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DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA
PROJECT CONCEPT REPORT

Project Type:	Minor Roadway	P.I. Number:	0007313
GDOT District:	7	County:	Fulton
Federal Route Number:	N/A	State Route Number:	372

The project consists of adding left turn lanes on SR 372 (Crabapple Rd/Birmingham Hwy) and Broadwell Rd; the extension of Crabapple Chase Dr from SR 372 (Crabapple Rd) to McFarlin Ln at SR 372 (Birmingham Hwy). Two single lane roundabouts are proposed; one at SR 372 (Crabapple Rd) and Crabapple Chase Dr and the other at SR 372(Birmingham Hwy) and McFarlin Ln.

Submitted for approval:

Kan Ward, Stantec — 3/28/12
Consultant Designer & Firm — DATE

3/28/12
Local Government — DATE

Office Head *(GDOT Project Manager's Office)* — DATE

GDOT Project Manager — DATE

Recommendation for approval:

Program Control Administrator — DATE

State Environmental Administrator *(recommendation required)* — DATE

State Traffic Engineer *(recommendation required for roundabout projects)* — DATE

Project Review Engineer — DATE

State Utilities Engineer — DATE

District Engineer *(projects not originating in District Office)* — DATE

State Transportation Financial Management Administrator — DATE

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

State Transportation Planning Administrator *(recommendation required)* — DATE

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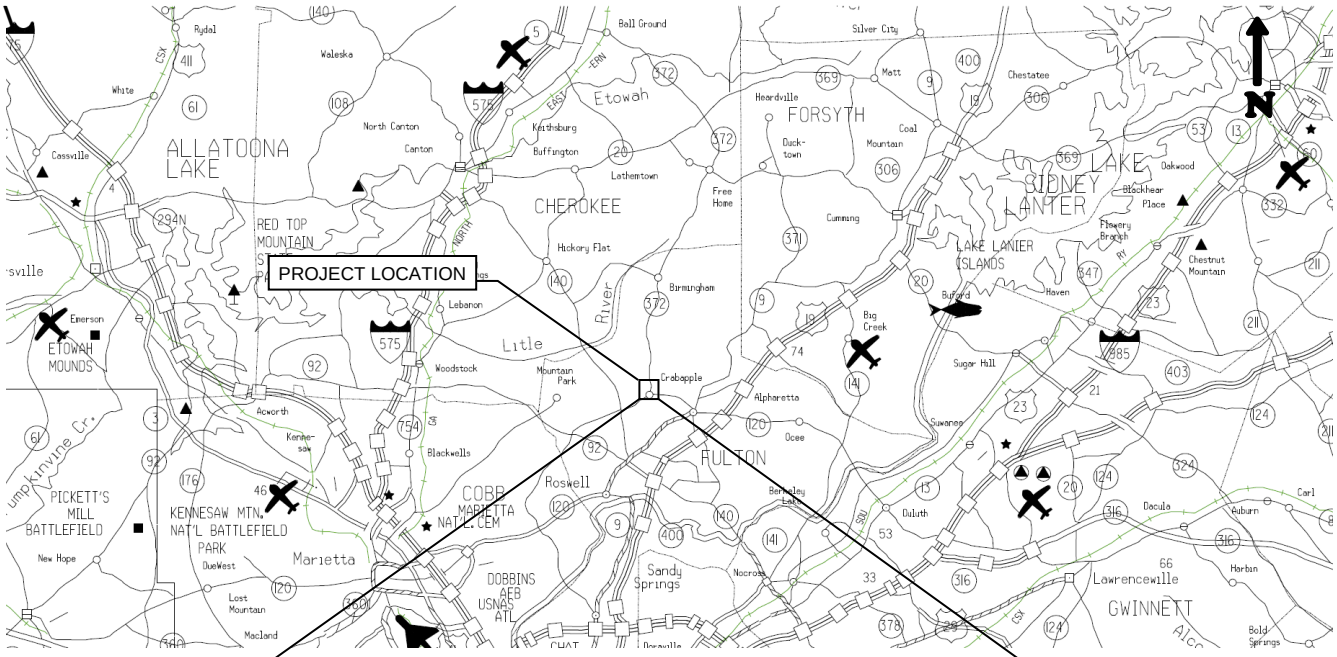
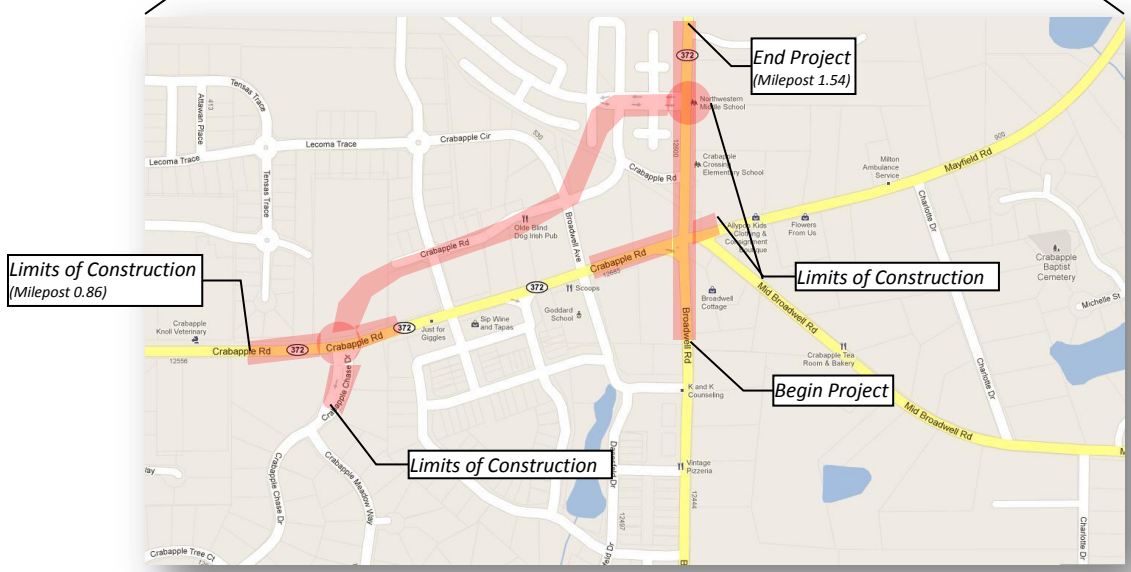
PROJECT LOCATION

