ORIGINAL TO GENERAL FILES

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

OFFICE OF DESIGN POLICY & SUPPORT
INTERDEPARTMENTAL CORRESPONDENCE

FILE P.I. #0008303
CSSTP-0008-00(303)
GDOT District 2 - Tennille
Newton County
SR 12/US 278 Median Crossover Conversions

OFFICE Design Policy & Support

DATE March 14, 2011

FROM for Brent Story, State Design Policy Engineer

TO SEE DISTRIBUTION

SUBJECT **APPROVED CONCEPT REPORT**

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

Attachment

DISTRIBUTION:

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
Ron Wishon, State Project Review Engineer
Jeff Baker, State Utilities Engineer
Ken Thompson, Statewide Location Bureau Chief
Jimmy Smith, District Engineer
George Brewer, District Preconstruction Engineer/Project Manager
Gus Cooper, District Utilities Engineer
Jim Kitchings, District Environmentalist
BOARD MEMBERS - 7th & 8th Congressional Districts

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

PROJECT CONCEPT REPORT

Project Numbers: CSSTP-0008-00(303)
County: Newton
P. I. Numbers: 0008303
Federal Route Number: 278
State Route Number: 12

US278 Median Turn Lane Conversion

Submitted for approval:

DATE 1/20/2011 — Mark Castiaux / URS Corporation
Design Consultant Name and Firm

DATE 1/19/2011 — [signature]
Local Government

DATE _____ — N/A
Design Phase Office Head

DATE 1/27/2011 — [signature]
~~Office Head~~ DISTRICT ENGINEER

DATE 1/21/2011 — [signature]
Project Manager

Recommendation for approval:

DATE 2/7/2011 — [signature]
Program Control Administrator

DATE 02/24/2011 — GLENN BOWMAN *
State Environmental Administrator

DATE 02/08/2011 — KATHY ZAHUL *
State Traffic Engineer

DATE 01/28/2011 — RON WISHON *
Project Review Engineer

DATE 02/11/2011 — for ANDREW HOENIG *
State Utilities Engineer

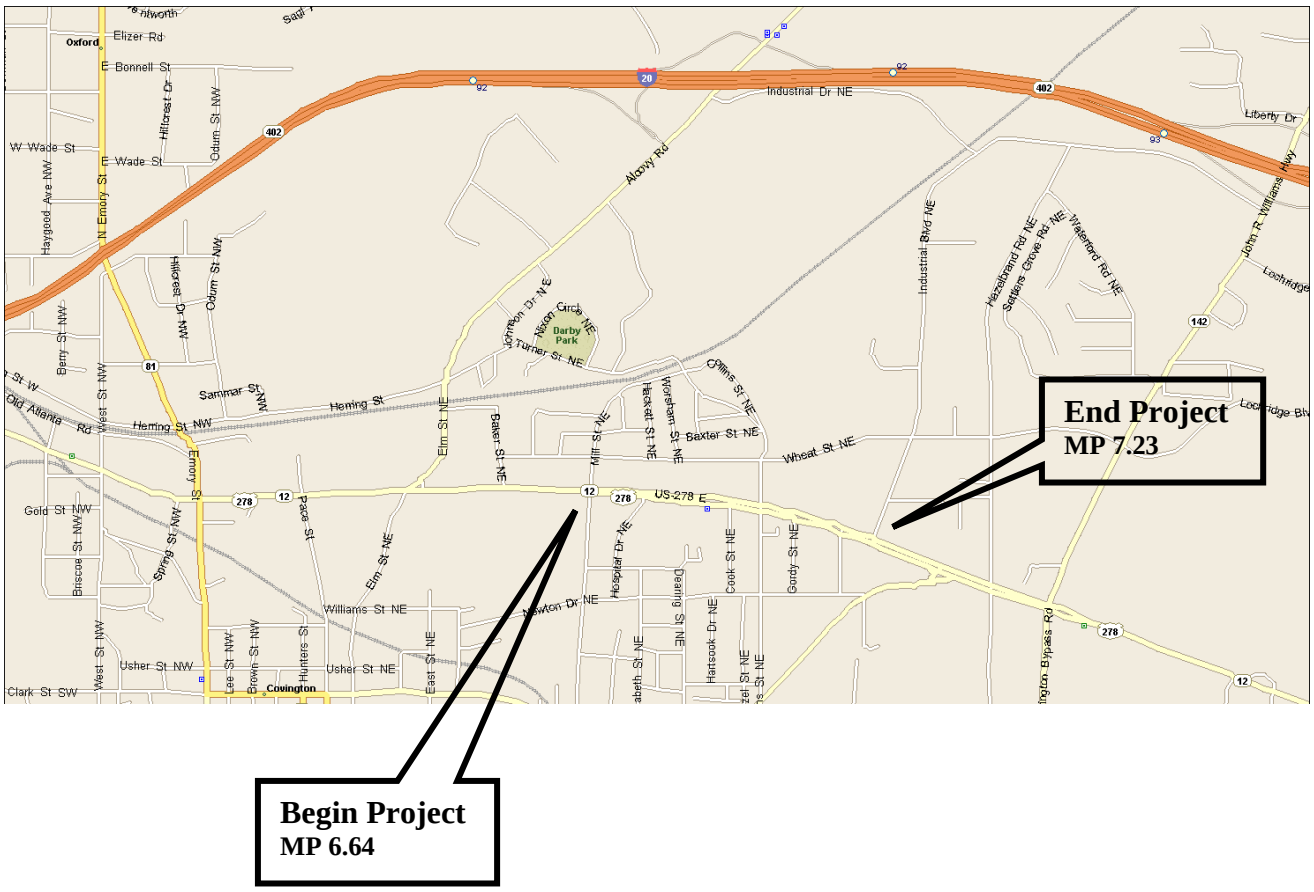
DATE _____ — _____
~~District Engineer~~ / District Utilities Engineer

DATE _____ — _____
State Transportation Financial Management Administrator

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).

DATE 02/01/2011 — CINDY VANDYKE *
State Transportation Planning Administrator

* RECOMMENDATION ON FILE / MC



PROJECT LOCATION MAP
Project: CSSTP-0008-00(303)
County: Newton
PI#: 0008303

Need and Purpose: Accident history for the years of 2005-2009 shows the majority of accidents are rear end, angle intersecting, and side swipe. The proposed improvement would decrease these accidents considerably. The offset left turn lanes will improve sight distance to on coming traffic. The construction of these turn lanes would allow vehicles to move out of the flow of traffic to decelerate, decreasing rear end and side swipe accidents. To reduce crash frequency and severity and benefit orderly progression of traffic through the corridor and help eliminate angle intersecting, rear end and side swipe accidents, these improvements are recommended.

Description of the proposed project: This project proposes to convert existing Type A median crossovers to Type B median crossovers to reduce crash frequency and severity in this corridor. The improvements would start at Mill Street at mile post 6.64 and go east to Industrial Drive at mile post 7.23 providing conversion to intersections at Hospital Drive, Adams Street, Hannah Street and the western half of Industrial Drive. The eastern half is being constructed under a separate project, currently under construction.

Is the project located in a PM 2.5 Non-attainment area X Yes _____No

Is the project located in an Ozone Non-attainment area? X Yes _____No.
This project proposes to improve operations and reduce accidents along US 278. No additional capacity is being added. The open to traffic year for this project is projected for 2011.

PDP Classification: Major _____ Minor X

Federal Oversight: Full Oversight ( ), Exempt(X), State Funded( ), or Other ( )

Functional Classification: Urban Principal Arterial

U. S. Route Number(s): 278 **State Route Number(s):** 12

Traffic (AADT):
Build Year: (2011) 26,770 Design Year: (2031) 39,010

Existing design features:

- Typical Section: Two through lanes in each direction with a depressed median that varies from 22'-0" to 32'-0" and Type "A" 12 ft left turn lanes provided at Hospital Drive, Adams Street, Hannah Street, and Industrial Boulevard.
- Posted speed: 45 mph Minimum radius for curve: 643 ft
- Maximum super-elevation rate for curve: 6%
- Maximum grade: 5 %
- Width of right-of-way: Varies 180 - 230 ft.
- Major structures: None.
- Major interchanges or intersections along the project.
  - US 278 and Mill Street
  - US 278 and Hospital Drive
  - US 278 and Adams Street

  - US 278 and Hannah Street
  - US 278 and Industrial Boulevard
- Existing length of roadway segment: Project begins at milepost 6.64 and ends at milepost 7.23

Proposed Design Features:

- Proposed typical section: Two through lanes in each direction with 8' raised median in left turn bays. Area will be striped in accordance with detail "B" white, varying from 0' to 12', and 12' left turn lanes will be provided at Hospital Drive, Adams Street, Hannah Street, and Industrial Boulevard per Type B median detail.
- Proposed Design Speed Mainline: 45 mph
- Proposed Maximum grade Mainline: 4.5 %
- Maximum grade allowable: 6 %
- Proposed Maximum grade Side Street: 4.5 %
- Maximum grade allowable: 6 %
- Proposed Maximum grade driveway: 11 %
- Proposed Minimum radius of curve: 6400 ft
- Minimum radius allowable: 643 ft
- Maximum allowable superelevation rate: 6 %
- Proposed maximum superelevation rate: 6 %

- Right-of-Way
  - Width: Varies 180 - 230 feet
  - Easements: Temporary ( ), Permanent ( ), Utility ( ), Other (X). None
  - Type of access control: Full ( ), Partial ( ), By Permit (X), Other ( ).
  - Number of parcels: 0 Number of displacements:
    - Business: 0
    - Residences: 0
    - Mobile homes: 0
    - Other: 0
- Structures: None expected

- Major intersections:
  - US 278 and Mill Street
  - US 278 and Hospital drive
  - US 278 and Adams Street
  - US 278 and Hannah Street
  - US 278 and Industrial Boulevard
- Design Exceptions to controlling criteria anticipated:

	YES	NO	UNDETERMINED
HORIZONTAL ALIGNMENT:	( )	(X)	( )
ROADWAY WIDTH:	( )	(X)	( )
SHOULDER WIDTH:	( )	(X)	( )

VERTICAL GRADES:	( )	(X)	( )
CROSS SLOPES:	( )	(X)	( )
STOPPING SIGHT DISTANCE:	( )	(X)	( )
SUPERELEVATION RATES:	( )	(X)	( )
~~HORIZONTAL CLEARANCE:~~ VERTICAL ALIGNMENT	( )	(X)	( )
SPEED DESIGN:	( )	(X)	( )
VERTICAL CLEARANCE:	( )	(X)	( )
BRIDGE WIDTH:	( )	(X)	( )
BRIDGE STRUCTURAL CAPACITY:	( )	(X)	( )
~~BRIDGE STRUCTURAL CAPACITY:~~	( )	(X)	( )
LATERAL OFFSET TO OBSTRUCTION:	( )	(X)	( )

- Design Variances
  - Intersection spacing variance anticipated for deficient spacing between Mill Street and Hospital Drive and between Hannah Street and Industrial Boulevard.
- Environmental concerns – Stream located in front of hospital. No impacts anticipated to stream or buffer
- Anticipated Level of environmental analysis:
  - Are Time Savings Procedures appropriate? Yes (X) No ( )
  - Categorical exclusion anticipated (X).
  - Environmental Assessment/Finding of No Significant Impact anticipated (FONSI) ( ).
  - Environmental Impact Statement (EIS) ( ).
- Utility involvements: City of Covington Power, AT&T Telecommunications, City of Covington Gas, Charter TV, City of Covington Water/Sewer
- VE Study Anticipated Yes ( ) No (X)
- Benefit/Cost Ratio: N/A project is for accident reduction in the corridor and safety

Project Cost Estimate and Funding Responsibilities:

	PE	ROW	UTILITY	CST	MITIGATION
By Whom	City of Covington	None	None	GDOT/City of Covington	None
$ Amount	$67,000			$493,839.64	

**CST cost includes: Construction, Engineering and Inspection, Fuel Cost Adjustment, and Asphalt Cement Cost Adjustment*

Project responsibilities:

- Design: URS Corporation
- Right-of-Way Acquisition: N/A
- Right-of-Way funding (real property): N/A
- Relocation of Utilities: City of Covington
- Letting to Contract: GDOT
- Supervision of Construction: GDOT
- Providing Material Pits: Contractor
- Providing Detours: N/A
- Environmental Studies/Documents/Permits: URS Corporation
- Environmental Mitigation: N/A

Coordination

- Initial Concept Meeting date and brief summary. *Initial concept team meeting was held on August 17th, 2010 and minutes are attached.*
- Concept meeting date and brief summary. *Concept Team Meeting was held on October 26th, 2010 and minutes are attached.*
- P A R meetings, dates and results. *None anticipated.*
- FEMA, USCG, and/or TVA. *None anticipated.*
- Public involvement. *None anticipated. Meetings will be held with the hospital to discuss access changes.*
- Local government comments. *City of Covington is supportive of this project. The city funded the PE.*
- Other projects in the area. *SR 142 from SR 12/US 278 to CR 72/Industrial Blvd. GDOT Project No. STP00-000S-00(014), which is currently under construction.*
- Railroads. *N/A*
- Other coordination to date. *None*

Scheduling – Responsible Parties' Estimate

- Time to complete concept design: Begin: 08/17/10 End: 10/25/10
- Time to complete the environmental process: Begin: 08/17/10 End: 03/07/11
- Time to complete preliminary construction plans: Begin: 10/26/10 End: 03/17/11
- Time to complete final construction plans: Begin: 03/18/11 End: 06/09/11

Other alternates considered: None

Comments: During initial concept team meeting, it was discussed to remove the left turn movement from Hospital Drive to US 278. This is being implemented in this concept by adding a raised median that will allow left turning movements in both directions along US278, but disallow left turning movements from Hospital Drive and commercial businesses north of US278. This will eliminate the deficient refuge area and reduce accidents at this intersection. Vehicles that currently turn left out of Hospital Drive can exit the Hospital at Mill Street.

Attachments:

1. Detailed Cost Estimates:
    a. *Construction including Engineering and Inspection.*
    b. *Completed Fuel & Asphalt Price Adjustment forms*
2. Typical Sections
3. Accident Summaries
4. Traffic Diagrams
5. Capacity Analysis Summary
6. Minutes of Initial Concept Team Meetings
7. Minutes of Concept Team Meeting
8. Conforming Plan's Network Schematics
9. Conceptual Layout

Concur: _____
Director of Engineering

Approve: _____ Date: 03/11/2011
Chief Engineer

STATE HIGHWAY AGENCY

DATE : 01/27/2011
PAGE : 1

JOB ESTIMATE REPORT

JOB NUMBER : 0008303 SPEC YEAR: 01
DESCRIPTION: US278 TURN LANE CONVERSION

COST GROUPS FOR JOB 0008303

COST GROUP	DESCRIPTION	QUANTITY	PRICE	AMOUNT	ACTIVE?
UDEF	EROSION CONTROL	1.000	15000.00000	15000.00	Y
ACTIVE COST GROUP TOTAL				15000.00	
INFLATED COST GROUP TOTAL				15000.00	

ITEMS FOR JOB 0008303

LINE	ITEM	ALT	UNITS	DESCRIPTION	QUANTITY	PRICE	AMOUNT
0005	150-1000		LS	TRAFFIC CONTROL - CSSTP-0008-00(303)	1.000	30000.00	30000.00
0010	210-0100		LS	GRADING COMPLETE - CSSTP-0008-00(303)	1.000	30000.00	30000.00
0015	310-1101		TN	GR AGGR BASE CRS, INCL MATL	3500.000	19.75	69152.76
0020	402-3121		TN	RECYL AC 25MM SP,GP1/2,BM&HL	880.000	73.95	65078.70
0025	402-3130		TN	RECYL AC 12.5MM SP,GP2,BM&HL	450.000	84.40	37982.89
0030	402-3190		TN	RECYL AC 19 MM SP,GP 1 OR 2 ,INC BM&HL	595.000	77.23	45956.63
0035	413-1000		GL	BITUM TACK COAT	50.000	4.15	207.68
0040	441-0740		SY	CONC MEDIAN, 4 IN	900.000	26.33	23698.83
0045	441-6740		LF	CONC CURB & GUTTER/ 8"X30" TP7	4000.000	14.08	56346.04
0050	500-9999		CY	CL B CONC,BASE OR PVMT WIDEN	20.000	177.41	3548.20
0055	550-1180		LF	STM DR PIPE 18",H 1-10	1400.000	30.86	43208.87
0060	550-3318		EA	SAFETY END SECTION 18",STD,4:1	6.000	556.95	3341.75
0065	653-0120		EA	THERM PVMT MARK, ARROW, TP 2	19.000	70.12	1332.38
0070	653-6004		SY	THERM TRAF STRIPING, WHITE	1900.000	2.73	5195.55
0075	653-6006		SY	THERM TRAF STRIPING, YELLOW	200.000	3.01	602.94
0080	668-1100		EA	CATCH BASIN, GP 1	8.000	2277.23	18217.90
ITEM TOTAL							433871.12
INFLATED ITEM TOTAL							433871.12

TOTALS FOR JOB 0008303

ESTIMATED COST:	388871.12
CONTINGENCY PERCENT (5.0):	19443.56
ESTIMATED TOTAL:	408314.68

NOTE: The item totals include all alternate items. The estimated totals include only the low cost alternate items.

