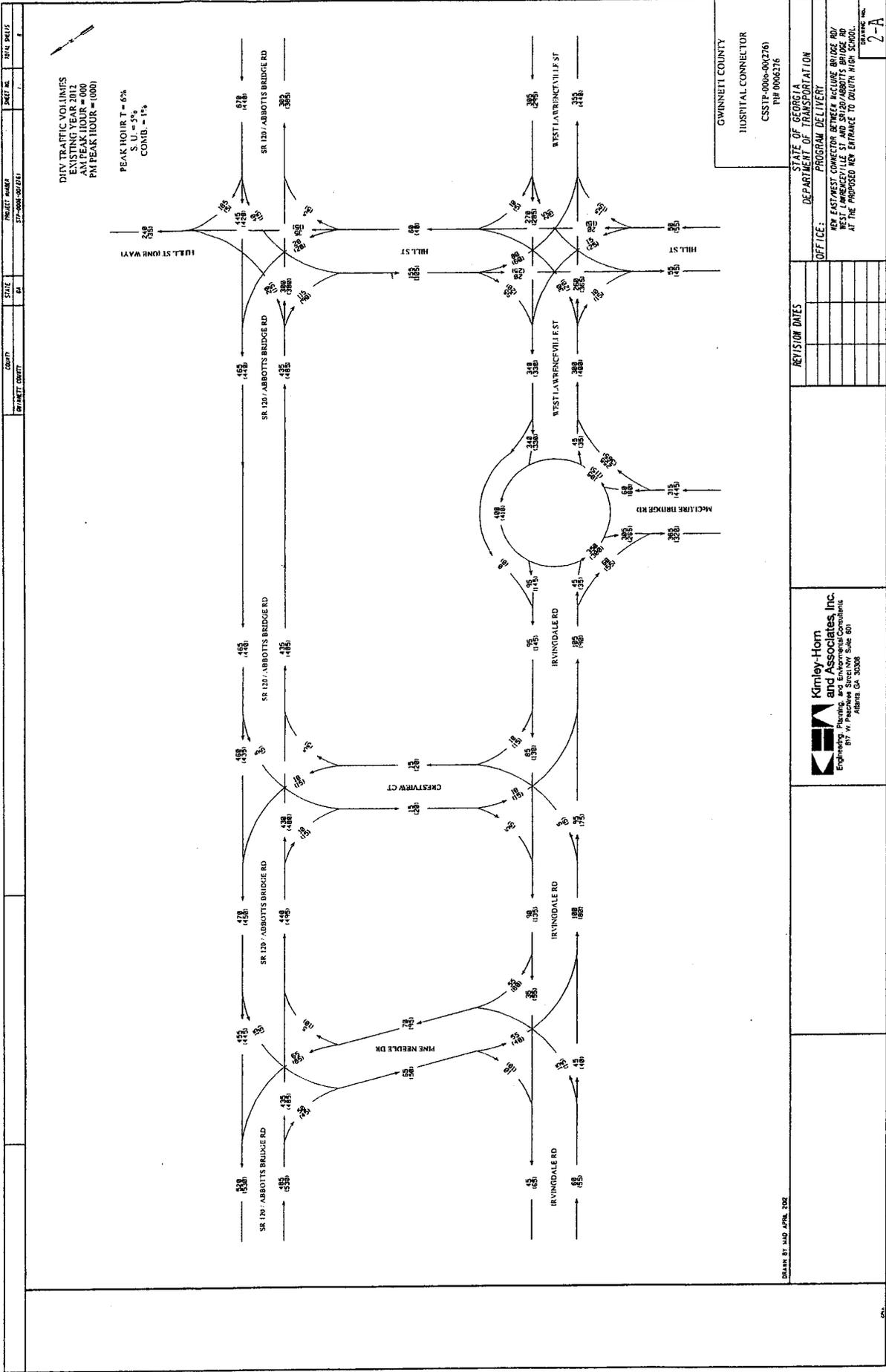
**TO** Bobby Hilliard, P. E., State Program Delivery Engineer  
**Attention:** Charner Rodgers-Register

**SUBJECT** **Design Traffic Review** for NEW EAST/WEST CONNECTOR BETWEEN  
McCLURE BRIDGE RD/ WEST LAWRENCEVILLE ST AND SR  
120/ABBOTTS BRIDGE RD AT THE PROPOSED NEW ENTRANCE TO  
DULUTH HIGH SCHOOL.

We have reviewed the consultant's traffic data for the above project. The Design Traffic is approved.

If you have any questions concerning this information, please contact Rhonda Niles at (404) 631-1924.