P. I. Number: 0007313
Project Number: CSHPP00-0007-00(313)
County: Fulton





SR 372 (Crabapple Road/Birmingham Highway) Intersection Improvements

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PLANNING & BACKGROUND DATA

Project Justification Statement: *The SR 372 (Crabapple Road/Birmingham Highway) Intersection Improvements project began in October 2009 when the City of Milton received approval from GDOT to begin developing a concept for intersection improvements in the Crabapple area. At that time, the Milton Comprehensive Transportation Plan (CTP) was being developed as well as a specific Crabapple Crossroads Transportation Analysis. As a part of the CTP, a Crabapple Charrette and Crabapple Stakeholder meeting were held for the community in 2009. The Charrette included a work session for participants to develop their vision for future Crabapple.*

In the spring of 2011, the City commissioned a visioning study for the Crabapple area prepared by Lew Oliver, Inc – Whole Town Solutions to assist in focusing future planning efforts toward a creative and holistic approach to solving the challenges of the Crabapple area. This planning effort involved extensive public outreach and the recommendations were accepted by the City of Milton Mayor and City Council.

The SR 372 (Crabapple Road/Birmingham Highway) Intersection Improvements project is located in North Fulton County in the City of Milton. The project is in the Atlanta Regional Commission (ARC) MPO Project TIP # FN-237. The existing local roadways in the vicinity of SR 372 (Crabapple Road/Birmingham Highway) intersection are currently being used to bypass the intersection.

Currently the existing intersection of SR 372 (Crabapple Road)/Mayfield Road at SR 372 (Birmingham Highway)/Broadwell Road is a signalized 4-way intersection. The existing two-lane urban roadways do not have separate left turn lanes. The project is within the City of Milton Crabapple Overlay District comprising of historic structures, businesses, community facilities, schools, Churches, and residential developments. The intersection is bordered by an historic district to the east, a gas station and historic property on the northwest corner and the City of Alpharetta Courthouse on the southwest corner.

The 2009 Milton CTP shows the left turn delays along SR 372 (Crabapple Road/Birmingham Highway) cause traffic to back up beyond the intersections SR 372 (Crabapple Road) at Itaska Walk to the west and SR 372 (Birmingham Highway) at McFarlin Lane to the north. Therefore, to reduce delay and improve the operation of the intersection the logical terminus along SR 372 (Crabapple Road)/Mayfield Road shall begin at Crabapple Chase Drive and end at Mid-Broadwell Road and along SR 372 (Birmingham Highway)/Broadwell Road begin at McFarlin Lane and end at Marstow Drive.