Date 1/27/2011

P.I. Number **0008303** County **Newton**

Project Number **CSSTP-0008-00(303)**

Special Provision, Section 109-Measurement and Payment

FUEL PRICE ADJUSTMENT *(ENGLISH 125% MAX)*

ENTER FPL DIESEL	3.254
ENTER FPM DIESEL	7.322

ENTER FPL UNLEADED	2.99
ENTER FPM UNLEADED	6.7275

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

INCREASE ADJUSTMENT
125.00%

INCREASE ADJUSTMENT
125.00%

ROADWAY ITEMS	QUANTITY	DIESEL FACTOR	GALLONS DIESEL	UNLEADED FACTOR	GALLONS UNLEADED	REMARKS
Excavations paid as specified by Sections 205 **(CUBIC YARD)**		0.29		0.15		
Excavations paid as specified by Sections 206 **(CUBIC YARD)**		0.29		0.15		
GAB paid as specified by the ton under Section 310 **(TON)**	3500.000	0.29	1015.00	0.24	840.00	
Hot Mix Asphalt paid as specified by the ton under Sections 400 **(TON)**		2.90		0.71		
Hot Mix Asphalt paid as specified by the ton under Sections 402 **(TON)**	1925.000	2.90	5582.50	0.71	1366.75	
PCC Pavement paid as specified by the square yard under Section 430 **(SY)**		0.25		0.20		

BRIDGE ITEMS	Quantity	Unit Price	QF/1000	Diesel Factor	Gallons Diesel	Unleaded Factor	Gallons Unleaded	REMARKS
Bridge Excavation (CY) Section 211				8.00		1.50		
Class __Concrete (CY) Section 500				8.00		1.50		
Class __Concrete (CY) Section 500				8.00		1.50		
Class __Concrete (CY) Section 500				8.00		1.50		
Superstru Con Class__(CY) Section 500				8.00		1.50		
Superstru Con Class__(CY) Section 500				8.00		1.50		
Superstru Con Class__(CY) Section 500				8.00		1.50		
Concrete Handrail (LF) Section 500				8.00		1.50		
Concrete Barrier (LF) Section 500				8.00		1.50		

BRIDGE ITEMS	Quantity	Unit Price	QF/1000	Diesel Factor	Gallons Diesel	Unleaded Factor	Gallons Unleaded	REMARKS

Stru Steel Plan Quantity (LB) Section 501				8.00		1.50		
Stru Steel Plan Quantity (LB) Section 501				8.00		1.50		
PSC Beams_____ (LF) Section 507				8.00		1.50		
PSC Beams_____ (LF) Section 507				8.00		1.50		
PSC Beams_____ (LF) Section 507				8.00		1.50		
Stru Reinf Plan Quantity(LB) Section 511				8.00		1.50		
Stru Reinf Plan Quantity(LB) Section 511				8.00		1.50		
Bar Reinf Steel (LB) Section 511				8.00		1.50		
Piling___inch (LF) Section 520				8.00		1.50		
Piling___inch (LF) Section 520				8.00		1.50		
Piling___inch (LF) Section 520				8.00		1.50		
Piling___inch (LF) Section 520				8.00		1.50		
Piling___inch (LF) Section 520				8.00		1.50		
Piling___inch (LF) Section 520				8.00		1.50		
Drilled Caisson,___ (LF) Section 524				8.00		1.50		
Drilled Caisson,___ (LF) Section 524				8.00		1.50		
Drilled Caisson,___ (LF) Section 524				8.00		1.50		
Pile Encasement,___(LF) Section 547				8.00		1.50		
Pile Encasement,___(LF) Section 547				8.00		1.50		

SUM QF DIESEL=	**6597.50**	**SUM QF UNLEADED=**	**2206.75**

DIESEL PRICE ADJUSTMENT($)	**$24,688.50**
UNLEADED PRICE ADJUSTMENT($)	**$7,587.91**

ASPHALT CEMENT PRICE ADJUSTMENT
(BITUMINOUS TACK COAT 125% MAX)

APPLICABLE TO CONTRACTS/PROJECTS CONTAINING THE 413 SPECIFICATION, SECTION 413.5.01 ADJUSTMENTS ASPHALT PRICE ADJUSTMENT FOR BITUMINOUS TACK COAT

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

ENTER APL 460 **ENTER APM** 1035

125.00%	INCREASE ADJUSTMENT

L.I.N.	TYPE	TACK (GALLONS)	TACK (TONS)	REMARKS
413-1000	PG 64-22	50	0.2148	

TMT = 0.2148

PRICE ADJUSTMENT($)	$118.54

400 / 402 ASPHALT CEMENT PRICE ADJUSTMENT 125% MAX

ENTER APL 460 **ENTER APM** 1035

125.00%	INCREASE ADJUSTMENT

L.I.N. / Spec Number	MIX TYPE	HMA	JMF AC%	AC	REMARKS
			5.00		
			5.00		
			5.00		
402-3121	25 mm SP	880	5.00	44.00	
402-3130	12.5 mm SP	450	5.00	22.50	
402-3190	19 mm SP	595	5.00	29.75	
			5.00		
			5.00		
			5.00		
			5.00		
			5.00		
			5.00		
			5.00		
			5.00		
			5.00		
			TMT =	96.25	

PRICE ADJUSTMENT($)	$53,130.00

ASPHALT CEMENT PRICE ADJUSTMENT FOR BITUMINOUS TACK COAT(Surface Treatment 125% MAX)

APPLICABLE TO CONTRACTS CONTAINING THE 413 SPEC. SECTION 413.5.01 ADJUSTMENTS ASPHALT PRICE ADJUSTMENT FOR BITUMINOUS TACK COAT

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

ENTER APL 460 ENTER APM 1035

125.00%	INCREASE ADJUSTMENT

Use this side for Asphalt Emulsion Only

L.I.N.	TYPE	ASPHALT EMULSION (GALLONS)

TMT =

REMARKS:

Use this side for Asphalt Cement Only

L.I.N.	TYPE	TACK (GALLONS)

TMT =

REMARKS:

MONTHLY PRICE ADJUSTMENT($)	

ADJUSTMENT SUMMARY

FUEL PRICE ADJUSTMENT *(ENGLISH 125% MAX)*

DIESEL PRICE ADJUSTMENT($) $24,688.50

UNLEADED PRICE ADJUSTMENT($) $7,587.91

ASPHALT CEMENT PRICE ADJUSTMENT (BITUMINOUS TACK COAT 125% MAX) $118.54

400 / 402 ASPHALT CEMENT PRICE ADJUSTMENT 125% MAX $53,130.00

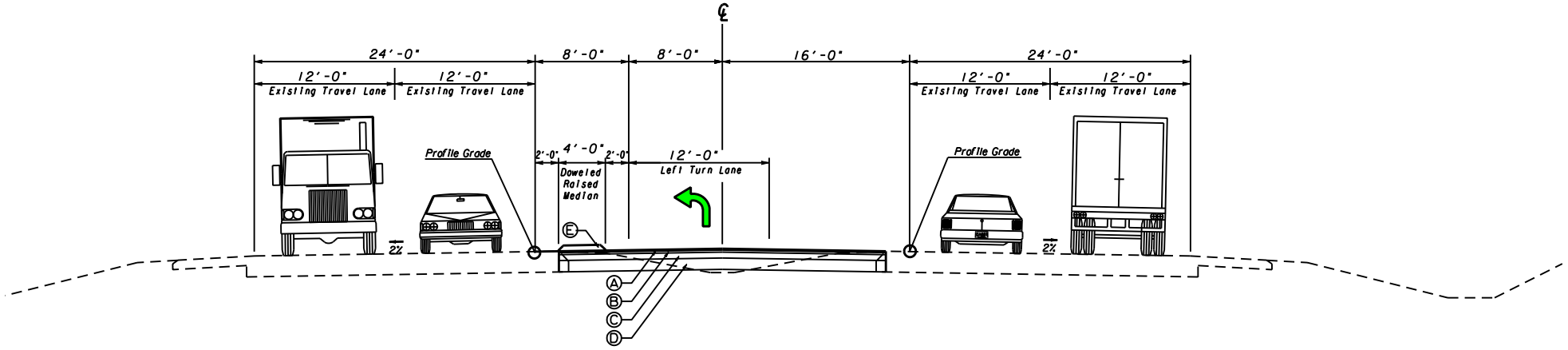
ASPHALT CEMENT PRICE ADJUSTMENT FOR BITUMINOUS TACK COAT(Surface Treatment 125% MAX)

REMARKS:

TOTAL ADJUSTMENTS	$85,524.96

DWM 10/08

PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
CSSTP-0008-00(303)		



TANGENT SECTION NO. 1
APPLIES TO US 278

SLOPES AS FOLLOWS:

△ SLOPE 6% OR RATE OF S.E. WHICHEVER IS GREATER

□ S.E. RATE OF 2% USE 6%
S.E. RATE OF 3% USE 5%
S.E. RATE OF 4% USE 4%
S.E. RATE OF 5% USE 3%
S.E. RATE OF 6% USE 2%

REQUIRED PAVEMENT

Ⓐ ASPHALTIC CONCRETE 12.5 MM SUPERPAVE, GP 2 ONLY, INCL BITUM MATL 165 LB/SY
Ⓑ ASPHALTIC CONCRETE 19 MM SUPERPAVE, GP 1 OR 2 INCL BITUM MATL & H LIME 220 LB/SY
Ⓒ ASPHALTIC CONCRETE 25 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME 330 LB/SY
Ⓓ GRADED AGGREGATE BASE, 12 INCH INCL MATL
Ⓔ CONC. MEDIAN PAVING, 6" THK

GEORGIA DEPARTMENT OF TRANSPORTATION

URS
400 NORTHPARK TOWN CENTER
1000 ABERNATHY ROAD, NE
SUITE 900
ATLANTA, GA 30328
PH. (678) 808-8800

NOT TO SCALE

REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
DISTRICT TWO
TYPICAL SECTIONS

U. S. 278-NEWTON CO.

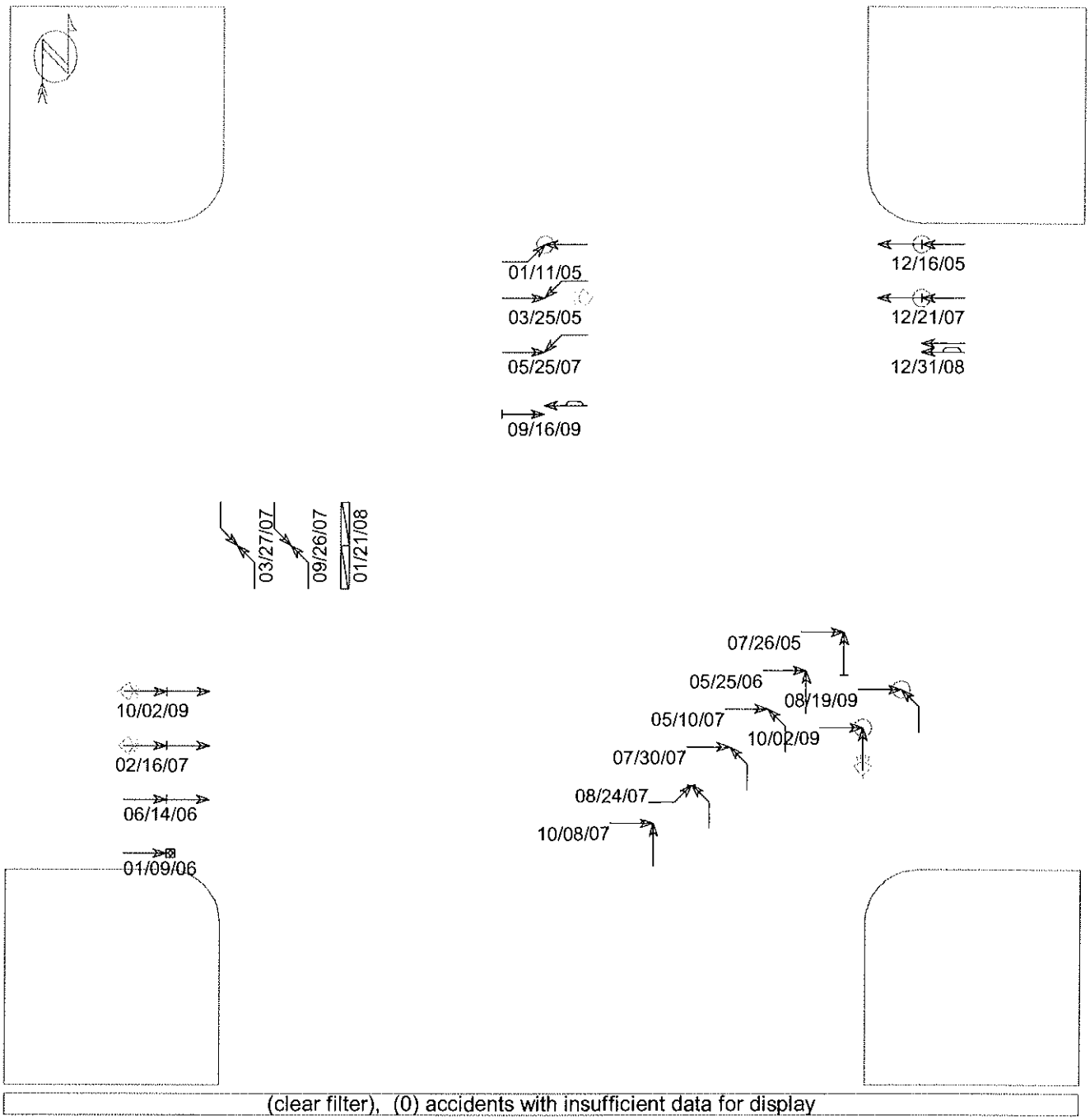
DRAWING No. 5-001

Crash Data Summary

Road Segment	AADT	YEAR	Length	Number of Crashes			Crash Rates (Statewide Rate)		
				Total Crashes	Injury	Fatal	Total Crashes	Injury	Fatal
US 278	26710	2005	0.5	9	4	0	184.6(508.1)	82.1(131.7)	0.0(1.3)
	24270	2006	0.5	11	4	0	248.3(509.9)	90.3(127.9)	0.0(1.3)
	25140	2007	0.5	23	5	0	501.3(515.3)	109.0(128.6)	0.0(1.2)
	25490	2008	0.5	19	3	0	408.4(461.2)	64.5(113.6)	0.0(1.1)
	25780	2009	0.5	9	4	0	191.3(363.0)	85.0(92.0)	0.0(0.9)

22 Accidents

SR 12 at HOSPITAL DR
2005 - 2009

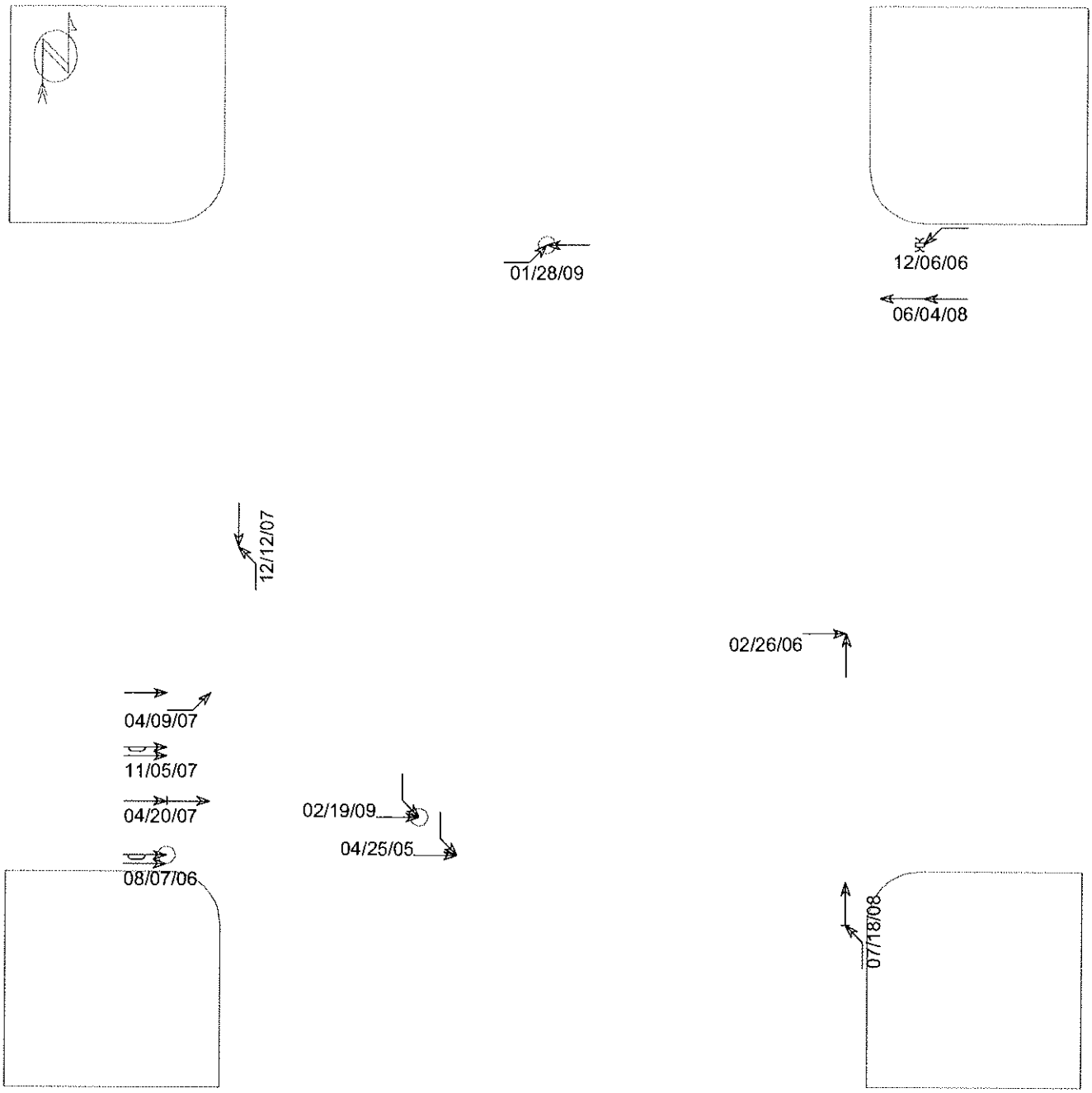


(clear filter), (0) accidents with insufficient data for display

Straight	Parked	Pedestrian	Fixed objects:
Stopped	Erratic	Bicycle	General, Pole
Unknown	Out of control	Injury	Signal, Curb
Backing	Right turn	Fatality	Tree, Animal
Overtaking	Left turn	Nighttime	3rd vehicle
Sideswipe	U-turn	DUI	Extra data