CLV/RFN



GWINNETT COUNTY  
 HOSPITAL CONNECTOR  
 CSSTP-0006-00(2/6)  
 TRF 0066276

STATE OF GEORGIA  
 DEPARTMENT OF TRANSPORTATION  
 OFFICE: PROGRAM DELIVERY

REVISION DATES

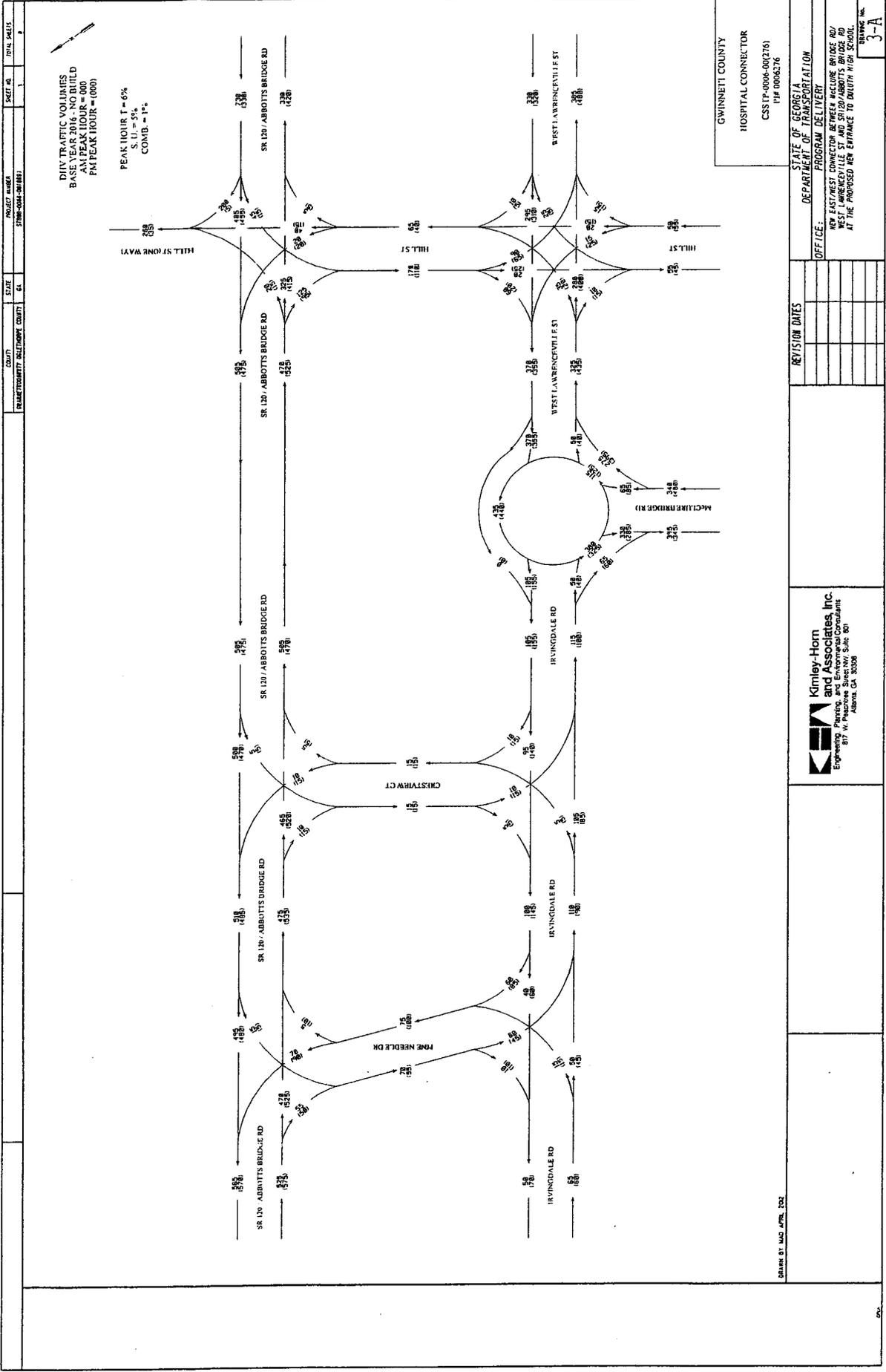
Kimley-Horn  
 and Associates, Inc.  
 Engineers, Planners, and Environmental Consultants  
 817 W. Peachtree Street, NW, Suite 801  
 Atlanta, GA 30308

NEW EAST-WEST CONNECTOR BETWEEN MCCLURE BRIDGE RD/  
 WEST LAWRENCEVILLE ST AND IRVINGDALE RD  
 AT THE PROPOSED NEW ENTRANCE TO DALTON HIGH SCHOOL