Annual Average Daily Traffic (AADT):

Roadway	*Existing 2011*	*No Build 2036*
SR 372 (Birmingham Hwy)	*10,375*	*13,625*
Broadwell Rd	*5,550*	*8,850*
SR 372 (Crabapple Rd)	*10,100*	*19,850*
Mayfield Rd	*9,775*	*18,075*
McFarlin Lane/Parkstead Lane/Branyan Trail/Crabapple Chase Drive	*3,325*	*4,925*

Based on the results of the 2011 existing conditions operational level of service (LOS) analysis, the following intersections are operating at an overall LOS E or F and/or are over capacity during at least one of the peak periods; the tables below show the level of service (LOS) and accident data for the intersections.

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Existing & No Build Levels of Service

Intersection	Control	Approach/ Movement	2011 AM		2011 PM		2036 AM		2036 PM	
			LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)
SR 372 (Birmingham Hwy)/Broadwell Rd at SR 372 (Crabapple Rd)/Mayfield Rd	Traffic Signal	All Approaches	D	40.9	C	33.0	F	302.9	F	263.1
SR 372 (Crabapple Rd) at Crabapple Chase Dr	Side St STOP	NBL/R	C	24.3	E	36.8	F	130.1	F	269.1
		WBL	A	9.6	A	9.1	B	11.6	B	10.6
SR 372 (Birmingham Hwy) at McFarlin Ln	Side St STOP	NBL/T	A	0.2	A	0.0	A	0.3	A	0.2
		SBR/T	A	0.0	A	0.0	A	0.0	A	0.0
		EBL/R	E	42.3	F	84.3	F	550.4	F	N/A

Accident Data

The functional classification of SR 372 (Crabapple Rd/Birmingham Hwy)/Mayfield Rd/Broadwell Rd is Minor Arterial, Non-NHS, Urban.

The summary of the crashes from ¼ mile west of Crabapple Chase Drive along SR 372 (Crabapple Rd) to ¼ mile north of McFarlin Lane along SR 372 (Birmingham Highway) and ¼ mile east on Mayfield Road and ¼ mile south on Broadwell Road from SR 372 shown in the table below was obtained from GEARS (Georgia Electronic Accident reporting System). The actual crash data is included in the concept report attachments.

Year	SR 372 (Crabapple Rd/Birmingham Hwy) & Mayfield Rd & Broadwell Rd							
	27,025 AADT on 1.4 miles Minor Arterial, Non-NHS, Urban							
	Fatal Accidents	Fatal Accidents Statewide Rate 100 MVM	Injury Accidents 100 MVM	Study Area Injury Accidents Rate 100 MVM	Injury Accidents Statewide Rate	Study Area Accidents	All Study Area Accidents Rate 100 MVM	All Accidents Statewide Rate 100 MVM
2007	0	1.36	1	7	190	11	80	513
2008	0	1.33	2	14	117	10	72	469
2009	0	1.08	5	36	115	19	137	463

Note: There were no reported crashes in 2007, 2008, or 2009 on Crabapple Chase Drive, McFarlin Lane, Branyan Trail, or Parkstead Lane within ¼ mile of SR 372.

The existing signalized intersection of SR 372 (Crabapple Road)/Mayfield Road at SR 372 (Birmingham Highway)/Broadwell Road experiences delay and queuing during the peak hours based on existing traffic counts. There are no left turn lanes at this intersection. There are a series of local roads that provide an alternate route to make the turn from SR 372 (Crabapple Road) to SR 372 (Birmingham Highway). These local roads have substandard geometry and an inadequate cross section for the volumes that are currently using these routes. In addition, there are operation issues with turning movements where these local roads intersect with SR 372. The goal of this project is to improve the geometry and cross section of the existing route being used to bypass the main signalized intersection, improve the operations of the turning movements at the local road intersections with the state route, and improve the operation of the signalized intersection of SR 372(Crabapple Road)/Mayfield Road at SR 372 (Birmingham Highway)/Broadwell Road.