12 Accidents

SR 12 at ADAMS ST
2005 - 2009

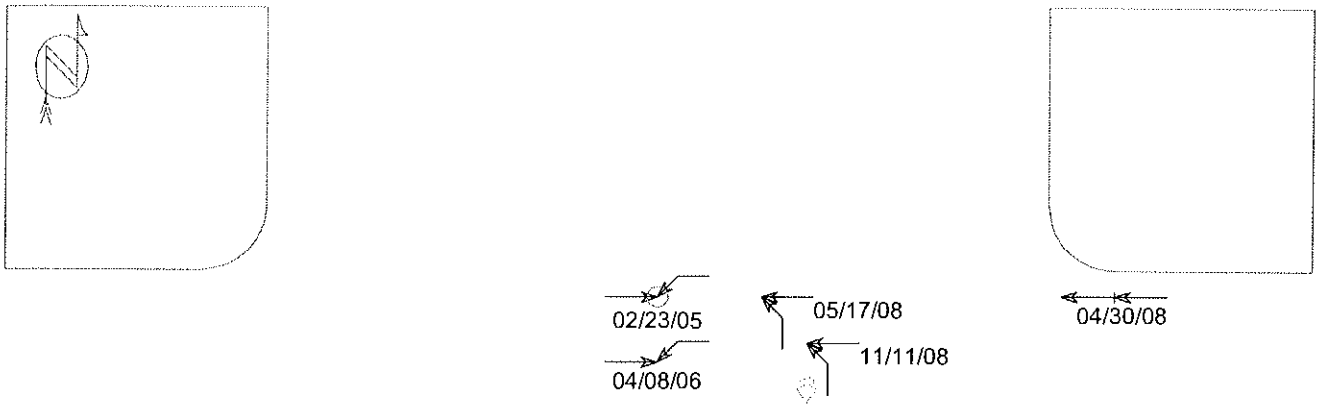


(clear filter), (0) accidents with insufficient data for display

Straight	Parked	Pedestrian	Fixed objects:
Stopped	Erratic	Bicycle	General, Pole
Unknown	Out of control	Injury	Signal, Curb
Backing	Right turn	Fatality	Tree, Animal
Overtaking	Left turn	Nighttime	3rd vehicle
Sideswipe	U-turn	DUI	Extra data

14 Accidents

SR 12 at HANNAH ST
2005 - 2009

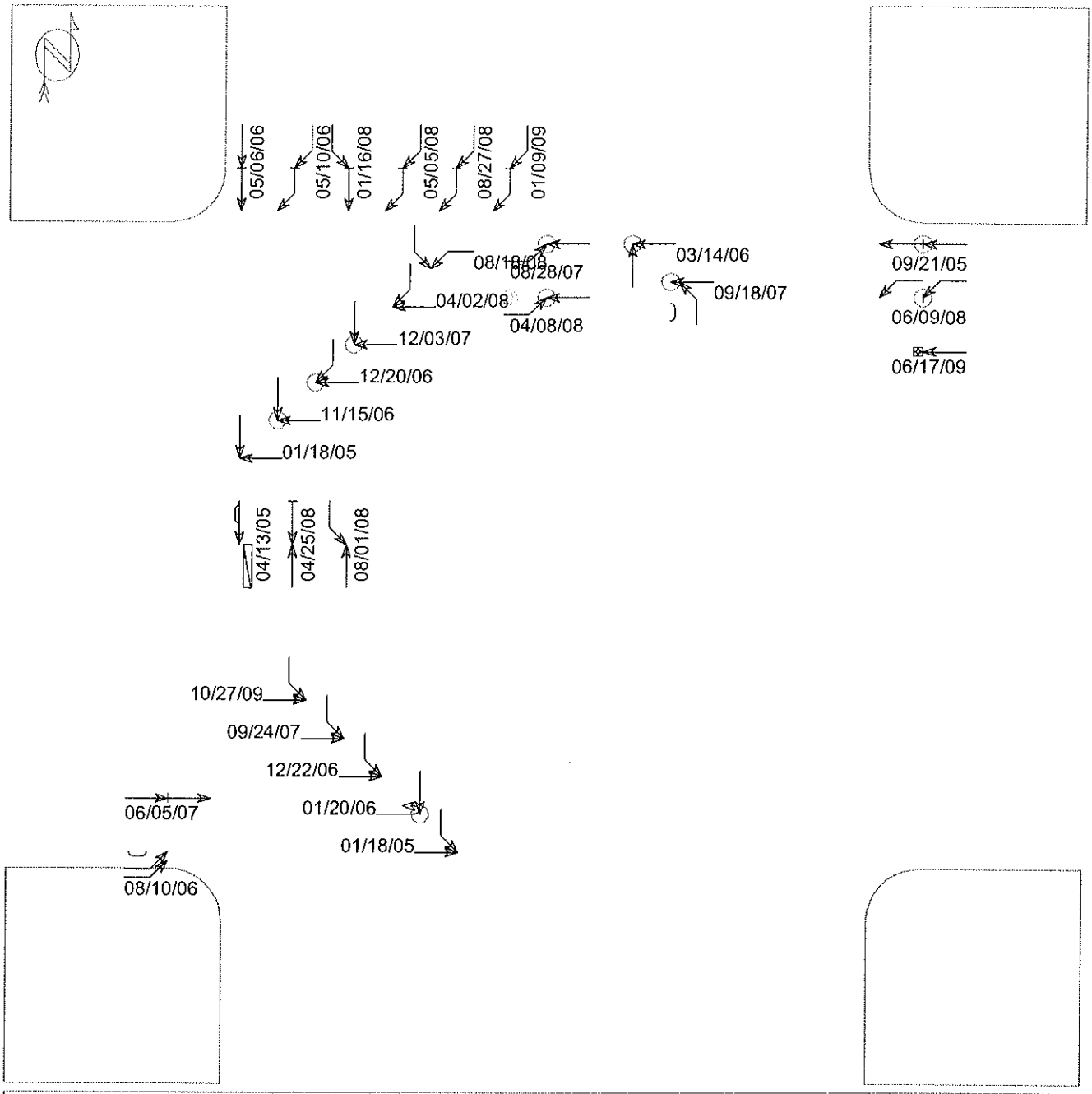


(clear filter), (0) accidents with insufficient data for display

Straight	Parked	Pedestrian	Fixed objects:
Stopped	Erratic	Bicycle	General, Pole
Unknown	Out of control	Injury	Signal, Curb
Backing	Right turn	Fatality	Tree, Animal
Overtaking	Left turn	Nighttime	3rd vehicle
Sideswipe	U-turn	DUI	Extra data

29 Accidents

SR 12 at INDUSTRIAL BLVD
2005 - 2009



(clear filter), (0) accidents with insufficient data for display

Straight	Parked	Pedestrian	Fixed objects:
Stopped	Erratic	Bicycle	General, Pole
Unknown	Out of control	Injury	Signal, Curb
Backing	Right turn	Fatality	Tree, Animal
Overtaking	Left turn	Nighttime	3rd vehicle
Sideswipe	U-turn	DUI	Extra data

Department of Transportation
State of Georgia

INTERDEPARTMENT CORRESPONDENCE

FILE CSSTP-0008-00(303), Newton County
P.I. # 0008303

OFFICE Planning

DATE November 2, 2010

FROM Angela T. Alexander, State Transportation Planning Administrator

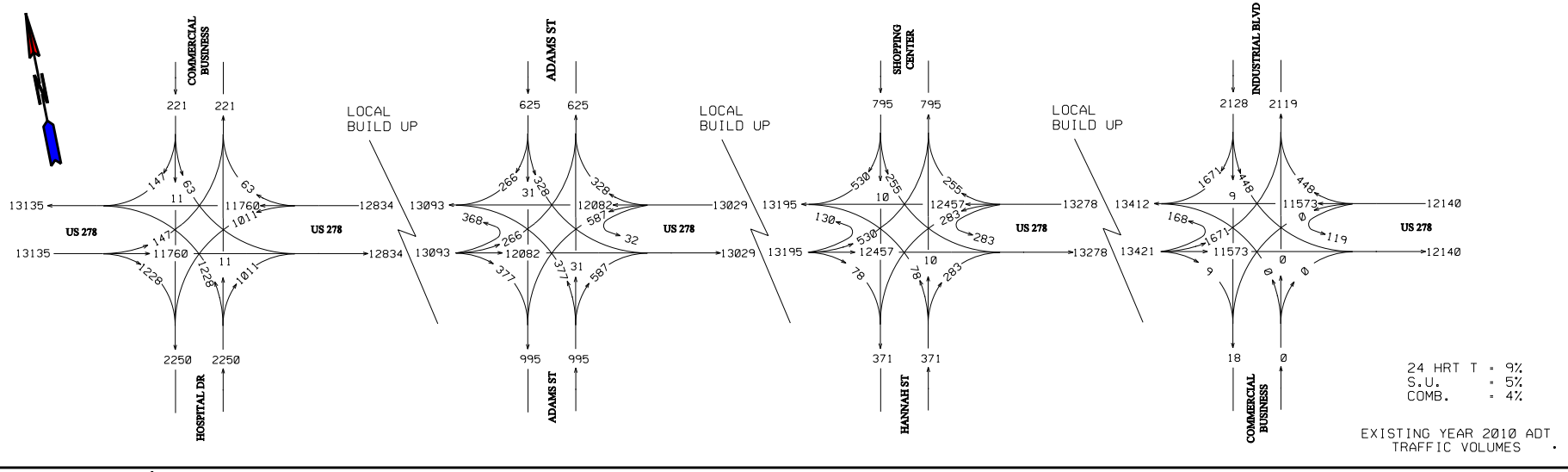
TO Tony Collins, District Engineer
Attention: George Brewer

SUBJECT **Reviewed** Design Traffic for S.R. 12 @ C.S. 737/Mill St; C.S. 899/Hospital Dr. & C.S. 861/Adams St..

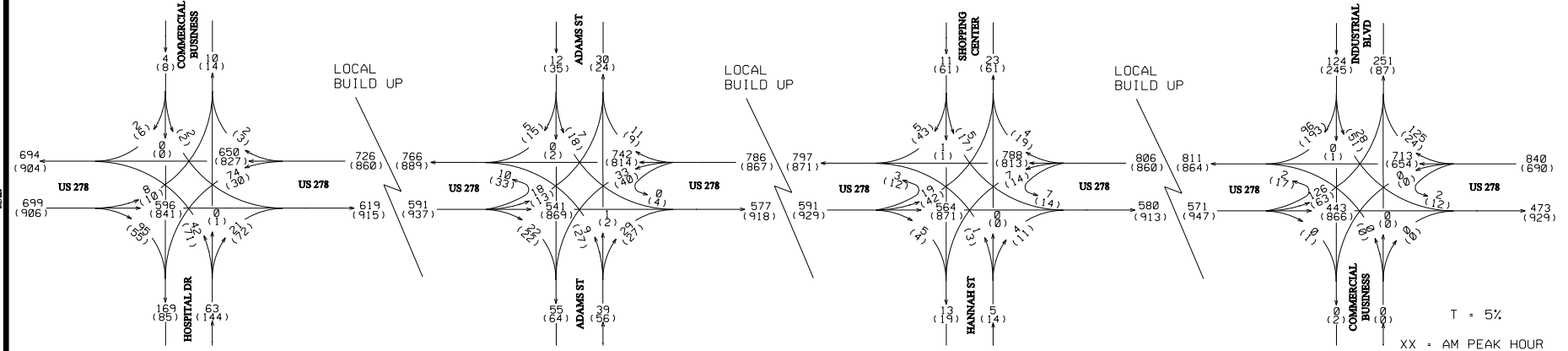
We reviewed the consultant Design Traffic for the above project.

The traffic is approved based on the information furnished. If you have any questions concerning this information please contact Abby Ebodaghe at (404) 631-1923.

ATA/AFE



EXISTING YEAR 2010 ADT
TRAFFIC VOLUMES



XX = AM PEAK HOUR
(XX) = PM PEAK HOUR

EXISTING YEAR 2010 PHV
TRAFFIC VOLUMES

PROJECT# CSSTP-0008-00(303)
PI# 0008303

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

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

GEORGIA
DEPARTMENT OF TRANSPORTATION

URS
400 NORTHPARK TOWN CENTER
1000 ABERNATHY ROAD, NE
SUITE 900
ATLANTA, GA 30328
PH. (678) 808-8800

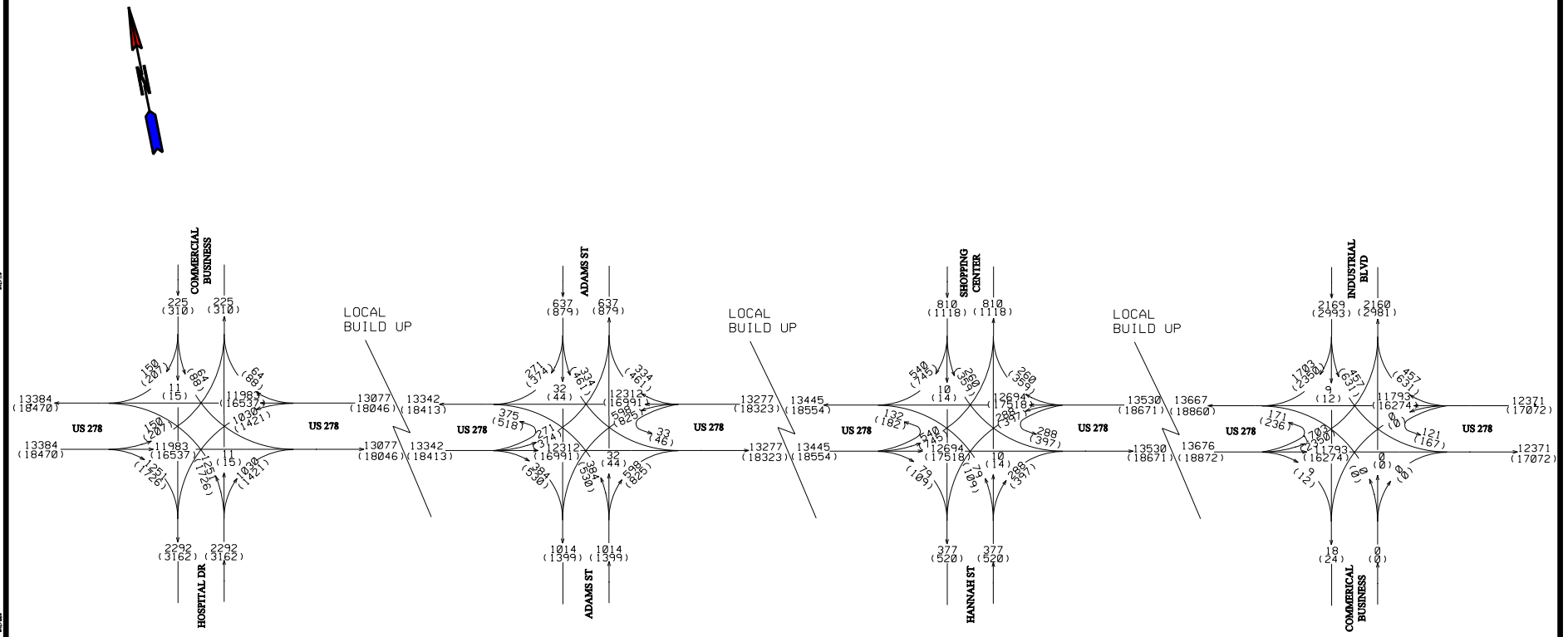
SCALE IN FEET
0 20 40 80

REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
DISTRICT TWO
TRAFFIC DIAGRAM
U.S. 278-NEWTON CO.