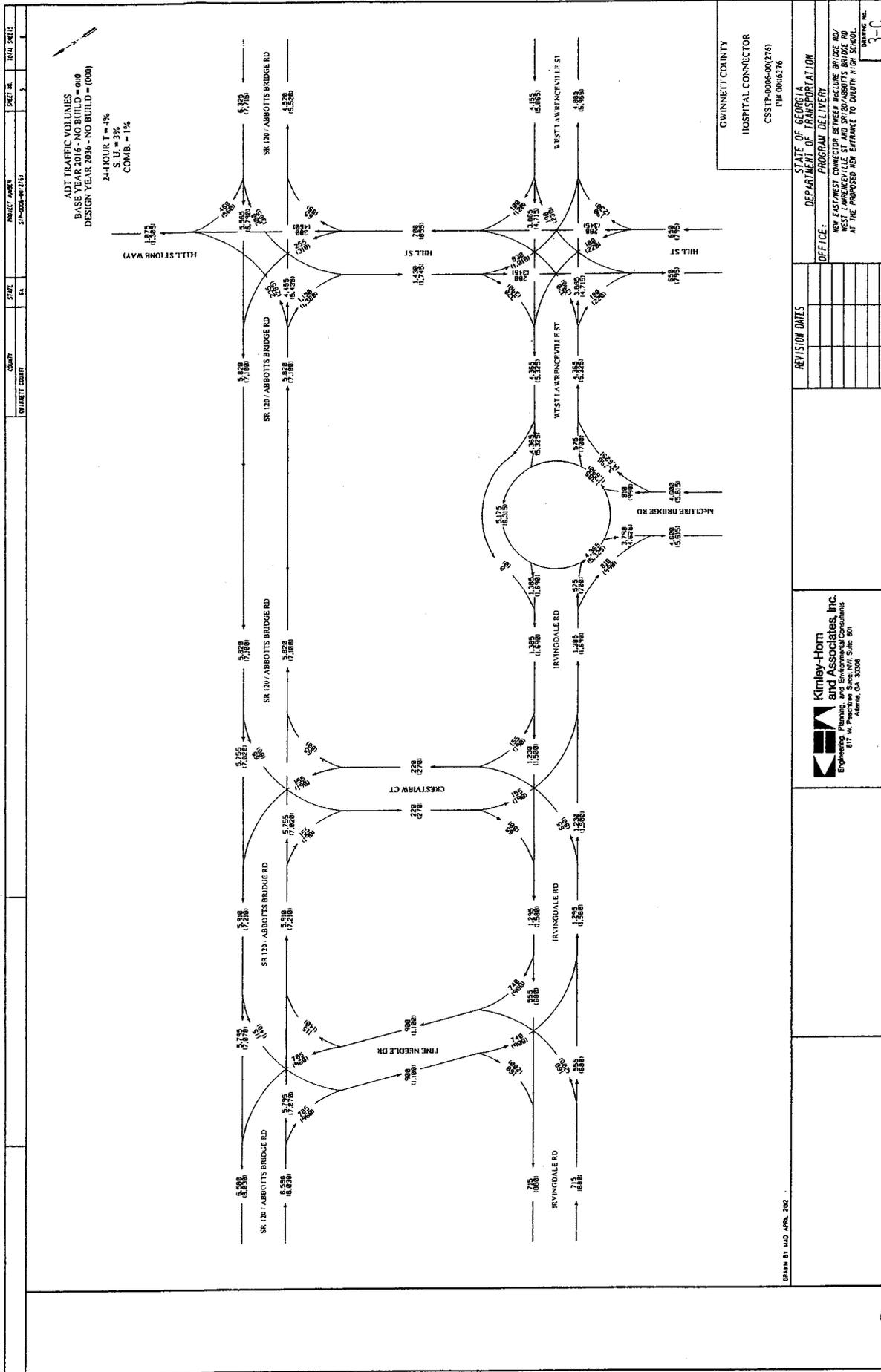
SHEET NO. 2-A

DRAWN BY: JMD DATE: APRIL 2002





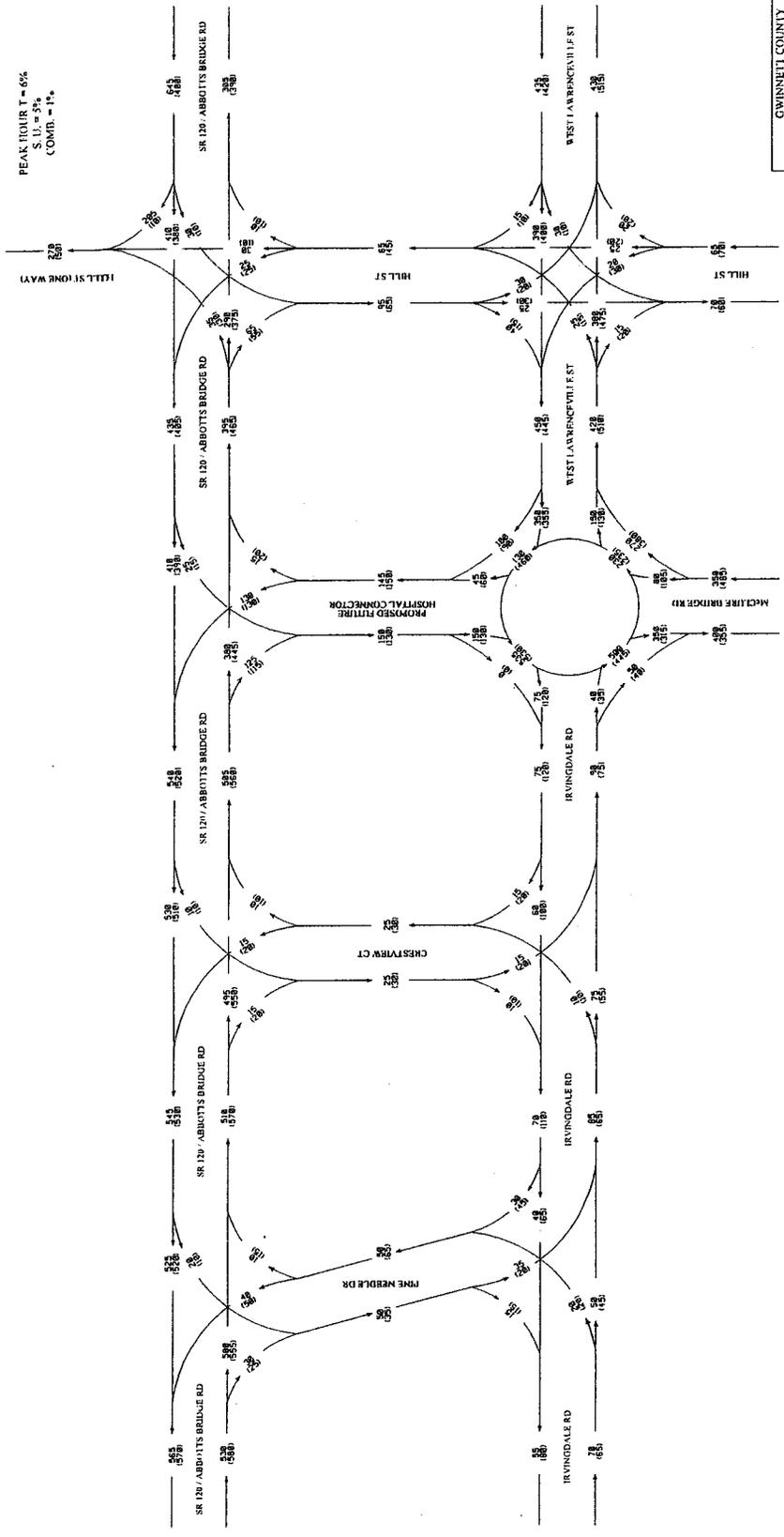




PROJECT NUMBER SP18-006-02(181)	SHEET NO. 6	TOTAL SHEETS 7
COUNTY DEKALB COUNTY	STATE GA.	

DIVY TRAFFIC VOLUMES  
 BASE YEAR 2016 - BUILD  
 AM PEAK HOUR = 000  
 PM PEAK HOUR = 000

PEAK HOUR T = 6%  
 S.U. = 9%  
 COMB. = 1%



GWINNETT COUNTY  
 HOSPITAL CONNECTOR  
 CSSIP-0006-00(276)  
 PW 0006276

STATE OF GEORGIA DEPARTMENT OF TRANSPORTATION
OFFICE: PROGRAM DELIVERY
PROJECT: WEST COUNTY HOSPITAL CONNECTOR, PHASE 2B WEST LAWRENCEVILLE ST AND SR 120/ABBOTT'S BRIDGE RD AT THE PROPOSED NEW ENTRANCE TO DOLAN HIGH SCHOOL
DATE: 04-11-18

REVISION DATES

**Kinley-Horn and Associates, Inc.**  
 Engineering, Planning, and Environmental Consultants  
 817 N. Peachtree Street, Suite 600  
 Atlanta, GA 30308