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Description of the proposed project: *This project involves improving the existing intersection of SR 372 (Crabapple Road)/Mayfield Road at SR 372 (Birmingham Highway)/Broadwell Road by adding left turn lanes on SR 372 (Crabapple Road/Birmingham Highway) and Broadwell Road; improving the existing intersection of SR 372 (Birmingham Highway) at McFarlin Lane with a single lane roundabout; improving the existing intersection of SR 372 (Crabapple Road) at Crabapple Chase Drive with a single lane roundabout; and improving the typical section and alignment of the existing local roads McFarlin Lane/Parkstead Lane/Branyan Trail from the existing intersection of McFarlin Lane with SR 372 (Birmingham Highway) to the end of existing Branyan Trail and extending the Branyan Trail approximately 500 feet, of new location roadway, to intersect with SR 372 (Crabapple Road) at Crabapple Chase Drive.*

The project is located in North Fulton County in the City of Milton. The project length is 0.31 miles along SR 372 (Birmingham Highway, milepost 1.54)/Broadwell Road, 0.43 miles along SR 372 (Crabapple Road, milepost 0.86)/Mayfield Road, 0.45 miles along McFarlin Lane/Parkstead Lane/Branyan Trail/Crabapple Chase Drive.

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

MPO: ☐ N/A ☒ MPO - Atlanta Regional Commission (ARC)
MPO Project TIP # FN-237

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

Congressional District(s): 6

Projected Traffic AADT:

SR 372 (Birmingham Hwy)
Current Year (2011): 10,375 Open Year (2016): 8,550 Design Year (2036): 11,150

Broadwell Rd
Current Year (2011): 5,550 Open Year (2016): 6,975 Design Year (2036): 9,575

SR 372 (Crabapple Rd)
Current Year (2011): 10,100 Open Year (2016): 13,100 Design Year (2036): 17,150

Mayfield Rd
Current Year (2011): 9,775 Open Year (2016): 13,575 Design Year (2036): 18,275

McFarlin Lane/Parkstead Lane/Branyan Trail/Crabapple Chase Drive
Current Year (2011): 3,325 Open Year (2016): 5,975 Design Year (2036): 8,650

Functional Classification:
SR 372 (Crabapple Rd/Birmingham Hwy)/Mayfield Rd/Broadwell Rd: Urban Minor Arterial Street
McFarlin Lane/Parkstead Lane/Branyan Trail/Crabapple Chase Drive: Urban Local Road

Is this project on a designated bike route? ☒ No ☐ YES
Is this project located on a pedestrian plan? ☐ No ☒ YES
Is this project located on or part of a transit network? ☒ No ☐ YES

CONTEXT SENSITIVE SOLUTIONS

Issues of Concern: *N/A*

Context Sensitive Solutions: *N/A*

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DESIGN AND STRUCTURAL DATA

Mainline Design Features: Urban Minor Arterial
SR 372(Birmingham Hwy/Crabapple Rd), Mayfield Rd, Broadwell Rd

Feature	Existing	Standard*	Proposed
Typical Section			
- Number of Lanes	2	2	2
- Lane Width(s)	10-12’	11-12’	11’
- Median Width & Type	N/A	N/A	N/A
- Outside Shoulder Width & Type	10-16’ urban	10-16’ urban	18’ urban
- Outside Shoulder Slope	--	2%	2%
- Inside Shoulder Width & Type	N/A	N/A	N/A
- Sidewalks	5’	5’	8’
- Auxiliary Lanes	N/A	N/A	where warranted
- Bike Lanes	N/A	N/A	N/A
Posted Speed	35		35
Design Speed	--	45	35
Min Horizontal Curve Radius	1000’	711’	1000’
Superelevation Rate	--	4%	4%
Grade	7%	7%	7%
Access Control	permitted	permitted	permitted
Right-of-Way Width	50-100’	42-62’	72-100’
Maximum Grade – Crossroad	N/A	N/A	N/A
Design Vehicle	--	WB-40	WB-40

Crossroad Design Features: Urban Local Road
McFarlin Lane/Parkstead Lane/Branyan Trail/Crabapple Chase Drive

Feature	Existing	Standard*	Proposed
Typical Section			
- Number of Lanes	2	2	2
- Lane Width(s)	10-18’	10-12’	11’
- Median Width & Type	14-16’	N/A	14’ raised
- Outside Shoulder Width & Type	14’ urban	10-16’ urban	18’ urban
- Outside Shoulder Slope	--	2%	2%
- Inside Shoulder Width & Type	N/A	N/A	N/A
- Sidewalks	5’	5’	8’
- Auxiliary Lanes	N/A	N/A	where warranted
- Bike Lanes	N/A	N/A	N/A
Posted Speed	35		25
Design Speed	35	35	25
Min Horizontal Curve Radius	55’	371’	154’
Superelevation Rate	--	4%	4%
Grade	8%	11%	11%
Access Control	permitted	permitted	permitted
Right-of-Way Width	50-100’	42-62’	72’
Maximum Grade – Crossroad	N/A	N/A	N/A
Design Vehicle	--	SU	SU