DRAWING No. 10-001

DATE=$$	TIME=$$	PRF	P:\1528\1305_US278 Median Crossovers\Dgn\008303TR01.dgn	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
$USER$		$$PENTABLE$$		GA	CSSTP-0008-00(303)		



24 HRT T = 9%
S.U. = 5%
COMB. = 4%

BASE YEAR 2011 ADT
(DESIGN YEAR 2031 ADT)
TRAFFIC VOLUMES

BUILD / NO BUILD

PROJECT# CSSTP-0008-00(303)
PI# 0008303

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

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

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DEPARTMENT OF TRANSPORTATION

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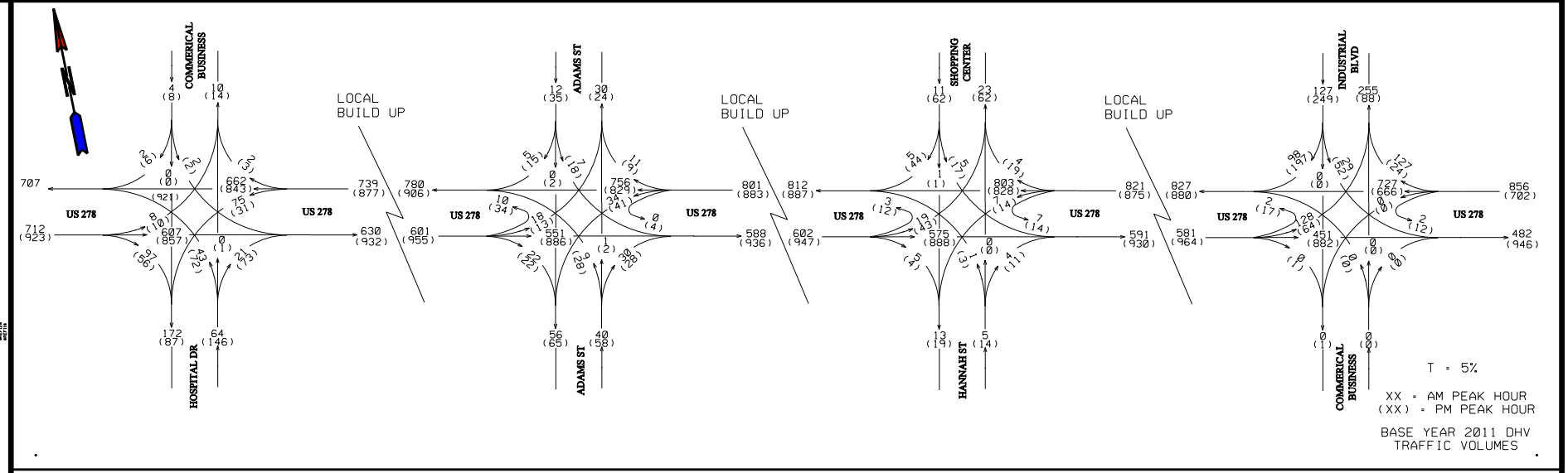
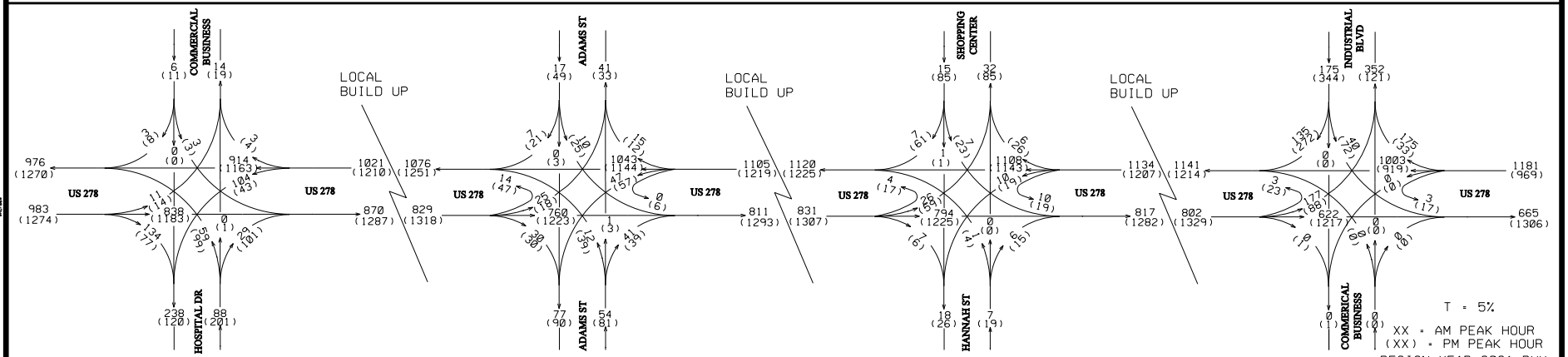
SCALE IN FEET
0 20 40 80

REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
DISTRICT TWO
TRAFFIC DIAGRAM
U.S. 278-NEWTON CO.

DRAWING No. 10-002





PROJECT* CSSTP-0008-00(303)
PI* 0008303

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

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

GEORGIA
DEPARTMENT OF TRANSPORTATION

URS
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1000 ABERNATHY ROAD, NE
SUITE 900
ATLANTA, GA 30328
PH. (678) 808-8800

SCALE IN FEET
0 20 40 80

REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
DISTRICT TWO
TRAFFIC DIAGRAM
U.S. 278-NEWTON CO.

DRAWING No. 10-003

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	8	596	95	74	650	2	42	0	21	2	0	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.50	0.98	0.85	0.77	0.86	0.50	0.75	0.25	0.75	0.25	0.25	0.50
Hourly flow rate (vph)	16	608	112	96	756	4	56	0	28	8	0	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			Raised							
Median storage veh)					1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	760			720			1214	1592	304	1314	1702	380
vC1, stage 1 conf vol							640	640		950	950	
vC2, stage 2 conf vol							574	952		364	752	
vCu, unblocked vol	760			720			1214	1592	304	1314	1702	380
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			89			77	100	96	96	100	99
cM capacity (veh/h)	861			891			247	202	698	193	179	624

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	16	304	304	112	96	504	256	84	12
Volume Left	16	0	0	0	96	0	0	56	8
Volume Right	0	0	0	112	0	0	4	28	4
cSH	861	1700	1700	1700	891	1700	1700	315	251
Volume to Capacity	0.02	0.18	0.18	0.07	0.11	0.30	0.15	0.27	0.05
Queue Length 95th (ft)	1	0	0	0	9	0	0	26	4
Control Delay (s)	9.3	0.0	0.0	0.0	9.5	0.0	0.0	20.5	20.1
Lane LOS	A				A			C	C
Approach Delay (s)	0.2				1.1			20.5	20.1
Approach LOS								C	C

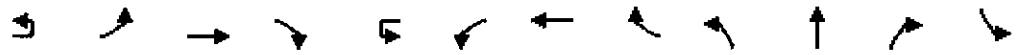
Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	36.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (veh/h)	10	18	541	22	33	742	11	9	1	29	7	0
Sign Control			Free			Free			Stop			Stop
Grade			0%			0%			0%			0%
Peak Hour Factor	0.63	0.41	0.87	0.61	0.92	0.92	0.55	0.56	0.25	0.81	0.88	0.25
Hourly flow rate (vph)	0	44	622	36	36	807	20	16	4	36	8	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type			Raised			Raised						
Median storage veh)			1			1						
Upstream signal (ft)												
pX, platoon unblocked	0.00											
vC, conflicting volume	0	827			658			1197	1608	311	1279	1624
vC1, stage 1 conf vol								710	710		878	878
vC2, stage 2 conf vol								487	898		401	746
vCu, unblocked vol	0	827			658			1197	1608	311	1279	1624
tC, single (s)	0.0	4.1			4.1			7.5	6.5	6.9	7.5	6.5
tC, 2 stage (s)								6.5	5.5		6.5	5.5
tF (s)	0.0	2.2			2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	0	95			96			94	98	95	96	100
cM capacity (veh/h)	0	813			939			248	203	691	217	207

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1
Volume Total	44	311	311	36	36	403	403	20	56	20
Volume Left	44	0	0	0	36	0	0	0	16	8
Volume Right	0	0	0	36	0	0	0	20	36	12
cSH	813	1700	1700	1700	939	1700	1700	1700	409	352
Volume to Capacity	0.05	0.18	0.18	0.02	0.04	0.24	0.24	0.01	0.14	0.06
Queue Length 95th (ft)	4	0	0	0	3	0	0	0	12	4
Control Delay (s)	9.7	0.0	0.0	0.0	9.0	0.0	0.0	0.0	15.2	15.8
Lane LOS	A				A				C	C
Approach Delay (s)	0.6				0.4				15.2	15.8
Approach LOS									C	C

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	37.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SBR
Lane Configurations	
Volume (veh/h)	5
Sign Control	
Grade	
Peak Hour Factor	0.42
Hourly flow rate (vph)	12
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	403
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	403
tC, single (s)	6.9
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	98
cM capacity (veh/h)	602
Direction, Lane #	



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Volume (veh/h)	3	19	564	5	7	7	788	4	1	0	4	5
Sign Control			Free				Free			Stop		
Grade			0%				0%			0%		
Peak Hour Factor	0.75	0.59	0.85	0.42	0.58	0.58	0.93	0.50	0.25	0.25	0.50	0.42
Hourly flow rate (vph)	0	32	664	12	0	12	847	8	4	0	8	12
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type			Raised				Raised					
Median storage veh)			1				1					
Upstream signal (ft)												
pX, platoon unblocked	0.00				0.00							
vC, conflicting volume	0	855			0	675			1184	1613	338	1276
vC1, stage 1 conf vol									734	734		871
vC2, stage 2 conf vol									450	879		404
vCu, unblocked vol	0	855			0	675			1184	1613	338	1276
tC, single (s)	0.0	4.2			0.0	4.1			7.5	6.5	6.9	7.5
tC, 2 stage (s)									6.5	5.5		6.5
tF (s)	0.0	2.2			0.0	2.2			3.5	4.0	3.3	3.5
p0 queue free %	0	96			0	99			98	100	99	95
cM capacity (veh/h)	0	762			0	925			255	212	664	231

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1	SB 2
Volume Total	32	442	233	12	424	424	8	12	16	8
Volume Left	32	0	0	12	0	0	0	4	12	0
Volume Right	0	0	12	0	0	0	8	8	0	8
cSH	762	1700	1700	925	1700	1700	1700	432	228	584
Volume to Capacity	0.04	0.26	0.14	0.01	0.25	0.25	0.00	0.03	0.07	0.01
Queue Length 95th (ft)	3	0	0	1	0	0	0	2	6	1
Control Delay (s)	9.9	0.0	0.0	8.9	0.0	0.0	0.0	13.6	22.0	11.2
Lane LOS	A			A				B	C	B
Approach Delay (s)	0.5			0.1				13.6	18.4	
Approach LOS								B	C	

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	38.4%	ICU Level of Service	A
Analysis Period (min)	15		

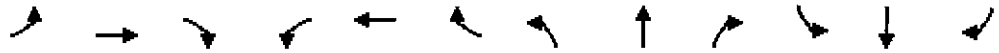
Movement	SBT	SBR
Lane Configurations	↓	↱
Volume (veh/h)	1	5
Sign Control	Stop	
Grade	0%	
Peak Hour Factor	0.25	0.63
Hourly flow rate (vph)	4	8
Pedestrians		
Lane Width (ft)		
Walking Speed (ft/s)		
Percent Blockage		
Right turn flare (veh)		
Median type		
Median storage veh)		
Upstream signal (ft)		
pX, platoon unblocked		
vC, conflicting volume	1611	424
vC1, stage 1 conf vol	871	
vC2, stage 2 conf vol	740	
vCu, unblocked vol	1611	424
tC, single (s)	6.5	6.9
tC, 2 stage (s)	5.5	
tF (s)	4.0	3.3
p0 queue free %	98	99
cM capacity (veh/h)	219	584
Direction, Lane #		

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Volume (veh/h)	2	126	443	0	2	0	713	125	0	0	0	28
Sign Control			Free				Free			Stop		
Grade			0%				0%			0%		
Peak Hour Factor	0.50	0.85	0.80	0.25	0.50	0.25	0.96	0.73	0.25	0.25	0.25	0.88
Hourly flow rate (vph)	0	148	554	0	0	0	743	171	0	0	0	32
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type			Raised				Raised					
Median storage veh)			1				1					
Upstream signal (ft)												
pX, platoon unblocked	0.00				0.00							
vC, conflicting volume	0	914			0	554			1353	1764	277	1402
vC1, stage 1 conf vol									850	850		828
vC2, stage 2 conf vol									503	914		573
vCu, unblocked vol	0	914			0	554			1353	1764	277	1402
tC, single (s)	0.0	4.1			0.0	4.1			7.5	6.5	6.9	7.5
tC, 2 stage (s)									6.5	5.5		6.5
tF (s)	0.0	2.2			0.0	2.2			3.5	4.0	3.3	3.5
p0 queue free %	0	80			0	100			100	100	100	84
cM capacity (veh/h)	0	742			0	1027			149	142	727	202

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	148	277	277	0	495	419	0	163
Volume Left	148	0	0	0	0	0	0	32
Volume Right	0	0	0	0	0	171	0	132
cSH	742	1700	1700	1700	1700	1700	1700	412
Volume to Capacity	0.20	0.16	0.16	0.00	0.29	0.25	0.00	0.40
Queue Length 95th (ft)	19	0	0	0	0	0	0	46
Control Delay (s)	11.1	0.0	0.0	0.0	0.0	0.0	0.0	19.4
Lane LOS	B						A	C
Approach Delay (s)	2.3			0.0			0.0	19.4
Approach LOS							A	C

Intersection Summary				
Average Delay	2.7			
Intersection Capacity Utilization	48.3%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	SBT	SBR
Lane Configurations	↕	
Volume (veh/h)	0	96
Sign Control	Stop	
Grade	0%	
Peak Hour Factor	0.25	0.73
Hourly flow rate (vph)	0	132
Pedestrians		
Lane Width (ft)		
Walking Speed (ft/s)		
Percent Blockage		
Right turn flare (veh)		
Median type		
Median storage veh)		
Upstream signal (ft)		
pX, platoon unblocked		
vC, conflicting volume	1679	457
vC1, stage 1 conf vol	828	
vC2, stage 2 conf vol	850	
vCu, unblocked vol	1679	457
tC, single (s)	6.5	6.9
tC, 2 stage (s)	5.5	
tF (s)	4.0	3.3
p0 queue free %	100	76
cM capacity (veh/h)	190	551
Direction, Lane #		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	841	55	30	827	3	71	1	72	2	0	6
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.42	0.95	0.76	0.68	0.97	0.25	0.85	0.25	0.75	0.50	0.25	0.50
Hourly flow rate (vph)	24	885	72	44	853	12	84	4	96	4	0	12
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			Raised							
Median storage veh)					1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	865			958			1459	1886	443	1535	1952	432
vC1, stage 1 conf vol							933	933		947	947	
vC2, stage 2 conf vol							527	953		588	1005	
vCu, unblocked vol	865			958			1459	1886	443	1535	1952	432
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			94			57	98	83	98	100	98
cM capacity (veh/h)	787			726			193	173	568	162	160	577

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	24	443	443	72	44	568	296	184	16
Volume Left	24	0	0	0	44	0	0	84	4
Volume Right	0	0	0	72	0	0	12	96	12
cSH	787	1700	1700	1700	726	1700	1700	294	352
Volume to Capacity	0.03	0.26	0.26	0.04	0.06	0.33	0.17	0.62	0.05
Queue Length 95th (ft)	2	0	0	0	5	0	0	97	4
Control Delay (s)	9.7	0.0	0.0	0.0	10.3	0.0	0.0	35.7	15.7
Lane LOS	A				B			E	C
Approach Delay (s)	0.2				0.5			35.7	15.7
Approach LOS								E	C

Intersection Summary			
Average Delay	3.6		
Intersection Capacity Utilization	46.7%	ICU Level of Service	A
Analysis Period (min)	15		

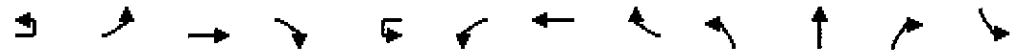
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Volume (veh/h)	33	13	869	22	4	40	814	9	27	2	27	18
Sign Control			Free				Free			Stop		
Grade			0%				0%			0%		
Peak Hour Factor	0.83	0.65	0.93	0.92	0.50	0.77	0.96	0.75	0.84	0.25	0.68	0.50
Hourly flow rate (vph)	0	20	934	24	0	52	848	12	32	8	40	36
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type			Raised				Raised					
Median storage veh)			1				1					
Upstream signal (ft)												
pX, platoon unblocked	0.00				0.00							
vC, conflicting volume	0	860			0	958			1530	1938	467	1463
vC1, stage 1 conf vol									974	974		952
vC2, stage 2 conf vol									556	964		511
vCu, unblocked vol	0	860			0	958			1530	1938	467	1463
tC, single (s)	0.0	4.1			0.0	4.1			7.5	6.5	6.9	7.5
tC, 2 stage (s)									6.5	5.5		6.5
tF (s)	0.0	2.2			0.0	2.2			3.5	4.0	3.3	3.5
p0 queue free %	0	97			0	93			82	95	93	80
cM capacity (veh/h)	0	790			0	726			177	168	548	178

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1
Volume Total	20	467	467	24	52	424	424	12	80	68
Volume Left	20	0	0	0	52	0	0	0	32	36
Volume Right	0	0	0	24	0	0	0	12	40	24
cSH	790	1700	1700	1700	726	1700	1700	1700	264	231
Volume to Capacity	0.03	0.27	0.27	0.01	0.07	0.25	0.25	0.01	0.30	0.29
Queue Length 95th (ft)	2	0	0	0	6	0	0	0	31	29
Control Delay (s)	9.7	0.0	0.0	0.0	10.3	0.0	0.0	0.0	24.4	26.9
Lane LOS	A				B				C	D
Approach Delay (s)	0.2				0.6				24.4	26.9
Approach LOS									C	D