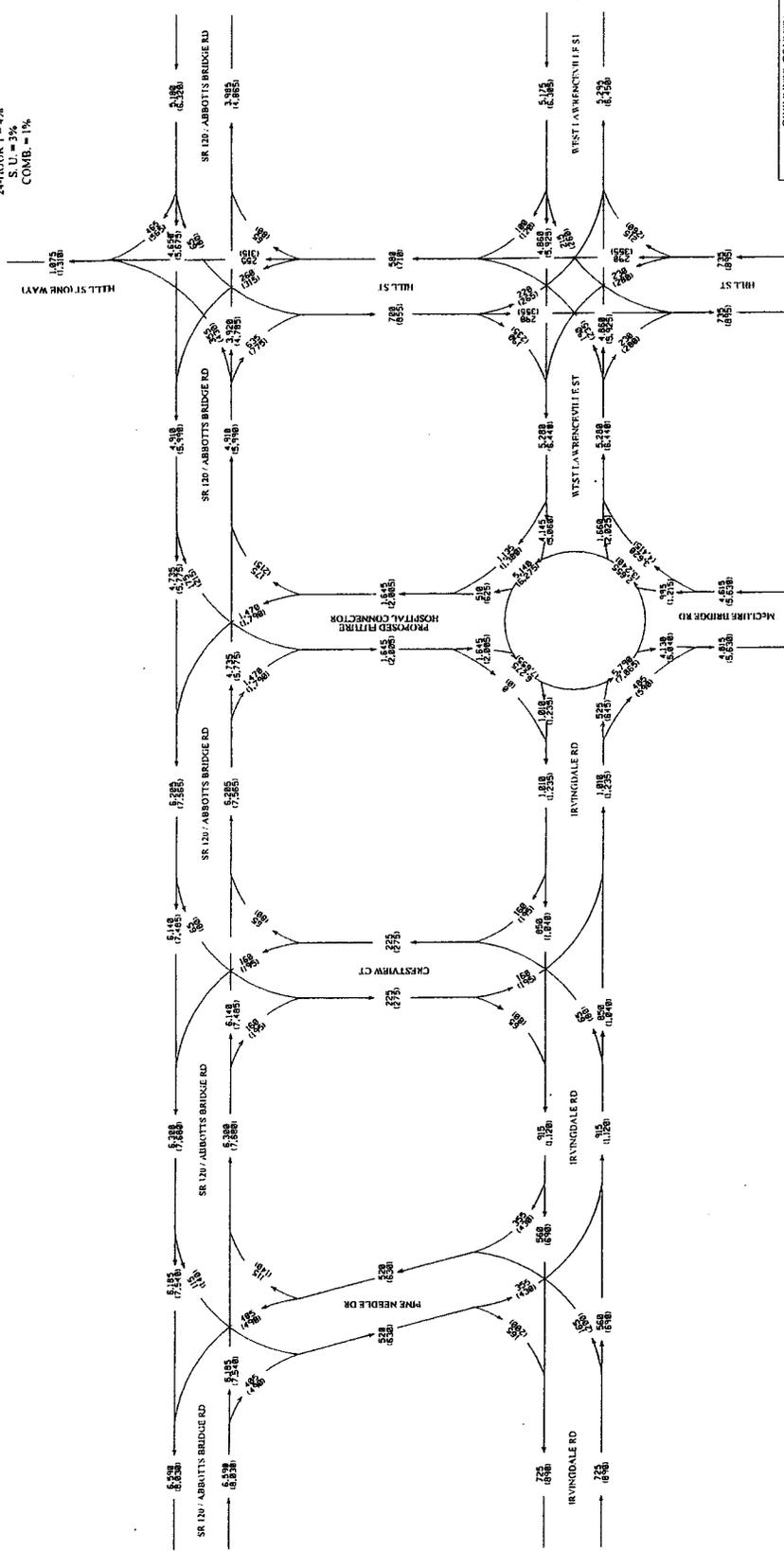
DRAWN BY: MAD  
 DATE: 04/11/18

SCALE: 1" = 100'

4-A



ADT TRAFFIC VOLUMES  
 BASE YEAR 2016 - BUILD = 000  
 DESIGN YEAR 2036 - BUILD = (000)  
 24-HOUR T = 15%  
 S. D. = 3%  
 COMB. = 1%



GWINNETT COUNTY  
 HOSPITAL CONNECTOR  
 CSSTP-0000-00(276)  
 PH 0006276

REVISION DATES

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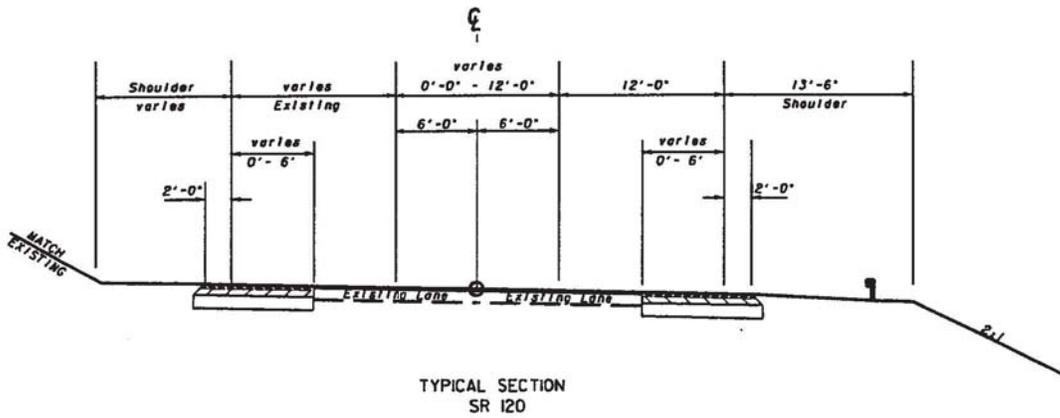
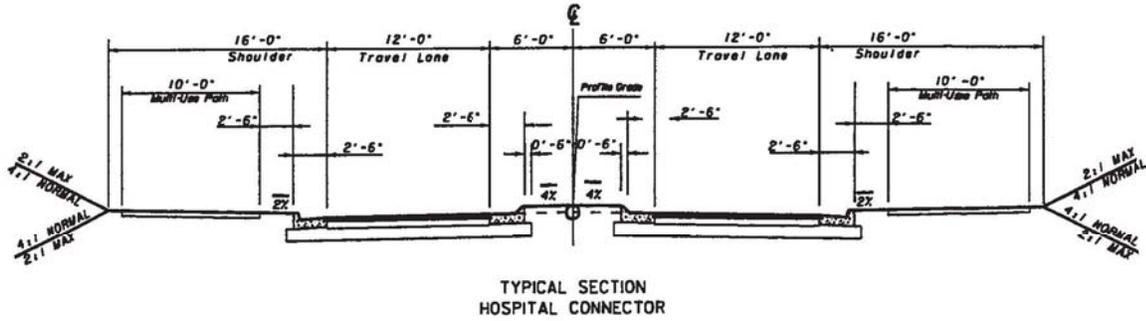
STATE OF GEORGIA  
 DEPARTMENT OF TRANSPORTATION  
 OFFICE: PROGRAM DELIVERY

PROJECT LOCATION: HOSPITAL CONNECTOR  
 WEST LAWRENCEVILLE ST AND SR 120/ABBOTT'S BRIDGE RD  
 AT THE PROPOSED NEW ENTRANCE TO DALTON HIGH SCHOOL.