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Major Structures: *N/A*

Major Interchanges/Intersections: *N/A*

Utility Involvements:

Gas – Atlanta Gas Light Company
Water – Fulton County Public Works
Electric – Georgia Power
Telephone – AT&T; MCI Telecommunications Corp.
Cable – Comcast; Charter Communications

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

SUE Required: ☐ Yes ☒ No

Railroad Involvement: *N/A*

Right-of-Way: *Refer to Chapter 3 of GDOT's Design Policy Manual for guidance.*
Required Right-of-Way anticipated: ☒ YES ☐ NO ☐ Undetermined
Easements anticipated: ☐ Temporary ☒ Permanent ☐ Utility ☐ Other

Anticipated number of impacted parcels: 29
Anticipated number of displacements (Total): 1
Businesses: 0
Residences: 0
Other: 1

Location and Design approval: ☐ Not Required ☒ Required

Off-site Detours Anticipated: ☒ No ☐ Yes ☐ Undetermined

Transportation Management Plan Anticipated: ☐ YES ☒ NO

Design Exceptions to FHWA/AASHTO controlling criteria anticipated:

FHWA/AASHTO Controlling Criteria	YES	Appvl Date (if applicable)	NO	Undetermined
1. Design Speed	☐		☒	☐
2. Lane Width	☐		☒	☐
3. Shoulder Width	☐		☒	☐
4. Bridge Width	☐		☒	☐
5. Horizontal Alignment	☒		☐	☐
6. Superelevation	☐		☒	☐
7. Vertical Alignment	☐		☒	☐
8. Grade	☐		☒	☐
9. Stopping Sight Distance	☐		☒	☐
10. Cross Slope	☐		☒	☐
11. Vertical Clearance	☐		☒	☐
12. Lateral Offset to Obstruction	☐		☒	☐
13. Bridge Structural Capacity	☐		☒	☐

The anticipated design exception is for the minimum horizontal curve radius (for the design speed of 25 mph) along McFarlin Lane/Parkstead Lane/Branyan Trail/Crabapple Chase Drive. Approval of these design features will minimize right-of-way impacts and the overall construction cost.

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Design Variances to GDOT standard criteria anticipated:

GDOT Standard Criteria	Reviewing Office	YES	Appvl Date (if applicable)	NO	Undetermined
1. Access Control	DP&S	☐		☒	☐
2. Median Usage & Width	DP&S	☐		☒	☐
3. Intersection Skew Angle	DP&S	☐		☒	☐
4. Lateral Offset to Obstruction	DP&S	☐		☒	☐
5. Intersection Sight Distance	DP&S	☐		☒	☐
6. Bike & Pedestrian Accommodations	DP&S	☐		☒	☐
7. GDOT Drainage Manual	DP&S	☐		☒	☐
8. Georgia Standard Drawings	DP&S	☐		☒	☐
9. GDOT Bridge & Structural Manual	Bridge Design	☐		☒	☐
10. Roundabout Illumination	DP&S	☐		☒	☐
11. Rumble Strips/Safety Edge	DP&S	☐		☒	☐

VE Study anticipated: ☒ No ☐ Yes ☐ Completed – Date:

ENVIRONMENTAL DATA

Anticipated Environmental Document:

GEPA: ☐ **NEPA:** ☒ Categorical Exclusion ☐ EA/FONSI ☐ EIS

Air Quality:

Is the project located in a PM 2.5 Non-attainment area? ☐ No ☒ Yes
Is the project located in an Ozone Non-attainment area? ☐ No ☒ Yes
This project is included in the Mobility 2030 Regional Transportation Plan list by the ARC as project FN-237.

Environmental Permits/Variances/Commitments/Coordination anticipated:

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

Is a PAR required? ☒ No ☐ Yes ☐ Completed – Date:

NEPA/GEPA: *Categorical Exclusion is anticipated. There are two potentially eligible historic resources, which would be 4(f) resources if eligible.*

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Ecology: *Field survey complete; no wetlands or streams; two storm water detention ponds within the project area; no listed T&E species present or suitable habitat; no migratory bird or bat habitat present.*

History: *Two potentially eligible historic resources. AOE will be required. Anticipated minor, if any, affect to resources. Possibly de minimis.*

Archeology: *Archaeology survey complete; No Findings Short Form anticipated.*

Air & Noise: *Project is in the PM2.5 nonattainment area. Concurrence of project is required by interagency. Air Quality Assessment required. Type I Noise Assessment anticipated, as proposed alignment would be 50% closer to facilities than current alignment.*

Public Involvement: *09/27/2011 Public Information Open House (Synopsis/Response Letter attached)*