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	41.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SBT	SBR
Lane Configurations	↕	
Volume (veh/h)	2	15
Sign Control	Stop	
Grade	0%	
Peak Hour Factor	0.25	0.63
Hourly flow rate (vph)	8	24
Pedestrians		
Lane Width (ft)		
Walking Speed (ft/s)		
Percent Blockage		
Right turn flare (veh)		
Median type		
Median storage veh)		
Upstream signal (ft)		
pX, platoon unblocked		
vC, conflicting volume	1950	424
vC1, stage 1 conf vol	952	
vC2, stage 2 conf vol	998	
vCu, unblocked vol	1950	424
tC, single (s)	6.5	6.9
tC, 2 stage (s)	5.5	
tF (s)	4.0	3.3
p0 queue free %	95	96
cM capacity (veh/h)	158	584

Direction, Lane #



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Volume (veh/h)	12	42	871	4	14	14	813	19	3	0	11	17
Sign Control			Free				Free			Stop		
Grade			0%				0%			0%		
Peak Hour Factor	0.50	0.96	0.91	0.33	0.70	0.58	0.92	0.48	0.38	0.25	0.46	0.85
Hourly flow rate (vph)	0	44	957	12	0	24	884	40	8	0	24	20
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type			Raised				Raised					
Median storage veh)			1				1					
Upstream signal (ft)												
pX, platoon unblocked	0.00				0.00							
vC, conflicting volume	0	923			0	969			1543	2022	485	1522
vC1, stage 1 conf vol									1051	1051		932
vC2, stage 2 conf vol									492	972		590
vCu, unblocked vol	0	923			0	969			1543	2022	485	1522
tC, single (s)	0.0	4.1			0.0	4.1			7.5	6.5	6.9	7.5
tC, 2 stage (s)									6.5	5.5		6.5
tF (s)	0.0	2.2			0.0	2.2			3.5	4.0	3.3	3.5
p0 queue free %	0	94			0	97			95	100	96	89
cM capacity (veh/h)	0	748			0	719			162	154	534	182

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1	SB 2
Volume Total	44	638	331	24	442	442	40	32	24	64
Volume Left	44	0	0	24	0	0	0	8	20	0
Volume Right	0	0	12	0	0	0	40	24	0	64
cSH	748	1700	1700	719	1700	1700	1700	340	178	569
Volume to Capacity	0.06	0.38	0.19	0.03	0.26	0.26	0.02	0.09	0.13	0.11
Queue Length 95th (ft)	5	0	0	3	0	0	0	8	11	9
Control Delay (s)	10.1	0.0	0.0	10.2	0.0	0.0	0.0	16.7	28.4	12.1
Lane LOS	B			B				C	D	B
Approach Delay (s)	0.4			0.3				16.7	16.5	
Approach LOS								C	C	

Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	45.8%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	SBT	SBR
Lane Configurations		
Volume (veh/h)	1	43
Sign Control	Stop	
Grade	0%	
Peak Hour Factor	0.25	0.67
Hourly flow rate (vph)	4	64
Pedestrians		
Lane Width (ft)		
Walking Speed (ft/s)		
Percent Blockage		
Right turn flare (veh)		
Median type		
Median storage veh)		
Upstream signal (ft)		
pX, platoon unblocked		
vC, conflicting volume	1989	442
vC1, stage 1 conf vol	932	
vC2, stage 2 conf vol	1057	
vCu, unblocked vol	1989	442
tC, single (s)	6.5	6.9
tC, 2 stage (s)	5.5	
tF (s)	4.0	3.3
p0 queue free %	97	89
cM capacity (veh/h)	160	569
Direction, Lane #		

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Volume (veh/h)	17	63	866	1	12	0	654	24	0	0	0	51
Sign Control			Free				Free			Stop		
Grade			0%				0%			0%		
Peak Hour Factor	0.47	0.83	0.93	0.25	0.60	0.25	0.91	0.60	0.25	0.25	0.25	0.80
Hourly flow rate (vph)	0	76	931	4	0	0	719	40	0	0	0	64
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type			Raised				Raised					
Median storage veh)			1				1					
Upstream signal (ft)												
pX, platoon unblocked	0.00				0.00							
vC, conflicting volume	0	759			0	935			1711	1844	468	1356
vC1, stage 1 conf vol									1085	1085		739
vC2, stage 2 conf vol									626	759		617
vCu, unblocked vol	0	759			0	935			1711	1844	468	1356
tC, single (s)	0.0	4.1			0.0	4.1			7.5	6.5	6.9	7.5
tC, 2 stage (s)									6.5	5.5		6.5
tF (s)	0.0	2.2			0.0	2.2			3.5	4.0	3.3	3.5
p0 queue free %	0	91			0	100			100	100	100	72
cM capacity (veh/h)	0	862			0	741			103	168	547	226

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	76	621	314	0	479	280	0	332
Volume Left	76	0	0	0	0	0	0	64
Volume Right	0	0	4	0	0	40	0	264
cSH	862	1700	1700	1700	1700	1700	1700	457
Volume to Capacity	0.09	0.37	0.18	0.00	0.28	0.16	0.00	0.73
Queue Length 95th (ft)	7	0	0	0	0	0	0	146
Control Delay (s)	9.6	0.0	0.0	0.0	0.0	0.0	0.0	31.2
Lane LOS	A						A	D
Approach Delay (s)	0.7			0.0			0.0	31.2
Approach LOS							A	D

Intersection Summary				
Average Delay	5.3			
Intersection Capacity Utilization	52.1%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	SBT	SBR
Lane Configurations	↕	
Volume (veh/h)	1	193
Sign Control	Stop	
Grade	0%	
Peak Hour Factor	0.25	0.73
Hourly flow rate (vph)	4	264
Pedestrians		
Lane Width (ft)		
Walking Speed (ft/s)		
Percent Blockage		
Right turn flare (veh)		
Median type		
Median storage veh)		
Upstream signal (ft)		
pX, platoon unblocked		
vC, conflicting volume	1826	379
vC1, stage 1 conf vol	739	
vC2, stage 2 conf vol	1087	
vCu, unblocked vol	1826	379
tC, single (s)	6.5	6.9
tC, 2 stage (s)	5.5	
tF (s)	4.0	3.3
p0 queue free %	98	58
cM capacity (veh/h)	181	624
Direction, Lane #		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	8	596	95	74	650	2	42	0	21	2	0	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.50	0.98	0.85	0.77	0.86	0.50	0.75	0.25	0.75	0.25	0.25	0.50
Hourly flow rate (vph)	16	620	114	98	771	4	57	0	29	8	0	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			Raised							
Median storage veh)					1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	775			734			1239	1624	310	1340	1736	388
vC1, stage 1 conf vol							653	653		969	969	
vC2, stage 2 conf vol							586	971		371	767	
vCu, unblocked vol	775			734			1239	1624	310	1340	1736	388
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			89			76	100	96	96	100	99
cM capacity (veh/h)	850			880			241	197	692	187	173	617

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	16	310	310	114	98	514	261	86	12
Volume Left	16	0	0	0	98	0	0	57	8
Volume Right	0	0	0	114	0	0	4	29	4
cSH	850	1700	1700	1700	880	1700	1700	308	244
Volume to Capacity	0.02	0.18	0.18	0.07	0.11	0.30	0.15	0.28	0.05
Queue Length 95th (ft)	1	0	0	0	9	0	0	28	4
Control Delay (s)	9.3	0.0	0.0	0.0	9.6	0.0	0.0	21.1	20.6
Lane LOS	A				A			C	C
Approach Delay (s)	0.2				1.1			21.1	20.6
Approach LOS								C	C

Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	36.9%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (veh/h)	10	18	541	22	33	742	11	9	1	29	7	0
Sign Control			Free			Free			Stop			Stop
Grade			0%			0%			0%			0%
Peak Hour Factor	0.63	0.41	0.87	0.61	0.92	0.92	0.55	0.56	0.25	0.81	0.88	0.25
Hourly flow rate (vph)	0	45	634	37	37	823	20	16	4	37	8	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type			Raised			Raised						
Median storage veh)			1			1						
Upstream signal (ft)												
pX, platoon unblocked	0.00											
vC, conflicting volume	0	843			671			1220	1640	317	1305	1656
vC1, stage 1 conf vol								724	724		896	896
vC2, stage 2 conf vol								497	916		409	761
vCu, unblocked vol	0	843			671			1220	1640	317	1305	1656
tC, single (s)	0.0	4.1			4.1			7.5	6.5	6.9	7.5	6.5
tC, 2 stage (s)								6.5	5.5		6.5	5.5
tF (s)	0.0	2.2			2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	0	94			96			93	98	95	96	100
cM capacity (veh/h)	0	802			929			241	197	685	211	202

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1
Volume Total	45	317	317	37	37	411	411	20	57	20
Volume Left	45	0	0	0	37	0	0	0	16	8
Volume Right	0	0	0	37	0	0	0	20	37	12
cSH	802	1700	1700	1700	929	1700	1700	1700	401	344
Volume to Capacity	0.06	0.19	0.19	0.02	0.04	0.24	0.24	0.01	0.14	0.06
Queue Length 95th (ft)	4	0	0	0	3	0	0	0	12	5
Control Delay (s)	9.8	0.0	0.0	0.0	9.0	0.0	0.0	0.0	15.4	16.1
Lane LOS	A				A				C	C
Approach Delay (s)	0.6				0.4				15.4	16.1
Approach LOS									C	C

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	37.6%	ICU Level of Service	A
Analysis Period (min)	15		

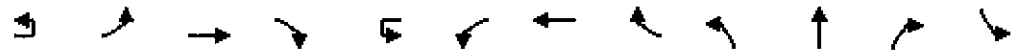
Movement	SBR
Lane Configurations	
Volume (veh/h)	5
Sign Control	
Grade	
Peak Hour Factor	0.42
Hourly flow rate (vph)	12
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	411
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	411
tC, single (s)	6.9
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	98
cM capacity (veh/h)	595
Direction, Lane #	

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Volume (veh/h)	3	19	564	5	7	7	788	4	1	0	4	5
Sign Control			Free				Free			Stop		
Grade			0%				0%			0%		
Peak Hour Factor	0.75	0.59	0.85	0.42	0.58	0.58	0.93	0.50	0.25	0.25	0.50	0.42
Hourly flow rate (vph)	0	33	677	12	0	12	864	8	4	0	8	12
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type			Raised				Raised					
Median storage veh)			1				1					
Upstream signal (ft)												
pX, platoon unblocked	0.00				0.00							
vC, conflicting volume	0	872			0	689			1207	1646	344	1301
vC1, stage 1 conf vol									749	749		889
vC2, stage 2 conf vol									459	897		412
vCu, unblocked vol	0	872			0	689			1207	1646	344	1301
tC, single (s)	0.0	4.2			0.0	4.1			7.5	6.5	6.9	7.5
tC, 2 stage (s)									6.5	5.5		6.5
tF (s)	0.0	2.2			0.0	2.2			3.5	4.0	3.3	3.5
p0 queue free %	0	96			0	99			98	100	99	95
cM capacity (veh/h)	0	750			0	915			248	206	657	225

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1	SB 2
Volume Total	33	451	238	12	432	432	8	12	16	8
Volume Left	33	0	0	12	0	0	0	4	12	0
Volume Right	0	0	12	0	0	0	8	8	0	8
cSH	750	1700	1700	915	1700	1700	1700	425	222	577
Volume to Capacity	0.04	0.27	0.14	0.01	0.25	0.25	0.00	0.03	0.07	0.01
Queue Length 95th (ft)	3	0	0	1	0	0	0	2	6	1
Control Delay (s)	10.0	0.0	0.0	9.0	0.0	0.0	0.0	13.7	22.5	11.3
Lane LOS	B			A				B	C	B
Approach Delay (s)	0.5			0.1				13.7	18.8	
Approach LOS								B	C	

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	38.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	SBT	SBR
Lane Configurations		
Volume (veh/h)	1	5
Sign Control	Stop	
Grade	0%	
Peak Hour Factor	0.25	0.63
Hourly flow rate (vph)	4	8
Pedestrians		
Lane Width (ft)		
Walking Speed (ft/s)		
Percent Blockage		
Right turn flare (veh)		
Median type		
Median storage veh)		
Upstream signal (ft)		
pX, platoon unblocked		
vC, conflicting volume	1644	432
vC1, stage 1 conf vol	889	
vC2, stage 2 conf vol	755	
vCu, unblocked vol	1644	432
tC, single (s)	6.5	6.9
tC, 2 stage (s)	5.5	
tF (s)	4.0	3.3
p0 queue free %	98	99
cM capacity (veh/h)	214	577
Direction, Lane #		



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Volume (veh/h)	2	126	443	0	2	0	713	125	0	0	0	28
Sign Control			Free				Free			Stop		
Grade			0%				0%			0%		
Peak Hour Factor	0.50	0.85	0.80	0.25	0.50	0.25	0.96	0.73	0.25	0.25	0.25	0.88
Hourly flow rate (vph)	0	151	565	0	0	0	758	175	0	0	0	32
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type			Raised				Raised					
Median storage veh)			1				1					
Upstream signal (ft)												
pX, platoon unblocked	0.00				0.00							
vC, conflicting volume	0	932			0	565			1380	1799	282	1430
vC1, stage 1 conf vol									867	867		845
vC2, stage 2 conf vol									513	932		585
vCu, unblocked vol	0	932			0	565			1380	1799	282	1430
tC, single (s)	0.0	4.1			0.0	4.1			7.5	6.5	6.9	7.5
tC, 2 stage (s)									6.5	5.5		6.5
tF (s)	0.0	2.2			0.0	2.2			3.5	4.0	3.3	3.5
p0 queue free %	0	79			0	100			100	100	100	83
cM capacity (veh/h)	0	730			0	1017			142	135	721	196

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	151	282	282	0	505	427	0	167
Volume Left	151	0	0	0	0	0	0	32
Volume Right	0	0	0	0	0	175	0	134
cSH	730	1700	1700	1700	1700	1700	1700	404
Volume to Capacity	0.21	0.17	0.17	0.00	0.30	0.25	0.00	0.41
Queue Length 95th (ft)	19	0	0	0	0	0	0	49
Control Delay (s)	11.2	0.0	0.0	0.0	0.0	0.0	0.0	20.0
Lane LOS	B						A	C
Approach Delay (s)	2.4			0.0			0.0	20.0
Approach LOS							A	C

Intersection Summary				
Average Delay	2.8			
Intersection Capacity Utilization	49.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	SBT	SBR
Lane Configurations	↕	
Volume (veh/h)	0	96
Sign Control	Stop	
Grade	0%	
Peak Hour Factor	0.25	0.73
Hourly flow rate (vph)	0	134
Pedestrians		
Lane Width (ft)		
Walking Speed (ft/s)		
Percent Blockage		
Right turn flare (veh)		
Median type		
Median storage veh)		
Upstream signal (ft)		
pX, platoon unblocked		
vC, conflicting volume	1712	466
vC1, stage 1 conf vol	845	
vC2, stage 2 conf vol	867	
vCu, unblocked vol	1712	466
tC, single (s)	6.5	6.9
tC, 2 stage (s)	5.5	
tF (s)	4.0	3.3
p0 queue free %	100	75
cM capacity (veh/h)	184	543
Direction, Lane #		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	841	55	30	827	3	71	1	72	2	0	6
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.42	0.95	0.76	0.68	0.97	0.25	0.85	0.25	0.75	0.50	0.25	0.50
Hourly flow rate (vph)	24	903	74	45	870	12	85	4	98	4	0	12
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			Raised							
Median storage veh)					1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	882			977			1489	1923	451	1566	1991	441
vC1, stage 1 conf vol							952	952		966	966	
vC2, stage 2 conf vol							537	972		600	1025	
vCu, unblocked vol	882			977			1489	1923	451	1566	1991	441
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			94			55	98	83	97	100	98
cM capacity (veh/h)	775			714			187	168	561	157	155	570

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	24	451	451	74	45	580	302	187	16
Volume Left	24	0	0	0	45	0	0	85	4
Volume Right	0	0	0	74	0	0	12	98	12
cSH	775	1700	1700	1700	714	1700	1700	286	343
Volume to Capacity	0.03	0.27	0.27	0.04	0.06	0.34	0.18	0.65	0.05
Queue Length 95th (ft)	2	0	0	0	5	0	0	106	4
Control Delay (s)	9.8	0.0	0.0	0.0	10.4	0.0	0.0	38.5	16.0
Lane LOS	A				B			E	C
Approach Delay (s)	0.2				0.5			38.5	16.0
Approach LOS								E	C