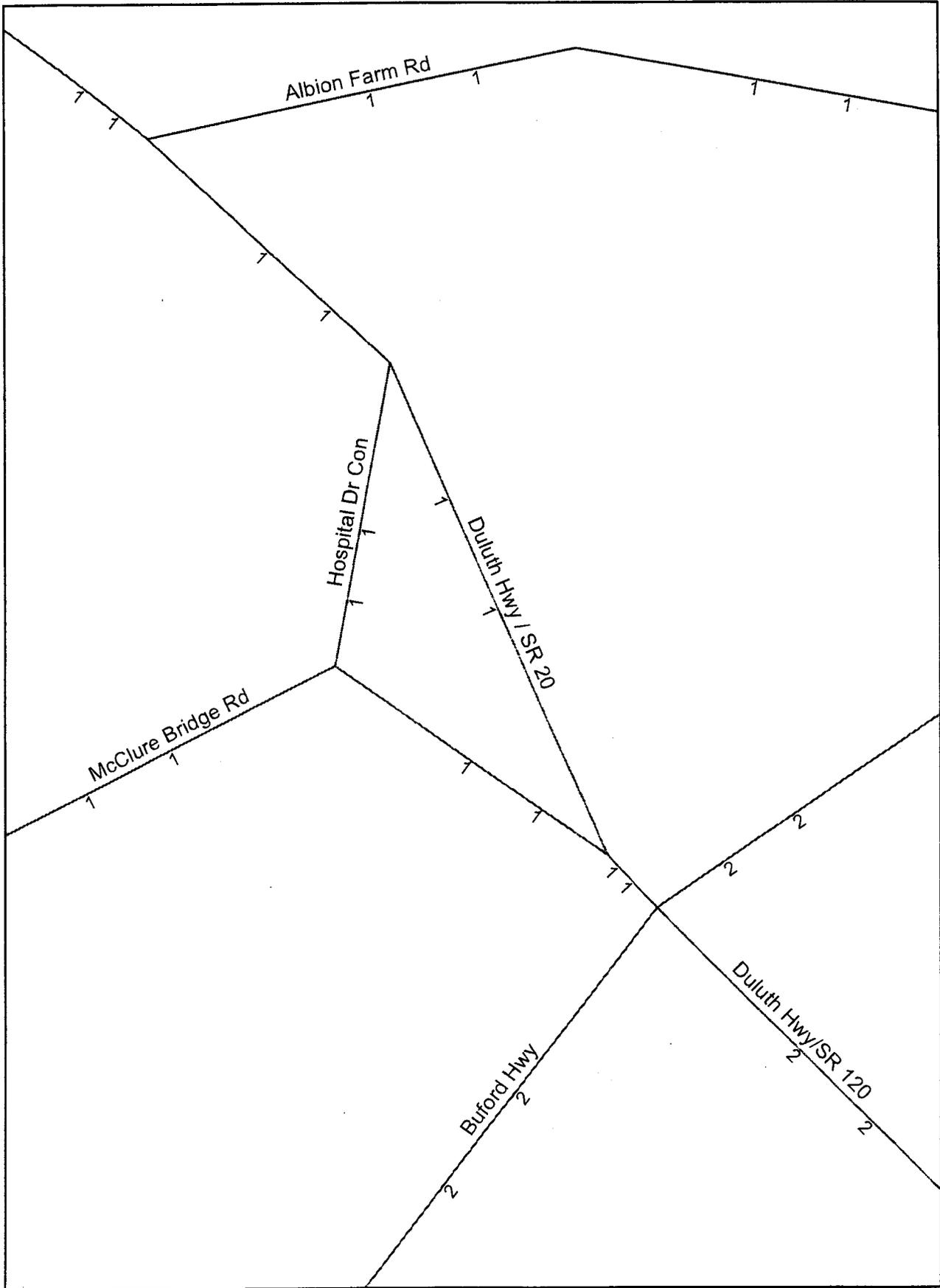
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# TYPICALS



PROJECT NO: STP-0006-00(276)  
 COUNTY: GWINNETT  
 PI: 0006276



PROJECT NO. STP-0006-00 (276)  
 COUNTY: GWINNETT  
 P. I. NO. 0006276

*Traffic Study*

**Hospital Connector  
Traffic Study  
City of Duluth, Georgia  
CSSTP-0006-00(276)  
PI# 0006276**

*Prepared for:*  
City of Duluth

*Prepared by:*  
Kimley-Horn and Associates, Inc.  
Norcross, Georgia

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## 1.0 INTRODUCTION

The purpose of this study is to determine the traffic impacts of constructing a new road alignment (Future Hospital Connector) between West Lawrenceville Street and SR 120. The southern terminus is proposed at the existing West Lawrenceville Street/McClure Bridge Road at Irvingdale Road intersection (existing roundabout). The northern terminus is proposed along SR 120 approximately 1,100' east of Mattison Street and approximately 1,900' west of Hill Street across from a future driveway that may someday access Duluth High School. (Note: This private driveway connection is not part of the Hospital Connector Project). The Future Hospital Connector is approximately 1,250' in length and is proposed as a two-lane facility consisting of one northbound travel lane and one southbound travel lane.

This report summarizes the data collection, analysis of existing and projected future traffic conditions, and conclusions from the analysis. A project location map is depicted in **Figure 1** in **Appendix A**.

## 2.0 DATA COLLECTION

Vehicle turning movement volume counts were collected in March 2012 during the AM peak and PM peak hours to quantify existing peak hour traffic conditions and patterns. Traffic counts were collected at the following five intersections:

1. West Lawrenceville Street/McClure Bridge Road at Irvingdale Road (existing roundabout)
2. SR 120 at Hill Street
3. West Lawrenceville Street at Hill Street
4. SR 120 at Pine Needle Drive
5. West Lawrenceville Street at Pine Needle Drive

In March 2012, two days of 24-hour tube counts were performed to collect daily traffic volumes. **Table 1** summarizes the Average Daily Traffic (ADT) from the tube counts. Copies of the traffic counts can be found in **Appendix B**.

**Table 1: ADT - Weekday**

ADT Tube Count Location	ADT
SR 120 <i>(between Hill Street and Mattison Street)</i>	10,526
West Lawrenceville Street <i>(east of McClure Bridge Road)</i>	9,005
Hill Street <i>(between SR 120 &amp; West Lawrenceville Street)</i>	1,849
Pine Needle Drive <i>(north of Irvingdale Road)</i>	1,495

Table 2 summarizes the existing peak hour and 24-hour truck percentages for the study network for March 2012. This bi-directional automatic classification tube count resulted in a heavy vehicle percentage of approximately 3.8% for the daily traffic, and 6.1% for the peak hour.