Major stakeholders: *N/A*

ROUNDABOUTS

Lighting agreement/commitment letter received: ☐ No ☒ Yes *(letter attached)*

Planning Level assessment: *A single lane roundabout is a reasonable solution at the intersection of SR 372 (Birmingham Highway) at McFarlin Lane and the intersection of SR 372 (Crabapple Road) at Crabapple Chase Drive.* *(Planning Level Assessment attached)*

Feasibility Study: *A single lane roundabout is the most appropriate intersection control for the intersection of SR 372 (Birmingham Highway) at McFarlin Lane and the intersection of SR 372 (Crabapple Road) at Crabapple Chase Drive.* *(Feasibility Study attached)*

Peer Review required: ☐ No ☒ Yes ☐ Completed – Date: TBD

CONSTRUCTION

Issues potentially affecting constructability/construction schedule: *School traffic volumes may require off-hour construction.*

Early Completion Incentives recommended for consideration: ☒ No ☐ Yes

PROJECT RESPONSIBILITIES

Project Activities:

Project Activity	Party Responsible for Performing Task(s)
Concept Development	*Stantec*
Design	*Stantec*
Right-of-Way Acquisition	*contracted by City of Milton*
Utility Relocation	*City of Milton*
Letting to Contract	*GDOT*
Construction Supervision	*GDOT*
Providing Material Pits	*Contractor*
Providing Detours	*Contractor (if required)*
Environmental Studies, Documents, and Permits	*Edwards-Pitman Environmental, Inc.*
Environmental Mitigation	*City of Milton (if required)*
Construction Inspection & Materials Testing	*GDOT*

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Lighting required: ☐ No ☒ Yes (*(letter attached)*

Initial Concept Meeting: *03/31/2011* *(ICTM minutes attached)*

Concept Meeting: *01/20/2012* *(CTM minutes attached)*

Other projects in the area: *None.*

Other coordination to date: *11/04/2011 FHWA Coordination Meeting* *(FHWA minutes attached)*

Project Cost Estimate and Funding Responsibilities:

	Breakdown of PE	ROW	Utility	CST*	Environmental Mitigation	Total Cost
By Whom	Milton/GDOT	Milton/GDOT	Milton	Milton/GDOT	Milton	
$ Amount	419,031	1,694,000	5,000	*2,845,746	if required	4,963,777
Date of Estimate	2/24/2012	4/17/2012	4/9/2012	3/23/2012	2/24/2012	

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

ALTERNATIVES DISCUSSION

Alternative selection:

Preferred Alternative: *Adding left turn lanes on SR 372 (Crabapple Rd/Birmingham Hwy) and Broadwell Rd; the extension of Crabapple Chase Dr from SR 372 (Crabapple Rd) to McFarlin Ln at SR 372 (Birmingham Hwy), 2100 feet long of which 700 is new location road. Two single lane roundabouts are proposed; one at SR 372 (Crabapple Rd) and Crabapple Chase Dr and the other at SR 372(Birmingham Hwy) and McFarlin Ln.*

Estimated Property Impacts:	**29 parcels**	**Estimated Total Cost:**	**$2,845,746**
Estimated ROW Cost:	**$1,694,000**	**Estimated CST Time:**	**18 months**

Rationale: *This alternative was selected; it reduces the traffic congestion and improves the capacity of the intersection. It does not impact the historic district, and qualifies for a CE which takes less time to document and approve than an EA.*

No-Build Alternative: *No build.*

Estimated Property Impacts:	**0**	**Estimated Total Cost:**	**0**
Estimated ROW Cost:	**0**	**Estimated CST Time:**	**0**

Rationale: *This alternative was not selected. It does not meet the future travel demands.*

Alternative 1: *Adding left turn lanes on SR 372 (Crabapple Rd/Birmingham Hwy) and Broadwell Rd.*

Estimated Property Impacts:	**7 parcels**	**Estimated Total Cost:**	**$654,700**
Estimated ROW Cost:	**$570,000**	**Estimated CST Time:**	**12 months**

Rationale: *This alternative was not selected; additional improvements are needed to meet the future travel demands.*

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Alternative 2: *Adding left turn lanes on SR 372 (Crabapple Rd/Birmingham Hwy) and Broadwell Rd; a new location road from McFarlin Ln at SR 372 (Birmingham Hwy) to Mayfield Rd at Charlotte Dr, 1300 feet long. The intersection of Mayfield Rd at Charlotte Dr will remain signalized and a single lane roundabout is proposed at McFarlin Ln and Birmingham Hwy.*			
Estimated Property Impacts:	**18 parcels**	**Estimated Total Cost:**	**$1,693,100**
Estimated ROW Cost:	**$1,020,000**	**Estimated CST Time:**	**18 months**
Rationale: *This alternative was not selected; it impacts to the historic district, and qualifies for an EA which requires more time to document and approve than a CE.*			