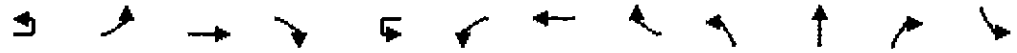
Intersection Summary				
Average Delay	3.8			
Intersection Capacity Utilization	47.3%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Volume (veh/h)	33	13	869	22	4	40	814	9	27	2	27	18
Sign Control			Free				Free			Stop		
Grade			0%				0%			0%		
Peak Hour Factor	0.83	0.65	0.93	0.92	0.50	0.77	0.96	0.75	0.84	0.25	0.68	0.50
Hourly flow rate (vph)	0	20	953	24	0	53	865	12	33	8	40	37
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type			Raised				Raised					
Median storage veh)			1				1					
Upstream signal (ft)												
pX, platoon unblocked	0.00				0.00							
vC, conflicting volume	0	877			0	977			1561	1977	477	1492
vC1, stage 1 conf vol									994	994		971
vC2, stage 2 conf vol									567	983		521
vCu, unblocked vol	0	877			0	977			1561	1977	477	1492
tC, single (s)	0.0	4.1			0.0	4.1			7.5	6.5	6.9	7.5
tC, 2 stage (s)									6.5	5.5		6.5
tF (s)	0.0	2.2			0.0	2.2			3.5	4.0	3.3	3.5
p0 queue free %	0	97			0	93			81	95	93	79
cM capacity (veh/h)	0	778			0	714			171	163	540	172

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1
Volume Total	20	477	477	24	53	432	432	12	81	69
Volume Left	20	0	0	0	53	0	0	0	33	37
Volume Right	0	0	0	24	0	0	0	12	40	24
cSH	778	1700	1700	1700	714	1700	1700	1700	257	224
Volume to Capacity	0.03	0.28	0.28	0.01	0.07	0.25	0.25	0.01	0.32	0.31
Queue Length 95th (ft)	2	0	0	0	6	0	0	0	33	31
Control Delay (s)	9.7	0.0	0.0	0.0	10.4	0.0	0.0	0.0	25.3	28.1
Lane LOS	A				B				D	D
Approach Delay (s)	0.2				0.6				25.3	28.1
Approach LOS									D	D

Intersection Summary				
Average Delay	2.3			
Intersection Capacity Utilization	41.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	SBT	SBR
Lane Configurations	↕	
Volume (veh/h)	2	15
Sign Control	Stop	
Grade	0%	
Peak Hour Factor	0.25	0.63
Hourly flow rate (vph)	8	24
Pedestrians		
Lane Width (ft)		
Walking Speed (ft/s)		
Percent Blockage		
Right turn flare (veh)		
Median type		
Median storage veh)		
Upstream signal (ft)		
pX, platoon unblocked		
vC, conflicting volume	1989	432
vC1, stage 1 conf vol	971	
vC2, stage 2 conf vol	1018	
vCu, unblocked vol	1989	432
tC, single (s)	6.5	6.9
tC, 2 stage (s)	5.5	
tF (s)	4.0	3.3
p0 queue free %	95	96
cM capacity (veh/h)	153	577
Direction, Lane #		



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Volume (veh/h)	12	42	871	4	14	14	813	19	3	0	11	17
Sign Control			Free				Free			Stop		
Grade			0%				0%			0%		
Peak Hour Factor	0.50	0.96	0.91	0.33	0.70	0.58	0.92	0.48	0.38	0.25	0.46	0.85
Hourly flow rate (vph)	0	45	976	12	0	25	901	40	8	0	24	20
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type			Raised				Raised					
Median storage veh)			1				1					
Upstream signal (ft)												
pX, platoon unblocked	0.00				0.00							
vC, conflicting volume	0	942			0	989			1574	2063	494	1552
vC1, stage 1 conf vol									1072	1072		951
vC2, stage 2 conf vol									502	991		602
vCu, unblocked vol	0	942			0	989			1574	2063	494	1552
tC, single (s)	0.0	4.1			0.0	4.1			7.5	6.5	6.9	7.5
tC, 2 stage (s)									6.5	5.5		6.5
tF (s)	0.0	2.2			0.0	2.2			3.5	4.0	3.3	3.5
p0 queue free %	0	94			0	97			95	100	95	88
cM capacity (veh/h)	0	736			0	707			156	149	526	177

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1	SB 2
Volume Total	45	651	338	25	451	451	40	32	24	65
Volume Left	45	0	0	25	0	0	0	8	20	0
Volume Right	0	0	12	0	0	0	40	24	0	65
cSH	736	1700	1700	707	1700	1700	1700	331	173	561
Volume to Capacity	0.06	0.38	0.20	0.03	0.27	0.27	0.02	0.10	0.14	0.12
Queue Length 95th (ft)	5	0	0	3	0	0	0	8	12	10
Control Delay (s)	10.2	0.0	0.0	10.3	0.0	0.0	0.0	17.0	29.3	12.3
Lane LOS	B			B				C	D	B
Approach Delay (s)	0.4			0.3				17.0	16.9	
Approach LOS								C	C	

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	46.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SBT	SBR
Lane Configurations		
Volume (veh/h)	1	43
Sign Control	Stop	
Grade	0%	
Peak Hour Factor	0.25	0.67
Hourly flow rate (vph)	4	65
Pedestrians		
Lane Width (ft)		
Walking Speed (ft/s)		
Percent Blockage		
Right turn flare (veh)		
Median type		
Median storage veh)		
Upstream signal (ft)		
pX, platoon unblocked		
vC, conflicting volume	2029	451
vC1, stage 1 conf vol	951	
vC2, stage 2 conf vol	1078	
vCu, unblocked vol	2029	451
tC, single (s)	6.5	6.9
tC, 2 stage (s)	5.5	
tF (s)	4.0	3.3
p0 queue free %	97	88
cM capacity (veh/h)	155	561
Direction, Lane #		

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Volume (veh/h)	17	63	866	1	12	0	654	24	0	0	0	51
Sign Control			Free				Free			Stop		
Grade			0%				0%			0%		
Peak Hour Factor	0.47	0.83	0.93	0.25	0.60	0.25	0.91	0.60	0.25	0.25	0.25	0.80
Hourly flow rate (vph)	0	77	950	4	0	0	733	41	0	0	0	65
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type			Raised				Raised					
Median storage veh)			1				1					
Upstream signal (ft)												
pX, platoon unblocked	0.00				0.00							
vC, conflicting volume	0	774			0	954			1745	1881	477	1383
vC1, stage 1 conf vol									1107	1107		753
vC2, stage 2 conf vol									638	774		630
vCu, unblocked vol	0	774			0	954			1745	1881	477	1383
tC, single (s)	0.0	4.1			0.0	4.1			7.5	6.5	6.9	7.5
tC, 2 stage (s)									6.5	5.5		6.5
tF (s)	0.0	2.2			0.0	2.2			3.5	4.0	3.3	3.5
p0 queue free %	0	91			0	100			100	100	100	71
cM capacity (veh/h)	0	851			0	729			97	163	540	221

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	77	633	321	0	489	285	0	339
Volume Left	77	0	0	0	0	0	0	65
Volume Right	0	0	4	0	0	41	0	270
cSH	851	1700	1700	1700	1700	1700	1700	449
Volume to Capacity	0.09	0.37	0.19	0.00	0.29	0.17	0.00	0.75
Queue Length 95th (ft)	7	0	0	0	0	0	0	158
Control Delay (s)	9.7	0.0	0.0	0.0	0.0	0.0	0.0	33.8
Lane LOS	A						A	D
Approach Delay (s)	0.7			0.0			0.0	33.8
Approach LOS							A	D

Intersection Summary				
Average Delay	5.7			
Intersection Capacity Utilization	52.9%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	SBT	SBR
Lane Configurations		
Volume (veh/h)	1	193
Sign Control	Stop	
Grade	0%	
Peak Hour Factor	0.25	0.73
Hourly flow rate (vph)	4	270
Pedestrians		
Lane Width (ft)		
Walking Speed (ft/s)		
Percent Blockage		
Right turn flare (veh)		
Median type		
Median storage veh)		
Upstream signal (ft)		
pX, platoon unblocked		
vC, conflicting volume	1862	387
vC1, stage 1 conf vol	753	
vC2, stage 2 conf vol	1109	
vCu, unblocked vol	1862	387
tC, single (s)	6.5	6.9
tC, 2 stage (s)	5.5	
tF (s)	4.0	3.3
p0 queue free %	98	56
cM capacity (veh/h)	176	617

Direction, Lane #

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	8	596	95	74	650	2	42	0	21	2	0	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.50	0.98	0.85	0.77	0.86	0.50	0.75	0.25	0.75	0.25	0.25	0.50
Hourly flow rate (vph)	22	851	156	135	1058	6	78	0	39	11	0	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			Raised							
Median storage veh)					1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1064			1008			1700	2229	426	1840	2383	532
vC1, stage 1 conf vol							896	896		1330	1330	
vC2, stage 2 conf vol							804	1333		510	1053	
vCu, unblocked vol	1064			1008			1700	2229	426	1840	2383	532
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			81			47	100	93	89	100	99
cM capacity (veh/h)	663			695			147	113	583	100	90	497

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	22	426	426	156	135	705	358	118	17
Volume Left	22	0	0	0	135	0	0	78	11
Volume Right	0	0	0	156	0	0	6	39	6
cSH	663	1700	1700	1700	695	1700	1700	196	137
Volume to Capacity	0.03	0.25	0.25	0.09	0.19	0.41	0.21	0.60	0.12
Queue Length 95th (ft)	3	0	0	0	18	0	0	84	10
Control Delay (s)	10.6	0.0	0.0	0.0	11.4	0.0	0.0	47.5	34.9
Lane LOS	B				B			E	D
Approach Delay (s)	0.2				1.3			47.5	34.9
Approach LOS								E	D

Intersection Summary				
Average Delay	3.4			
Intersection Capacity Utilization	45.9%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (veh/h)	10	18	541	22	33	742	11	9	1	29	7	0
Sign Control			Free			Free			Stop			Stop
Grade			0%			0%			0%			0%
Peak Hour Factor	0.63	0.41	0.87	0.61	0.92	0.92	0.55	0.56	0.25	0.81	0.88	0.25
Hourly flow rate (vph)	0	61	871	50	50	1129	28	22	6	50	11	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type			Raised			Raised						
Median storage veh)			1			1						
Upstream signal (ft)												
pX, platoon unblocked	0.00											
vC, conflicting volume	0	1157			921			1675	2251	435	1791	2274
vC1, stage 1 conf vol								994	994		1230	1230
vC2, stage 2 conf vol								682	1258		561	1044
vCu, unblocked vol	0	1157			921			1675	2251	435	1791	2274
tC, single (s)	0.0	4.1			4.1			7.5	6.5	6.9	7.5	6.5
tC, 2 stage (s)								6.5	5.5		6.5	5.5
tF (s)	0.0	2.2			2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	0	90			93			85	95	91	91	100
cM capacity (veh/h)	0	611			750			147	112	574	123	121

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1
Volume Total	61	435	435	50	50	565	565	28	78	28
Volume Left	61	0	0	0	50	0	0	0	22	11
Volume Right	0	0	0	50	0	0	0	28	50	17
cSH	611	1700	1700	1700	750	1700	1700	1700	270	221
Volume to Capacity	0.10	0.26	0.26	0.03	0.07	0.33	0.33	0.02	0.29	0.13
Queue Length 95th (ft)	8	0	0	0	5	0	0	0	29	11
Control Delay (s)	11.5	0.0	0.0	0.0	10.1	0.0	0.0	0.0	23.7	23.6
Lane LOS	B				B				C	C
Approach Delay (s)	0.7				0.4				23.7	23.6
Approach LOS									C	C

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	45.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SBR
Lane Configurations	
Volume (veh/h)	5
Sign Control	
Grade	
Peak Hour Factor	0.42
Hourly flow rate (vph)	17
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	565
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	565
tC, single (s)	6.9
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	96
cM capacity (veh/h)	474
Direction, Lane #	

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Volume (veh/h)	3	19	564	5	7	7	788	4	1	0	4	5
Sign Control			Free				Free			Stop		
Grade			0%				0%			0%		
Peak Hour Factor	0.75	0.59	0.85	0.42	0.58	0.58	0.93	0.50	0.25	0.25	0.50	0.42
Hourly flow rate (vph)	0	45	929	17	0	17	1186	11	6	0	11	17
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type			Raised				Raised					
Median storage veh)			1				1					
Upstream signal (ft)												
pX, platoon unblocked	0.00				0.00							
vC, conflicting volume	0	1197			0	946			1657	2259	473	1786
vC1, stage 1 conf vol									1027	1027		1220
vC2, stage 2 conf vol									630	1231		566
vCu, unblocked vol	0	1197			0	946			1657	2259	473	1786
tC, single (s)	0.0	4.2			0.0	4.1			7.5	6.5	6.9	7.5
tC, 2 stage (s)									6.5	5.5		6.5
tF (s)	0.0	2.2			0.0	2.2			3.5	4.0	3.3	3.5
p0 queue free %	0	92			0	98			96	100	98	88
cM capacity (veh/h)	0	562			0	734			155	125	543	137

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1	SB 2
Volume Total	45	619	326	17	593	593	11	17	22	11
Volume Left	45	0	0	17	0	0	0	6	17	0
Volume Right	0	0	17	0	0	0	11	11	0	11
cSH	562	1700	1700	734	1700	1700	1700	296	137	454
Volume to Capacity	0.08	0.36	0.19	0.02	0.35	0.35	0.01	0.06	0.16	0.02
Queue Length 95th (ft)	7	0	0	2	0	0	0	4	14	2
Control Delay (s)	12.0	0.0	0.0	10.0	0.0	0.0	0.0	17.9	36.4	13.1
Lane LOS	B			B				C	E	B
Approach Delay (s)	0.5			0.1				17.9	28.7	
Approach LOS								C	D	

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	47.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SBT	SBR
Lane Configurations		
Volume (veh/h)	1	5
Sign Control	Stop	
Grade	0%	
Peak Hour Factor	0.25	0.63
Hourly flow rate (vph)	6	11
Pedestrians		
Lane Width (ft)		
Walking Speed (ft/s)		
Percent Blockage		
Right turn flare (veh)		
Median type		
Median storage veh)		
Upstream signal (ft)		
pX, platoon unblocked		
vC, conflicting volume	2256	593
vC1, stage 1 conf vol	1220	
vC2, stage 2 conf vol	1036	
vCu, unblocked vol	2256	593
tC, single (s)	6.5	6.9
tC, 2 stage (s)	5.5	
tF (s)	4.0	3.3
p0 queue free %	96	98
cM capacity (veh/h)	135	454
Direction, Lane #		

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Volume (veh/h)	2	126	443	0	2	0	713	125	0	0	0	28
Sign Control			Free				Free			Stop		
Grade			0%				0%			0%		
Peak Hour Factor	0.50	0.85	0.80	0.25	0.50	0.25	0.96	0.73	0.25	0.25	0.25	0.88
Hourly flow rate (vph)	0	208	775	0	0	0	1040	240	0	0	0	45
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type			Raised				Raised					
Median storage veh)			1				1					
Upstream signal (ft)												
pX, platoon unblocked	0.00				0.00							
vC, conflicting volume	0	1280			0	775			1894	2470	388	1962
vC1, stage 1 conf vol									1190	1190		1160
vC2, stage 2 conf vol									704	1280		803
vCu, unblocked vol	0	1280			0	775			1894	2470	388	1962
tC, single (s)	0.0	4.1			0.0	4.1			7.5	6.5	6.9	7.5
tC, 2 stage (s)									6.5	5.5		6.5
tF (s)	0.0	2.2			0.0	2.2			3.5	4.0	3.3	3.5
p0 queue free %	0	61			0	100			100	100	100	59
cM capacity (veh/h)	0	538			0	850			17	28	617	109

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	208	388	388	0	693	586	0	229
Volume Left	208	0	0	0	0	0	0	45
Volume Right	0	0	0	0	0	240	0	184
cSH	538	1700	1700	1700	1700	1700	1700	270
Volume to Capacity	0.39	0.23	0.23	0.00	0.41	0.34	0.00	0.85
Queue Length 95th (ft)	45	0	0	0	0	0	0	176
Control Delay (s)	15.8	0.0	0.0	0.0	0.0	0.0	0.0	63.2
Lane LOS	C						A	F
Approach Delay (s)	3.3			0.0			0.0	63.2
Approach LOS							A	F

Intersection Summary			
Average Delay	7.1		
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	SBT	SBR
Lane Configurations	↕	
Volume (veh/h)	0	96
Sign Control	Stop	
Grade	0%	
Peak Hour Factor	0.25	0.73
Hourly flow rate (vph)	0	184
Pedestrians		
Lane Width (ft)		
Walking Speed (ft/s)		
Percent Blockage		
Right turn flare (veh)		
Median type		
Median storage veh)		
Upstream signal (ft)		
pX, platoon unblocked		
vC, conflicting volume	2350	640
vC1, stage 1 conf vol	1160	
vC2, stage 2 conf vol	1190	
vCu, unblocked vol	2350	640
tC, single (s)	6.5	6.9
tC, 2 stage (s)	5.5	
tF (s)	4.0	3.3
p0 queue free %	100	56
cM capacity (veh/h)	102	418
Direction, Lane #		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	841	55	30	827	3	71	1	72	2	0	6
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.42	0.95	0.76	0.68	0.97	0.25	0.85	0.25	0.75	0.50	0.25	0.50
Hourly flow rate (vph)	33	1239	101	62	1194	17	117	6	134	6	0	17
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			Raised							
Median storage veh)					1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1210			1341			2043	2640	620	2149	2733	605
vC1, stage 1 conf vol							1306	1306		1326	1326	
vC2, stage 2 conf vol							737	1334		824	1407	
vCu, unblocked vol	1210			1341			2043	2640	620	2149	2733	605
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	94			88			0	94	69	93	100	96
cM capacity (veh/h)	583			521			106	95	436	76	81	446