**Table 2: Truck Percentages**

Truck Type	Peak Hour	24-Hour
Single Unit (SU)	4.8%	3.1%
Multi Unit (MU)	1.3%	0.8%
Total	6.1%	3.9%

### 3.0 ANALYSIS METHODOLOGY

The purpose of the analysis is to determine the traffic impacts of constructing a new road alignment (Future Hospital Connector) between West Lawrenceville Street and SR 120. The southern terminus is proposed at the existing West Lawrenceville Street/McClure Bridge Road at Irvingdale Road intersection (existing roundabout). The northern terminus is proposed along SR 120 approximately 1,100' east of Mattison Street and approximately 1,900' west of Hill Street. The Future Hospital Connector is approximately 1,250' in length and is proposed as a two-lane facility consisting of one northbound travel lane and one southbound travel lane. At its intersection with SR 120, the Future Hospital Connector is proposed to align directly across from a future driveway providing additional access to Duluth High School. However, this school driveway approach was NOT analyzed because it is not associated with the Future Hospital Connector project and is a proposed future private driveway for the school. For the analyses in this study, the base and design years are 2016 and 2036, respectively.

Existing Year 2012, Base Year 2016 (No-Build and Build), and Design Year 2036 (No-Build and Build) traffic conditions were analyzed for the following six intersections:

1. SR 120 at Pine Needle Drive
2. West Lawrenceville Street at Pine Needle Drive
3. SR 120 at Future Hospital Connector
4. West Lawrenceville Street/Irvingdale Road at McClure Bridge Road/Future Hospital Connector
5. SR 120 at Hill Street
6. West Lawrenceville Street at Hill Street

The Existing Year 2012, Base Year 2016 (No-Build), and Design Year 2036 (No-Build) traffic conditions do NOT assume the construction of the Hospital Connector. However, the Base Year 2016 (Build) and Design Year 2036 (Build) traffic conditions did assume the completion of the Future Hospital Connector. This study documents the analysis of the five existing study intersections and the proposed SR 120 at Future Hospital Connector intersection. Assuming completion of the Hospital Connector, existing traffic volumes were assigned along the proposed roadway by analyzing the traffic data, studying the roadway network, and using engineering judgment. This new road alignment is projected to provide a vehicular alternative to Hill Street (between SR 120 and West Lawrenceville Street), Pine Needle Drive (between SR 120 and Irvingdale Road), and SR 120 (between Main Street and West Lawrenceville Street).

#### **4.0 BACKGROUND TRAFFIC GROWTH**

The intersection traffic growth projections were determined from an evaluation of the ARC Travel Demand Model for the area surrounding the study network, population projections, and historical traffic growth for the ADT count stations in the project vicinity.

- GDOT Historical AADT, 2006-2010
  - -1.3% growth per year (GDOT)
- City of Duluth Population, 2000-2010 actual
  - 1.9% growth per year (US Census)
- City of Duluth Traffic Volumes, 2010-2040 projection
  - 1.2% growth per year (Atlanta Regional Commission RTP model)

The approved growth rates are as follows for the study network. A growth rate of 2% per year for four years was applied to the Existing Year 2012 peak hour traffic volumes to account for growth in traffic to determine Base Year 2016 traffic volumes. Additionally, a growth rate of 1% per year for 20 years was applied to the Base Year 2016 peak hour traffic volumes to account for growth in traffic to determine the Design Year 2036 traffic volumes. This corresponds to a 1.22% annual growth rate between 2012 and 2036.

#### 4.1 Traffic Assignments

The estimated traffic assumptions were determined from the ADT tube counts and background growth rate calculations, and these assumptions (shown below in **Table 3**) are to be used for the Hospital Connector design (PI. No. 0006276). These traffic assumptions were approved by the GDOT Office of Planning in April 2012 (see approved letter located in **Appendix C**).

**Table 3: GDOT Approved Traffic Assumptions**

Base Year 2016 Growth Rate	2.0% per year
Design Year 2036 Growth Rate	1.0% per year
AM Peak Period K Factor	8.0%
PM Peak Period K Factor	9.0%
Peak Hour Trucks	6.0%
Single Unit (SU)	3.0%
Multi Unit (MU)	1.0%
24-Hour Trucks	4.0%
Single Unit (SU)	5.0%
Multi Unit (MU)	1.0%

## 5.0 CAPACITY ANALYSIS

### 5.1 Introduction

Level of service (LOS) is used to describe the operating characteristics of a road segment or intersection in relation to its capacity. LOS is defined as a qualitative measure that describes operational conditions and motorists perceptions with a traffic stream. The *Highway Capacity Manual* defines six levels of service, LOS A through LOS F, with A being the best and F the worst. Intersection analyses were performed using *Synchro Professional, Version 8.0* (signalization optimization and analysis program).

The *HCM* and the *Geometric Design of Highways and Streets* ("Green Book") list the following levels of service:

- A Free flow
- B Reasonably free flow
- C Stable flow
- D Approaching unstable flow
- E Unstable flow
- F Forced or breakdown flow

Additionally, LOS at intersections can be defined as a function of the average overall wait time for a vehicle to pass through the intersection. This way, LOS can be quantitatively measured at any intersection. Shown below are the LOS criteria as defined by the *HCM*.

Signalized Intersections	Unsignalized Intersections
A $\leq 10$ sec	A $\leq 10$ sec
B 10-20 sec	B 10-15 sec
C 20-35 sec	C 15-25 sec
D 35-55 sec	D 25-35 sec
E 55-80 sec	E 35-50 sec
F $\geq 80$ sec	F $\geq 50$ sec

Levels of service for signalized intersections are reported for individual movements as well as for the intersection as a whole. One or more movements at an intersection may experience a low level of service, while the intersection as a whole may operate acceptably. A signalized intersection LOS of D or better is generally the accepted minimum threshold for operating conditions.

Levels of service for unsignalized intersections, with stop control on the minor street only, are reported for the side street approaches. An unsignalized side street approach LOS of E or better is generally the accepted minimum threshold for operating conditions. However, low and failing levels of service for side street approaches are not uncommon, as vehicles may experience delay in turning onto a major roadway.

Existing Year 2012 conditions were analyzed at the study intersections. Level of service determinations were made during the weekday AM and PM peak hours, and were based on Existing Year 2012 traffic conditions. **Figure 2A** and **2B** (located in **Appendix C**) illustrate the traffic volumes for the AM peak, PM peak, and 24-hour periods.