Alternative 3: *Adding left turn lanes on SR 372 (Crabapple Rd/Birmingham Hwy) and Broadwell Rd; a new location road at Dunbrody Dr from Broadwell Rd to Mid-Broadwell Rd, 1800 feet long that tie into the intersection of Mid-Broadwell Rd and Charlotte Dr. The intersection of Dunbrody Dr and Broadwell Rd will remain stop sign controlled and a single lane roundabout is proposed at Mid-Broadwell Rd and Charlotte Dr.*			
Estimated Property Impacts:	**17 parcels**	**Estimated Total Cost:**	**$2,439,300**
Estimated ROW Cost:	**$1,530,000**	**Estimated CST Time:**	**18 months**
Rationale: *This alternative was not selected; it impacts to the historic district, and qualifies for an EA which requires more time to document and approve than a CE.*			

Alternative 4: *Reconstruction of existing signalized intersection of SR 372 (Crabapple Road)/Mayfield Road at SR 372 (Birmingham Highway)/Broadwell Road to accommodate future travel demands by adding dedicated left and right turn lanes in all directions.*			
Estimated Property Impacts:	**9 parcels**	**Estimated Total Cost:**	**$850,000**
Estimated ROW Cost:	**$770,000**	**Estimated CST Time:**	**12 months**
Rationale: *This alternative was not selected; adding a right turn lane on SR 372 (Birmingham Hwy) would have considerable right-of-way impacts to the gas station located on the northwest corner of the intersection. The alternative would qualify for an EA which requires more time to document and approve than a CE.*			

Alternative 5: *Reconstruction of existing signalized intersection of SR 372 (Crabapple Road)/Mayfield Road at SR 372 (Birmingham Highway)/Broadwell Road to accommodate future travel demands by adding dedicated left and right turn lanes in all directions and cul-de-sac Mid-Broadwell Rd.*			
Estimated Property Impacts:	**11 parcels**	**Estimated Total Cost:**	**$910,000**
Estimated ROW Cost:	**$820,000**	**Estimated CST Time:**	**12 months**
Rationale: *This alternative was not selected; it impacts to the historic district, and qualifies for an EA which requires more time to document and approve than a CE. In addition, this alternative was presented to the public as part of the 2009 City of Milton's Comprehensive Transportation Plan and was opposed by the stakeholders along Mid-Broadwell Rd.*			

Alternative 6: *Replace existing signalized intersection with a roundabout.*			
Estimated Property Impacts:	**7 parcels**	**Estimated Total Cost:**	**$1,500,000**
Estimated ROW Cost:	**$1,000,000**	**Estimated CST Time:**	**18 months**
Rationale: *This alternative was not selected; it impacts to the historic district, and qualifies for an EA which requires more time to document and approve than a CE. In addition, the 2009 City of Milton's Comprehensive Transportation Plan analyzed this alternative and found it had more right-of-way impacts to the intersection (likely resulting in significant impact to the gas station on the northwest side of the intersection), less pedestrian friendly due to the location of sidewalks farther outside the intersection, and more susceptible to failure if demand exceeds the maximum volume thresholds.*			

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Alternative 7: *Replace existing signalized intersection with a roundabout and add two single lane roundabouts; one at SR 372 (Crabapple Rd) and Crabapple Chase Dr and the other at SR 372(Birmingham Hwy) and McFarlin Ln.*			
Estimated Property Impacts:	**23 parcels**	**Estimated Total Cost:**	**$3,000,000**
Estimated ROW Cost:	**$2,500,000**	**Estimated CST Time:**	**18 months**
Rationale: *This alternative was not selected; it impacts to the historic district, and qualifies for an EA which requires more time to document and approve than a CE. The construction cost is higher than the preferred alternative and it doesn't provide any significant reduction in the overall LOS of the project area, and more susceptible to failure if demand exceeds the maximum volume thresholds.*			