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	33	620	620	101	62	796	415	257	22
Volume Left	33	0	0	0	62	0	0	117	6
Volume Right	0	0	0	101	0	0	17	134	17
cSH	583	1700	1700	1700	521	1700	1700	175	201
Volume to Capacity	0.06	0.36	0.36	0.06	0.12	0.47	0.24	1.47	0.11
Queue Length 95th (ft)	5	0	0	0	10	0	0	404	9
Control Delay (s)	11.5	0.0	0.0	0.0	12.8	0.0	0.0	286.9	25.2
Lane LOS	B				B			F	D
Approach Delay (s)	0.3				0.6			286.9	25.2
Approach LOS								F	D

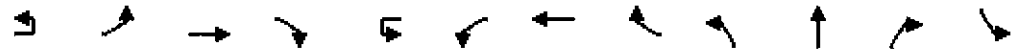
Intersection Summary				
Average Delay	25.8			
Intersection Capacity Utilization	60.0%	ICU Level of Service		B
Analysis Period (min)	15			

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Volume (veh/h)	33	13	869	22	4	40	814	9	27	2	27	18
Sign Control			Free				Free			Stop		
Grade			0%				0%			0%		
Peak Hour Factor	0.83	0.65	0.93	0.92	0.50	0.77	0.96	0.75	0.84	0.25	0.68	0.50
Hourly flow rate (vph)	0	28	1308	33	0	73	1187	17	45	11	56	50
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type			Raised				Raised					
Median storage veh)			1				1					
Upstream signal (ft)												
pX, platoon unblocked	0.00				0.00							
vC, conflicting volume	0	1204			0	1342			2142	2714	654	2048
vC1, stage 1 conf vol									1364	1364		1333
vC2, stage 2 conf vol									778	1349		716
vCu, unblocked vol	0	1204			0	1342			2142	2714	654	2048
tC, single (s)	0.0	4.1			0.0	4.1			7.5	6.5	6.9	7.5
tC, 2 stage (s)									6.5	5.5		6.5
tF (s)	0.0	2.2			0.0	2.2			3.5	4.0	3.3	3.5
p0 queue free %	0	95			0	86			52	88	87	44
cM capacity (veh/h)	0	587			0	520			93	91	414	90

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1
Volume Total	28	654	654	33	73	594	594	17	112	95
Volume Left	28	0	0	0	73	0	0	0	45	50
Volume Right	0	0	0	33	0	0	0	17	56	33
cSH	587	1700	1700	1700	520	1700	1700	1700	151	122
Volume to Capacity	0.05	0.38	0.38	0.02	0.14	0.35	0.35	0.01	0.74	0.78
Queue Length 95th (ft)	4	0	0	0	12	0	0	0	112	113
Control Delay (s)	11.4	0.0	0.0	0.0	13.0	0.0	0.0	0.0	76.8	97.4
Lane LOS	B				B				F	F
Approach Delay (s)	0.2				0.7				76.8	97.4
Approach LOS									F	F

Intersection Summary			
Average Delay	6.7		
Intersection Capacity Utilization	52.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SBT	SBR
Lane Configurations		
Volume (veh/h)	2	15
Sign Control	Stop	
Grade	0%	
Peak Hour Factor	0.25	0.63
Hourly flow rate (vph)	11	33
Pedestrians		
Lane Width (ft)		
Walking Speed (ft/s)		
Percent Blockage		
Right turn flare (veh)		
Median type		
Median storage veh)		
Upstream signal (ft)		
pX, platoon unblocked		
vC, conflicting volume	2730	594
vC1, stage 1 conf vol	1333	
vC2, stage 2 conf vol	1398	
vCu, unblocked vol	2730	594
tC, single (s)	6.5	6.9
tC, 2 stage (s)	5.5	
tF (s)	4.0	3.3
p0 queue free %	86	93
cM capacity (veh/h)	77	453
Direction, Lane #		



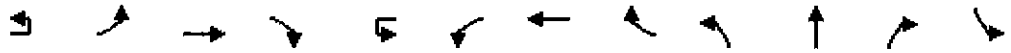
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Volume (veh/h)	12	42	871	4	14	14	813	19	3	0	11	17
Sign Control			Free				Free			Stop		
Grade			0%				0%			0%		
Peak Hour Factor	0.50	0.96	0.91	0.33	0.70	0.58	0.92	0.48	0.38	0.25	0.46	0.85
Hourly flow rate (vph)	0	61	1340	17	0	34	1237	55	11	0	33	28
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type			Raised				Raised					
Median storage veh)			1				1					
Upstream signal (ft)												
pX, platoon unblocked	0.00				0.00							
vC, conflicting volume	0	1293			0	1357			2160	2831	678	2131
vC1, stage 1 conf vol									1471	1471		1305
vC2, stage 2 conf vol									689	1360		826
vCu, unblocked vol	0	1293			0	1357			2160	2831	678	2131
tC, single (s)	0.0	4.1			0.0	4.1			7.5	6.5	6.9	7.5
tC, 2 stage (s)									6.5	5.5		6.5
tF (s)	0.0	2.2			0.0	2.2			3.5	4.0	3.3	3.5
p0 queue free %	0	89			0	93			86	100	92	71
cM capacity (veh/h)	0	543			0	513			80	78	399	98

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1	SB 2
Volume Total	61	893	464	34	619	619	55	45	34	90
Volume Left	61	0	0	34	0	0	0	11	28	0
Volume Right	0	0	17	0	0	0	55	33	0	90
cSH	543	1700	1700	513	1700	1700	1700	200	95	437
Volume to Capacity	0.11	0.53	0.27	0.07	0.36	0.36	0.03	0.22	0.35	0.21
Queue Length 95th (ft)	9	0	0	5	0	0	0	21	35	19
Control Delay (s)	12.5	0.0	0.0	12.5	0.0	0.0	0.0	28.1	62.3	15.4
Lane LOS	B			B				D	F	C
Approach Delay (s)	0.5			0.3				28.1	28.1	
Approach LOS								D	D	

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	56.0%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	SBT	SBR
Lane Configurations		
Volume (veh/h)	1	43
Sign Control	Stop	
Grade	0%	
Peak Hour Factor	0.25	0.67
Hourly flow rate (vph)	6	90
Pedestrians		
Lane Width (ft)		
Walking Speed (ft/s)		
Percent Blockage		
Right turn flare (veh)		
Median type		
Median storage veh)		
Upstream signal (ft)		
pX, platoon unblocked		
vC, conflicting volume	2784	619
vC1, stage 1 conf vol	1305	
vC2, stage 2 conf vol	1479	
vCu, unblocked vol	2784	619
tC, single (s)	6.5	6.9
tC, 2 stage (s)	5.5	
tF (s)	4.0	3.3
p0 queue free %	93	79
cM capacity (veh/h)	83	437

Direction, Lane #	



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Volume (veh/h)	17	63	866	1	12	0	654	24	0	0	0	51
Sign Control			Free				Free			Stop		
Grade			0%				0%			0%		
Peak Hour Factor	0.47	0.83	0.93	0.25	0.60	0.25	0.91	0.60	0.25	0.25	0.25	0.80
Hourly flow rate (vph)	0	106	1304	6	0	0	1006	56	0	0	0	89
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type			Raised				Raised					
Median storage veh)			1				1					
Upstream signal (ft)												
pX, platoon unblocked	0.00				0.00							
vC, conflicting volume	0	1062			0	1309			2395	2581	655	1899
vC1, stage 1 conf vol									1519	1519		1034
vC2, stage 2 conf vol									876	1062		864
vCu, unblocked vol	0	1062			0	1309			2395	2581	655	1899
tC, single (s)	0.0	4.1			0.0	4.1			7.5	6.5	6.9	7.5
tC, 2 stage (s)									6.5	5.5		6.5
tF (s)	0.0	2.2			0.0	2.2			3.5	4.0	3.3	3.5
p0 queue free %	0	84			0	100			100	100	100	34
cM capacity (veh/h)	0	664			0	535			4	88	414	136

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	106	869	440	0	671	391	0	465
Volume Left	106	0	0	0	0	0	0	89
Volume Right	0	0	6	0	0	56	0	370
cSH	664	1700	1700	1700	1700	1700	1700	320
Volume to Capacity	0.16	0.51	0.26	0.00	0.39	0.23	0.00	1.45
Queue Length 95th (ft)	14	0	0	0	0	0	0	628
Control Delay (s)	11.5	0.0	0.0	0.0	0.0	0.0	0.0	252.2
Lane LOS	B						A	F
Approach Delay (s)	0.9			0.0			0.0	252.2
Approach LOS							A	F

Intersection Summary			
Average Delay	40.3		
Intersection Capacity Utilization	67.6%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	SBT	SBR
Lane Configurations	↕	
Volume (veh/h)	1	193
Sign Control	Stop	
Grade	0%	
Peak Hour Factor	0.25	0.73
Hourly flow rate (vph)	6	370
Pedestrians		
Lane Width (ft)		
Walking Speed (ft/s)		
Percent Blockage		
Right turn flare (veh)		
Median type		
Median storage veh)		
Upstream signal (ft)		
pX, platoon unblocked		
vC, conflicting volume	2556	531
vC1, stage 1 conf vol	1034	
vC2, stage 2 conf vol	1522	
vCu, unblocked vol	2556	531
tC, single (s)	6.5	6.9
tC, 2 stage (s)	5.5	
tF (s)	4.0	3.3
p0 queue free %	95	26
cM capacity (veh/h)	103	498
Direction, Lane #		

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SUMMARY OF MEETING DECISIONS

MEETING DATE: August 17, 2010
Covington City Hall Council Room

PARTICIPANTS: Steve Horton, City of Covington
Billy Skinner, City of Covington
Billy Bouchillon, City of Covington
Terry Savage, City of Covington
Randy Vinson, City of Covington
Bryan Gibbs, GDOT District 2
Robert Moon, GDOT District 2
Raye Southerland, GDOT District 2
George Brewer, GDOT District 2
Nick Castronova, URS Corporation

DISCUSSION: US278 Median Turn Lanes
CSSTP-0008-00(303) Newton; PI 0008303

A meeting of the above listed participants was held on August 17th at 10:00AM in the Covington City Hall Council Room to discuss the conceptual development of the project on US278 to convert median turn lanes from Type A to Type B at the intersections of Hospital Drive, Adams Street, Hannah Street, and the western half of Industrial Blvd. The purpose of the proposed meeting is to discuss all issues surrounding this project prior to submission of the draft concept report. The schedule was discussed in terms of trying to complete the design of this project prior to the completion of the US278 and SR142 project to minimize duration of construction activity in the corridor.

The meeting began by Nick discussing the project limits and construction methods. The proposed project begins at Mill Street and ends at Industrial Blvd having reconstructed only the west aside of the intersection because the US278 at SR142 project is currently under construction and will reconstruct the eastern side of the Industrial Blvd intersection. This project will include full depth paving of median areas necessary to construct type B median crossovers. The raised median will be doweled in on top of the asphalt.

Bryan discussed the schedule and construction of the US278 at SR142 intersection project and how plans have changed to include overlay only on the US278 section and not the originally designed full depth paving. This potentially frees up some funds to be used for a signal, if warranted, at Industrial Blvd.

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1000 Abernathy Road, NE
Suite 900
Tel: 678.808.8800
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www.urscorp.com

Nick discussed the typical section and all in attendance agreed that this section can be left as a rural outside shoulder even though the project to the east has curb and gutter and sidewalk. There is no anticipated R/W since most work is in the median except for possible U-turn paving.

Steve discussed the possibly of using City SPLOST funds to construct sidewalk on at least one side of the road in this section of US278 since there is sidewalk at both termini of the project. There is evidence that this section of US278 has demonstrated pedestrian activity.

Potential environmental concerns were discussed with the only sensitive area initially known being the stream in front of the hospital. There are no other anticipated environmental concerns. This project qualifies for streamlined cultural resources process and the environmental process is anticipated to progress quickly.

The last topic discussed was the traffic and safety aspects of the proposed design. Billy Skinner talked about a potential problem at the intersection of Hospital Drive where left turning vehicles onto US278 may not have enough room in the median for refuge. Raye suggested that since a design variance will be needed for deficient intersection spacing at two locations anyway, that a left in only configuration from US278 to Hospital Drive may be beneficial. Closing the opening was first discussed, but traffic from US278 westbound turning into the hospital needed to be maintained. The hospital also has an access to Mill Street.

It was also mentioned that there was a previous signal warrant analysis performed at US278 and Adams Street that may be beneficial to review. Jimmy Smith is also looking at the Floyd Street and US278 intersection that may have some bearing on the Industrial Drive and US278 intersection. These two studies will be looked into as they relate to this project.

Then the meeting adjourned at 11:30 AM.

Initial Concept Team Meeting
Sign In Sheet

CSSTP-0008-00(303) Newton

Name	Company	Phone	email
Nick Casthamons	URS Corporation	678-808-8821	nick.casthamons@urscorp.com
Steve Horton	City of Covington	770 385-2070	shorton@cityofcovington.org
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BRYAN K. GIBBS	GDOT	706 343-5836	bgibbs@dot.ga.gov
Robert Moon	GDOT	706 3435836	rmoon@dot.ga.gov
RANDY VINSON	COVINGTON PLANNING	770-385-2179	RVinson@cityofcovington.org
Jaye Southerland	GA DOT	478-552-4715	JSoutherland@dot.ga.gov
GEORGE BREWER	GDOT	478-552-4629	gbrewer@dot.ga.gov
Terry Savage	City of Covington	678-794-0495	tsavage@cityofcovington.org
BILL SKINNER	CITY OF COVINGTON	678-794-0339	BSKINNER@CITYOFCOVINGTON.ORG

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SUMMARY OF MEETING DECISIONS
CONCEPT TEAM MEETING

MEETING DATE: October 26, 2010
Covington City Hall Meeting Room

PARTICIPANTS: Bill Skinner, City of Covington
Billy Bouchillon, City of Covington
Terry Savage, City of Covington
Scott Gaither, City of Covington
Bryan Gibbs, GDOT District 2
Jamie Lindsey, GDOT District 2
Jeanie Wheeler, GDOT District 2
George Brewer, GDOT District 2
Jimmy Smith, GDOT District 2
Nick Castronova, URS Corporation

DISCUSSION: US278 Median Turn Lane Conversion
CSSTP-0008-00(303) Newton; PI 0008303

A meeting of the above listed participants was held on October 26th at 10:00AM in the Covington City Hall Meeting Room to discuss the conceptual development of the project on US278 to convert median turn lanes from Type A to Type B at the intersections of Hospital Drive, Adams Street, Hannah Street, and the western half of Industrial Blvd. The purpose of the meeting was to discuss all issues surrounding the project concept report that was previously submitted.

Bill discussed the dim light of the corridor at night in this section of US278 and inquired about lighting the corridor as a part of the project. He also brought up the fact that this will be the only section that will not have sidewalk amenities on at least one side of the street once the project to the east is complete. The project team recommended that these improvements should be considered for a permit type project and not be undertaken as a part of this project because it will greatly slow the pace of this effort. The work that has been accomplished would need to be reapproved showing these improvements and it will be more difficult to clear environmentally if sidewalk is shown within the stream buffer at the hospital. Jimmy asked if there were bicycle or multi-use trails on US278. The answer is no, but the LCI study for this area did show this as a proposed improvement.

While this project is scheduled to be environmentally cleared as a Categorical Exclusion, possibly programmatic, and public involvement is not necessary as a part of the document, a meeting with

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the hospital was discussed because of the potential change in their access. This meeting would be to gather their input on the access change and better understand the internal circulation of their business. At this meeting movement of emergency vehicles through the Hospital Drive intersection and their existing access at Mill Street will also be discussed.

While we were discussing the beginning of the project Jimmy, recommended reconfiguring the median rather than add the right turn only channelization island on Hospital Drive. The drivers will negotiate around the island, but by reconfiguring the median not to allow left turning movements, this will disallow the movement permanently.

Bryan suggested that we restripe the lane lines and edge lines to have a uniform look through this section of the corridor. He also discussed having the City remove the trees if they would like to keep them prior to project letting.

Bryan also suggested that the two foot inside shoulder widening in the median from Hospital Drive to Adams Street be constructed with mountable curb and gutter rather than keep this section of rural shoulder in the plan. The median then can then be sodded.

Jimmy discussed the accident reductions that this project will provide, and at the Industrial Drive intersection, this project will not have the desired effect based on the accident diagrams. To increase the benefit at this intersection, Industrial Drive will need to be upgraded to include a dedicated right and left turn lane and a signal will need to be installed with a protected left phase. These implement these changes on Industrial Drive, major changes in the scope of the median conversion project would need to be made. These improvements will need to be made as a separate intersection upgrade project in the future.

A comment was also made to reconfigure the left turn median storage on US278 to provide more storage for Industrial Drive since more left turning vehicles will need to be stored at this intersection and the type of vehicles tend to be commercial compared with less volume and smaller vehicles at the Hannah Drive intersection.

A comment was also made to narrow the spacing of the Adams Street median opening since it is shown rather wide. Nick responded that the final locations of all median noses will need to be finalized prior to plans submission and that the layout is a representative view of the improvements that will need to be made. These issues will be finalized during detailed design of the project.

Bill made a comment about the width of Hannah Street and whether it can accommodate two vehicles side by side at the intersection. This will not be necessary since this is a one lane approach, the vehicles will stack until the queue is cleared.