The No-Build traffic conditions were developed by applying a 2% annual growth rate for four years (Base Year 2016) and a 1% annual growth rate for 20 years (Design Year 2036). Future background (No-Build) traffic is defined as expected traffic at the study intersections in the future years absent the construction and opening of the proposed intersection improvements. **Figures 3A, 3B, and 3C** (located in **Appendix C**) illustrate the traffic volumes for the AM peak, PM peak, and 24-hour periods.

The Build traffic conditions were developed by applying a 2% annual growth rate for four years (Base Year 2016) and a 1% annual growth rate for 20 years (Design Year 2036) and applying the proposed improvements that are recommended in **Section 6.1 Recommendations**. The proposed improvements are expected to be constructed by the Base Year 2016. **Figures 4A, 4B, and 4C** (located in **Appendix C**) illustrate the Base Year 2016 (Build) and Design Year 2036 (Build) traffic volumes for the AM peak, PM peak, and 24-hour periods.

## 5.2 Intersection Capacity Analysis

A capacity analysis was performed at the six unsignalized study intersections. The capacity analysis for the existing roundabout located at West Lawrenceville Street/Irvingdale Road at McClure Bridge Road is analyzed in more detail in **Section 5.3 - Roundabout Analysis**. The capacity analyses were performed for Existing 2012, Base Year 2016 (No-Build and Build), and Design Year 2036 (No-Build and Build) traffic conditions during both the AM and PM peak hours.

**Table 4** summarizes the levels of service and delay in seconds (per vehicle) during the AM peak hour, and **Table 5** summarizes the same information for the PM peak hour. Copies of the *Synchro* intersection capacity analyses are found in **Appendix D** through **Appendix I**.

**Table 4: Level of Service Summary – AM Peak Hour**

Intersection	Overall LOS (Delay in Seconds)				
	Existing Year 2012	Base Year 2016 No-Build	Design Year 2036 No-Build	Base Year 2016 Build	Design Year 2036 Build
SR 120 at Pine Needle Drive	D (31.0)	E (39.8)	F (55.8)	D (31.0)	E (38.5)
Irvingdale Road at Pine Needle Drive	A (9.9)	B (10.1)	A (10.0)	A (9.7)	A (9.6)
SR 120 at <i>Future Hospital Connector</i>	N/A	N/A	N/A	D (26.1)	F (56.9)*
West Lawrenceville Street / Irvingdale Road at McClure Bridge Road / <i>Future Hospital Connector (Roundabout see Section 5.3 for additional analysis)</i>	A (7.0)	A (7.5)	A (8.7)	A (8.8)	B (10.8)
SR 120 at Hill Street	E (48.5)	F (73.1)	F (127.0)	E (42.2)	F (57.0)
West Lawrenceville Street at Hill Street	B (12.4)	B (13.7)	C (18.8)	C (18.8)	D (30.9)

\* For Design Year 2036, as an unsignalized intersection, the SR 120/Hospital Connector intersection is projected to operate at LOS F for vehicles turning left off Hospital Connector onto SR 120. The mainline through movements operate at LOS A with free flow conditions. (Note: Based on the projected 2036 volumes, a traffic signal is projected to be warranted.)

**Table 5: Level of Service Summary – PM Peak Hour**

Intersection	Overall LOS (Delay in Seconds)				
	Existing Year 2012	Base Year 2016 No-Build	Design Year 2036 No-Build	Base Year 2016 Build	Design Year 2036 Build
SR 120 at Pine Needle Drive	D (33.7)	E (43.4)	F (78.3)	D (34.0)	E (49.3)
Irvingdale Road at Pine Needle Drive	A (9.8)	A (9.9)	B (10.1)	A (9.5)	A (9.6)
SR 120 at <i>Future Hospital Connector</i>	N/A	N/A	N/A	D (26.7)	F (63.5)*
West Lawrenceville Street / Irvingdale Road at McClure Bridge Road / <i>Future Hospital Connector (Roundabout see Section 5.3 for additional analysis)</i>	A (8.1)	A (8.8)	B (10.2)	B (10.5)	B (13.0)
SR 120 at Hill Street	D (25.3)	D (28.9)	E (41.3)	C (23.2)	D (30.7)
West Lawrenceville Street at Hill Street	B (14.0)	C (15.9)	C (24.4)	C (23.6)	E (41.7)

\* For Design Year 2036, as an unsignalized intersection, the SR 120/Hospital Connector intersection is projected to operate at LOS F for vehicles turning left off Hospital Connector onto SR 120. The mainline through movements operate at LOS A with free flow conditions. (Note: Based on the projected 2036 volumes, a traffic signal is projected to be warranted.)

As shown in **Table 4** and **Table 5**, construction of the Hospital Connector is expected to improve the intersection delay LOS at SR 120/Pine Needle Drive, Irvingdale Road/Pine Needle Drive, and SR 120/Hill Street. The Base Year 2016 (Build) and Design Year 2036 (Build) traffic conditions are projected to operate at an improved delay and LOS compared to the Base Year 2016 (No-Build) and Design Year 2036 (No-Build) traffic conditions for these three intersections during the AM and PM peak hours.

### 5.3 Roundabout Analysis

A roundabout analysis was performed for Existing Year 2012, Base Year 2016 (Build and No-build), and Design Year 2036 (Build and No-Build) scenarios at the West Lawrenceville Street/McClure Bridge Road at Irvingdale Road/Hospital Connector intersection. For this roundabout analysis, the *Sidra Intersection, Version 5.1* and *Synchro Professional, Version 8.0* analysis software were utilized to study level-of-service and delay for the existing single-lane modern roundabout intersection. Currently, the existing roundabout consists of three, one-lane approaches. The Hospital Connector will provide an additional one-lane approach from the north. For analysis purposes, a 120' inscribed diameter was used for the central island. **Table 6** and **Table 7** summarize the AM and PM peak hour levels of service, delay in seconds, and volume-to-capacity ratio for the existing roundabout and the proposed roundabout.

**Table 6: Roundabout Level of Service Summary – AM Peak Hour**

Analysis Tool	Study Movement	Overall LOS (Delay in Seconds)				
		Existing Year 2012	Base Year 2016 No-Build	Design Year 2036 No-Build	Base Year 2016 Build	Design Year 2036 Build
Sidra	West Lawrenceville Street (East Approach)	A (7.2)	A (7.7)	A (9.3)	A (9.3)	B (11.9)
		0.355 v/c	0.389 v/c	0.488 v/c	0.482 v/c	0.600 v/c
Sidra	Future Hospital Connector (North Approach)	N/A	N/A	N/A	A (7.6)	A (9.4)
		N/A	N/A	N/A	0.232 v/c	0.307 v/c
Sidra	Irvingdale Road (West Approach)	A (6.3)	A (6.7)	A (7.7)	A (7.3)	A (8.6)
		0.166 v/c	0.186 v/c	0.223 v/c	0.162 v/c	0.204 v/c
Sidra	McClure Bridge Road (Southwest Approach)	A (7.1)	A (7.6)	A (8.4)	A (9.2)	B (10.6)
		0.358 v/c	0.389 v/c	0.438 v/c	0.449 v/c	0.506 v/c
Sidra	Total Intersection	A (7.0)	A (7.5)	A (8.7)	A (8.8)	B (10.8)
		0.358 v/c	0.389 v/c	0.488 v/c	0.482 v/c	0.600 v/c
Synchro	Total Intersection	A (7.0)	A (7.5)	A (8.7)	A (8.8)	B (10.8)

**Table 7: Roundabout Level of Service Summary – PM Peak Hour**

Analysis Tool	Study Movement	Overall LOS (Delay in Seconds)				
		Existing Year 2012	Base Year 2016 No-Build	Design Year 2036 No-Build	Base Year 2016 Build	Design Year 2036 Build
<b>Sidra</b>	West Lawrenceville Street (East Approach)	Λ (7.8) 0.393 v/c	Λ (8.3) 0.426 v/c	Λ (9.4) 0.479 v/c	B (10.7) 0.547 v/c	B (12.4) 0.607 v/c
<b>Sidra</b>	Future Hospital Connector (North Approach)	N/A N/A	N/A N/A	N/A N/A	Λ (7.8) 0.214 v/c	Λ (8.8) 0.261 v/c
<b>Sidra</b>	Irvingdale Road (West Approach)	Λ (6.3) 0.173 v/c	Λ (6.7) 0.197 v/c	Λ (6.7) 0.174 v/c	Λ (7.3) 0.172 v/c	Λ (7.4) 0.155 v/c
<b>Sidra</b>	McClure Bridge Road (Southwest Approach)	Λ (8.9) 0.477 v/c	Λ (9.7) 0.518 v/c	B (11.5) 0.603 v/c	B (11.9) 0.580 v/c	C (15.6) 0.694 v/c
<b>Sidra</b>	Total Intersection	Λ (8.1) 0.477 v/c	Λ (8.8) 0.518 v/c	B (10.2) 0.603 v/c	Λ (10.6) 0.580 v/c	B (13.0) 0.694 v/c
<b>Synchro</b>	Total Intersection	Λ (8.1)	Λ (8.8)	B (10.2)	B (10.5)	B (13.0)

Based on the roundabout analysis, all approaches and the overall roundabout are expected to operate at LOS B or better under the Design Year 2036 (Build) conditions except for the southwest approach along McClure Bridge Road. This approach is expected to operate at LOS C at the Design Year 2036 (Build) conditions. Copies of the Sidra Intersection capacity analyses can be found in **Appendix G**.

## 6.0 CONCLUSION

The purpose of the analysis is to determine the traffic impacts of constructing a new road alignment (Hospital Connector) between West Lawrenceville Street and SR 120. The southern terminus is proposed at the existing West Lawrenceville Street/McClure Bridge Road at Irvingdale Road roundabout intersection. The northern terminus is proposed along SR 120 approximately 1,100' east of Mattison Street and approximately 1,900' west of Hill Street. The Hospital Connector is proposed as a two-lane facility consisting of one northbound travel lane and one southbound travel lane. At its intersection with SR 120, the Hospital Connector is proposed to align directly across from a future driveway providing additional access to Duluth High School. However, this school driveway approach was NOT analyzed because it is not associated with the Hospital Connector project and is a proposed future private driveway for the school.

For the SR 120 at Hospital Connector intersection, the Base Year 2016 (Build) conditions are projected to operate at LOS D during the AM and PM peak hours as an unsignalized intersection. Under the Design Year 2036 (Build) conditions the intersection is expected to operate at LOS F during the AM and PM peak hours as an unsignalized intersection. These analyses were based on a three-leg intersection with free-flow conditions along SR 120 and STOP control along the Future Hospital Connector.

Based on the analysis performed, traffic signal warrant criteria are not anticipated to be satisfied for the Base Year 2016 (Build) conditions at the SR 120/Hospital Connector intersection. However, the intersection is projected to satisfy the Eight-Hour Vehicular Volume Condition B warrant criteria for interruption of continuous flow, the Four Hour Vehicular Volume warrant criteria, and the Peak Hour warrant criteria for the Design Year 2036 conditions.

If a traffic signal was installed at this intersection in the Design Year 2036 (Build) scenario, the intersection is projected to operate at LOS B during the AM and PM peak hours. If a future school driveway is constructed at this intersection, creating a four-leg intersection and providing access to the Duluth High School, it is likely that the timeframe for the intersection satisfying traffic signal warrants would be accelerated. If the school driveway is opened to traffic after the construction of the Hospital Connector, a traffic signal warrant study should be performed to determine if actual volumes meet warrants.

The intersection of West Lawrenceville Street/McClure Bridge Road at Irvingdale Road/Future Hospital Connector is currently a three-leg single-lane modern roundabout intersection. The proposed Hospital Connector will add an additional approach from the north. This roundabout intersection is projected to operate at LOS B or better for Design Year 2036 (Build) conditions.

### *6.1 Recommendations*

Based on the Base Year 2016 (Build) and Design Year 2036 (Build) traffic conditions, we offer the following:

#### Improvements associated with the Hospital Connector project:

##### *Hospital Connector:*

- Construct new road alignment between West Lawrenceville Street and SR 120.
- Maintain a two-lane facility consisting of one northbound travel lane and one southbound travel lane.
- Construct an eastbound right-turn lane along SR 120.
- Construct a westbound left-turn lane along SR 120.
- Construct a two-lane northbound approach consisting of one left-turn lane and one right-turn lane.
- Provide free-flow operations along SR 120.
- Provide STOP control along Hospital Connector.
- Provide adequate right-of-way and pavement for a future northbound through lane, future eastbound left-turn lane, and future westbound right-turn lane (this will accommodate the proposed Duluth High School driveway that will form the southbound approach).