Then the conversation turned to the potential relocation of Floyd Street to align with Industrial Blvd. at a signal. Jimmy had previously studied the Floyd Street at US278 intersection and concluded that this realignment would not be a benefit to the accident reduction at this intersection because the majority of the accidents are rear end collisions.

Nick asked if there were any more questions or comments concerning the project and there were none.

At this time the meeting was adjourned at 11:30 AM.

CONCEPT TEAM MEETING

Project Number CSSTP-0008-00(303)
County: Newton
P.I. Number: 0008303

US278 Median Turn Lane Conversion

October 26, 2010

Name	Organization	Phone Number	E-Mail Address
Nick Castronova	URS Corporation	678 808 8821	nick_castronova@urscorp.com
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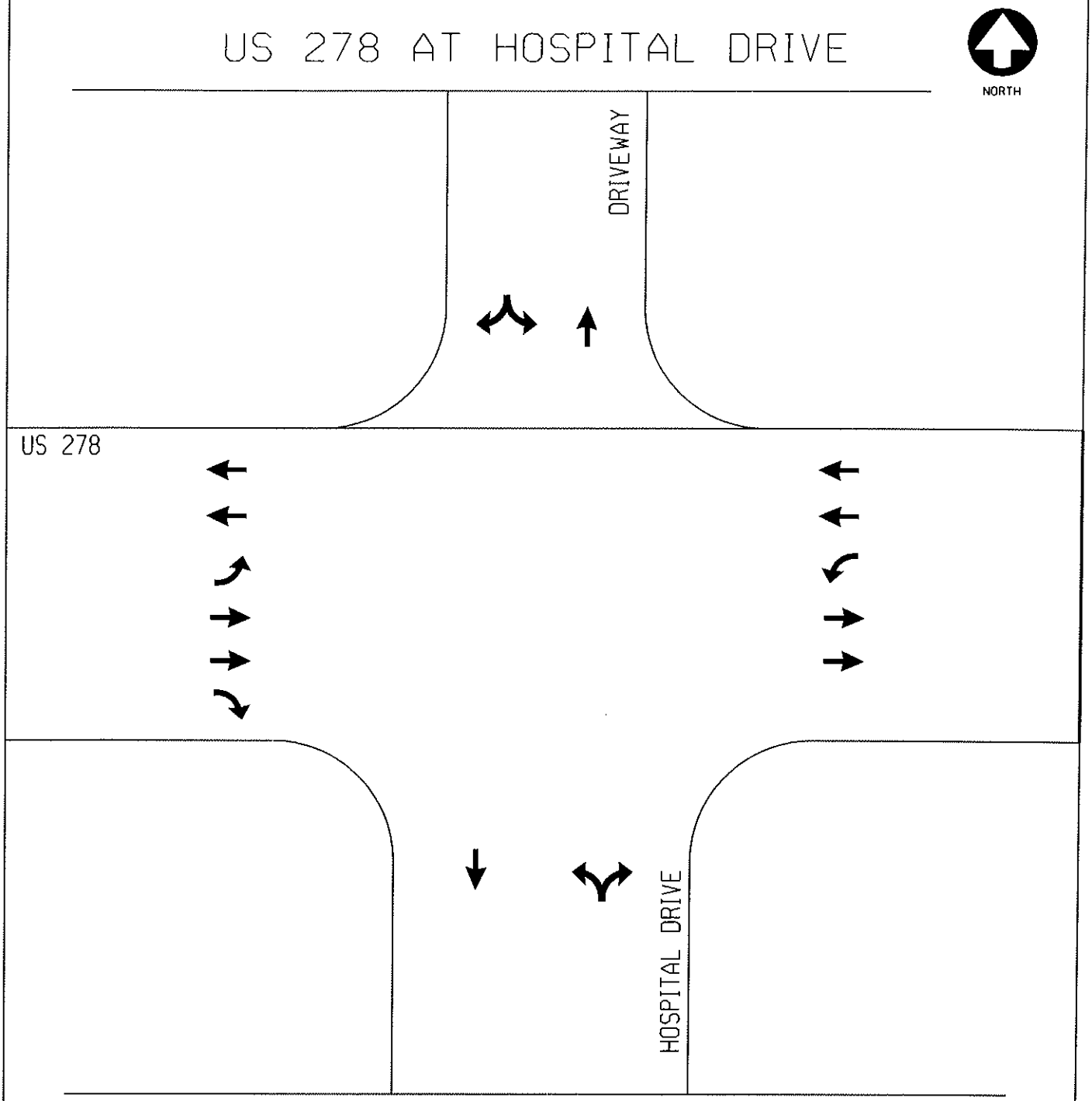
Scott Gaither	City of Covington	770-385-2178	SGAITHER@CITYOFCOVINGTON.ORG
Billy Bouchillon	City of Covington	770-385-6831	BOUCHILLON@CITYOFCOVINGTON.ORG
Bryan K. Gibbs	GDOT	706-343-5836	bgibbs@dot.ga.gov
Jamie Lindsey	GDOT	478-552-4637	jlindsey@dot.ga.gov
Jeanie Wheeler	GDOT	478-552-4638	jewheeler@dot.ga.gov
Bill Skinner	City Covington	678-794-0339	BSKINNER@CITYOFCOVINGTON.ORG
James H. Smith	GDOT	478-552-4619	jismith@dot.ga.gov

US 278 AT HOSPITAL DRIVE

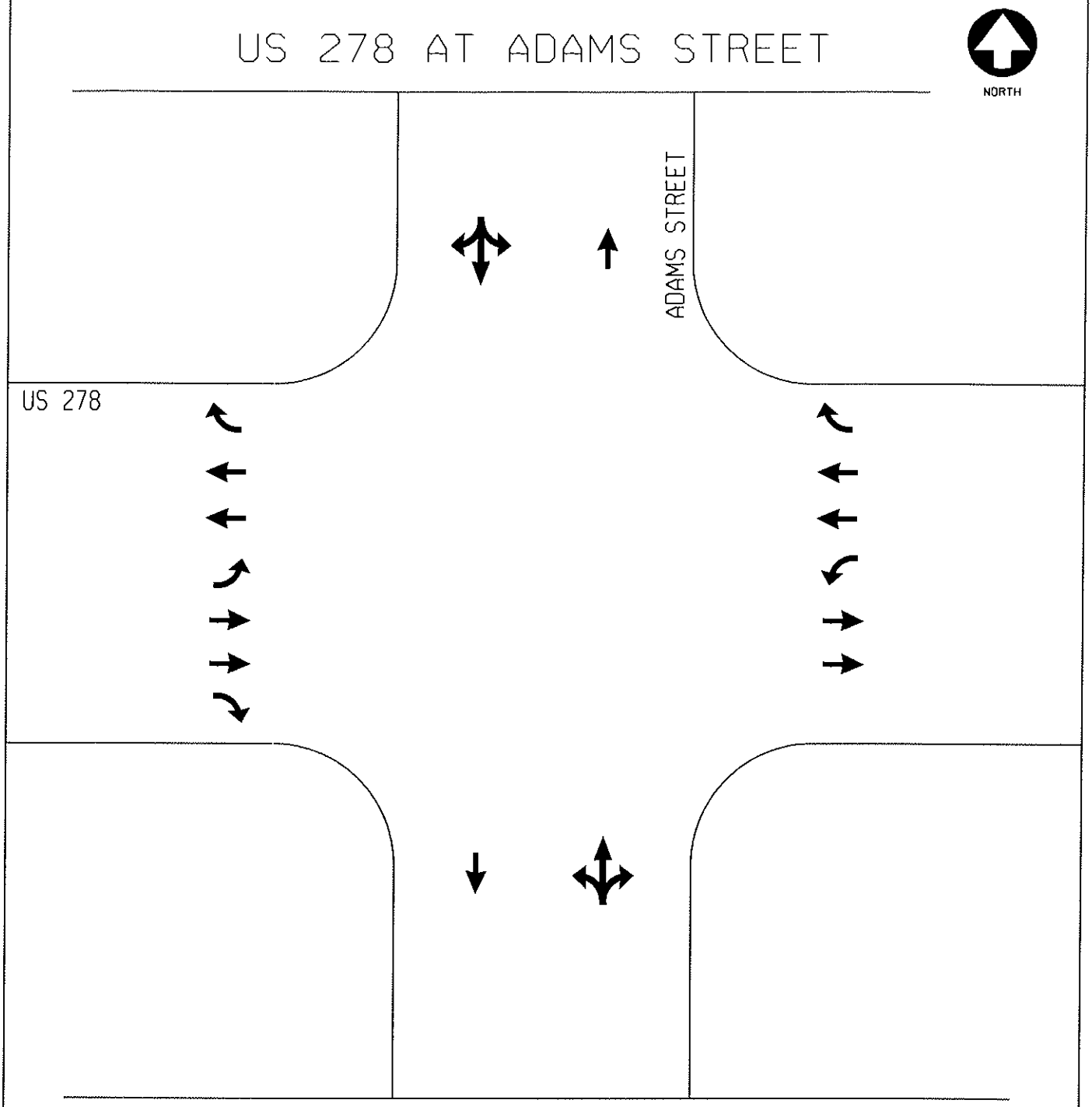


US 278 AT HOSPITAL DRIVE

Newton County, GA

URS CORPORATION
400 NORTHPARK TOWN CENTER
1000 ABERNATHY ROAD, SUITE 900
ATLANTA, GA 30328
TEL: (678) 808-8000 FAX: (678) 808-8400

US 278 AT ADAMS STREET



US 278 AT ADAMS STREET

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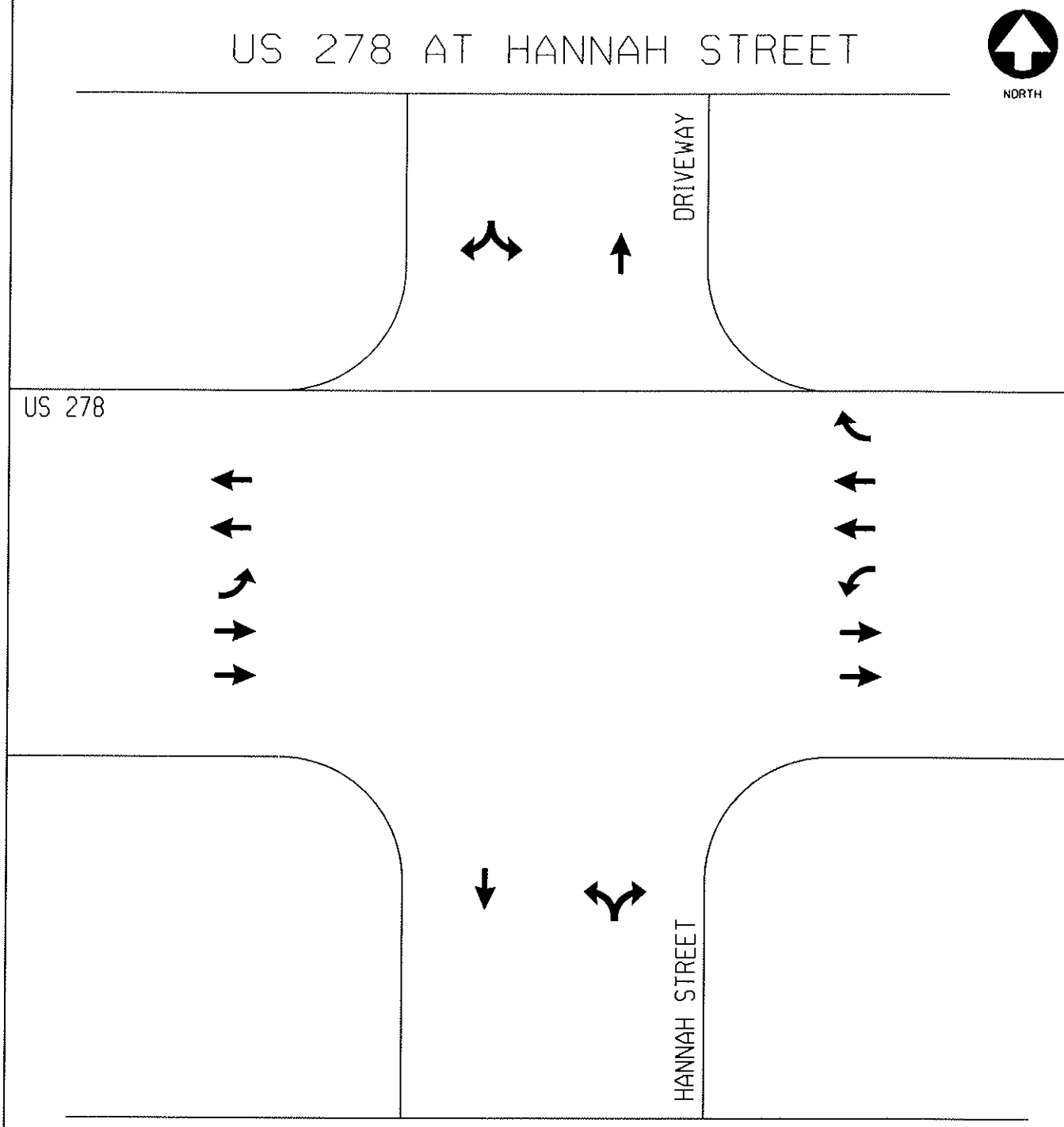
US 278 AT HANNAH STREET



US 278 AT HANNAH STREET

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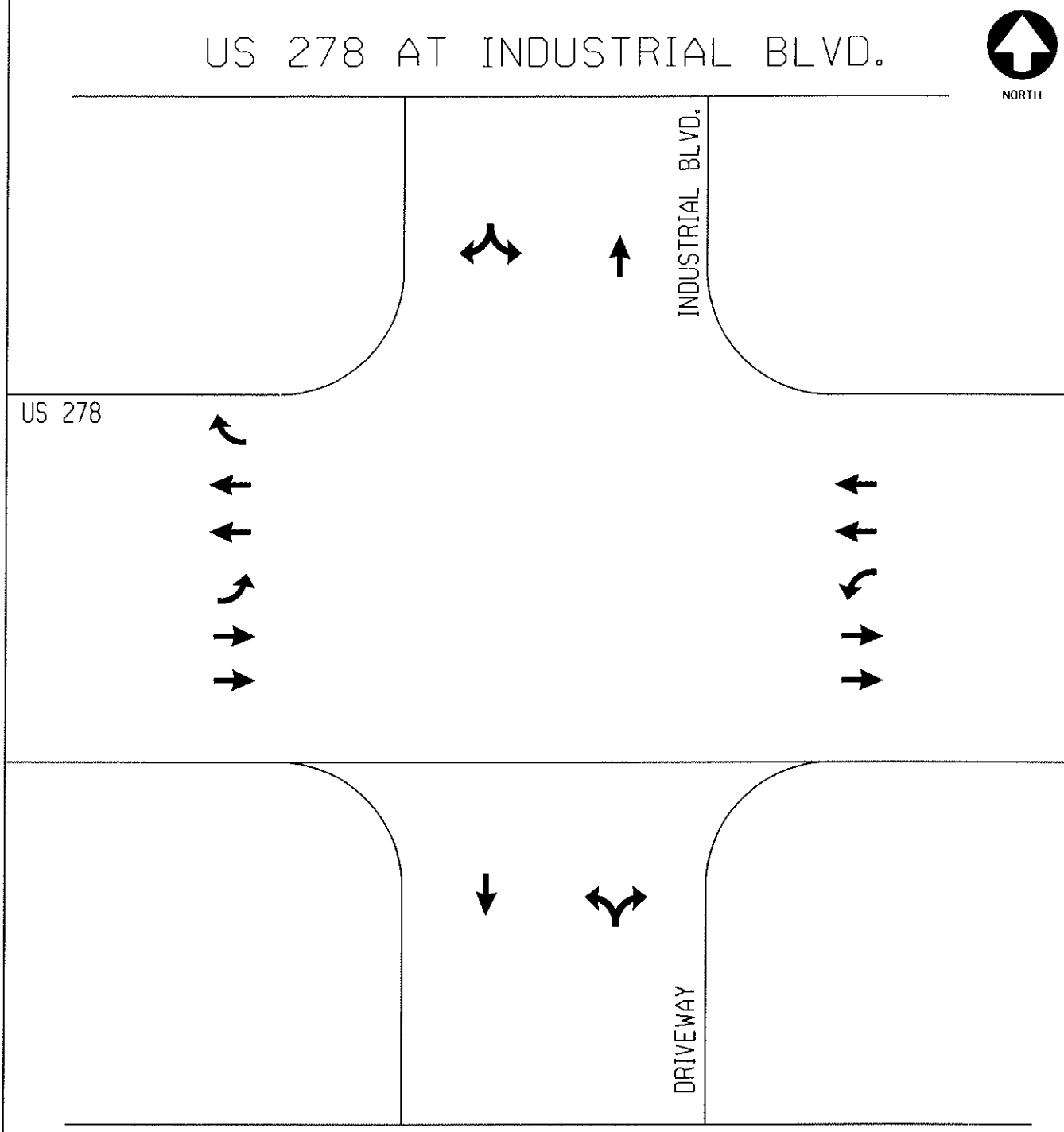
US 278 AT INDUSTRIAL BLVD.



US 278 AT INDUSTRIAL BLVD.

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US278 / SR12 MEDIAN TURN LANE CONVERSION

CSSTP-0008-00(303)

PI# 0008303

NEWTON COUNTY

SCALE IN FEET

0 40 80 160

URS

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