Comments: *If the bypass is not constructed in the design year, 2036, traffic passing through the existing intersection of SR 372 (Crabapple Road)/Mayfield Road at SR 372 (Birmingham Highway)/Broadwell Road along SR 372 (Crabapple Rd) would be 19,850 vpd. This volume of traffic could not be handled by the existing 2-lane intersection; widening the existing intersection to meet this volume would cause extensive detrimental impacts to the historic area. Therefore, the preferred alternative would reroute approximately 4,525 vpd around the northeast side of the intersection reducing the traffic along SR 372 (Crabapple Rd) and alleviating congestion in the area.*

Attachments:

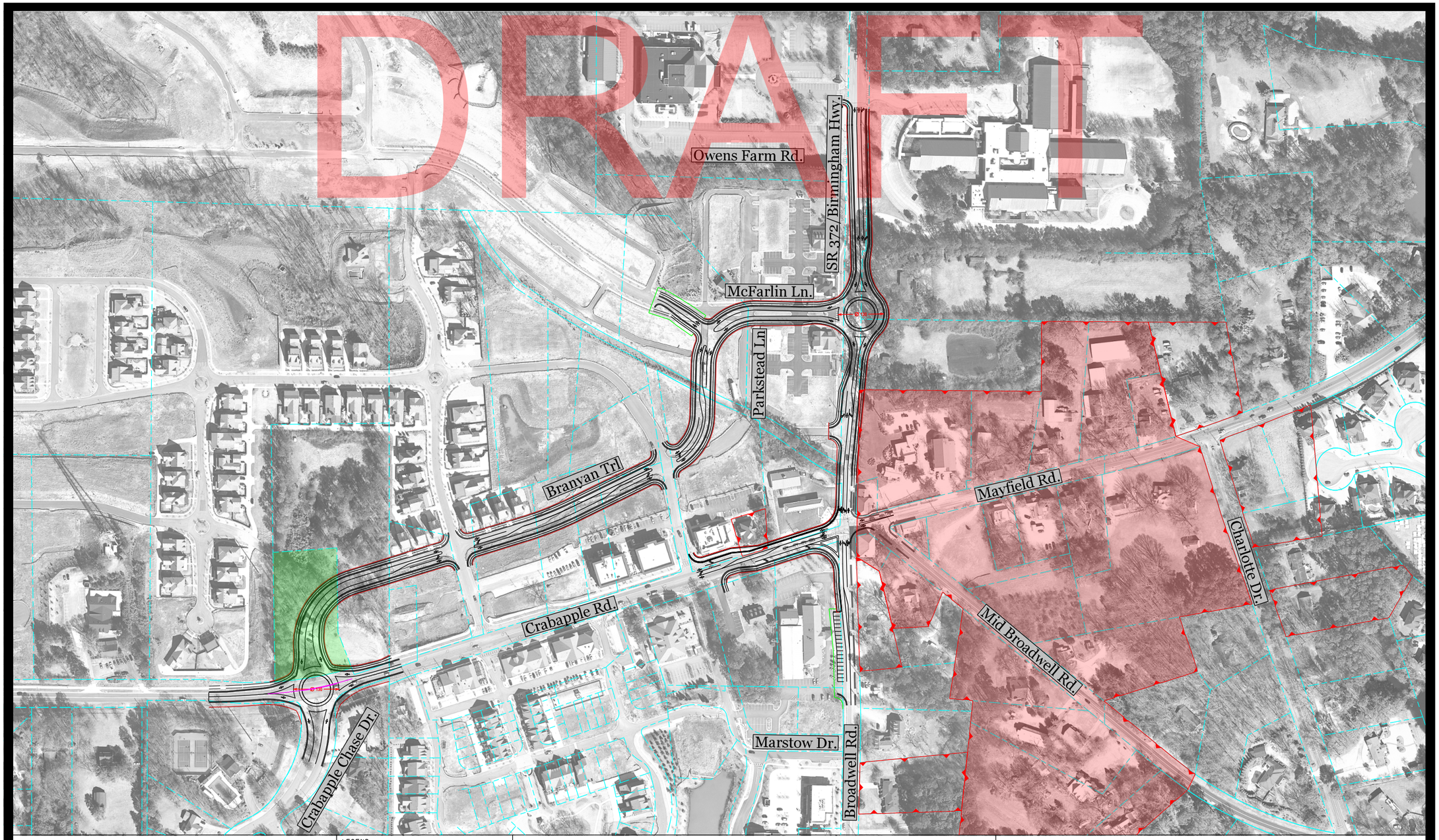
1. Concept Layout
2. Typical Sections
3. Detailed Cost Estimates:
    a. Construction including Engineering and Inspection
    b. Completed Fuel & Asphalt Price Adjustment forms
    c. Right-of-Way
    d. Utilities
4. Crash summaries
5. Traffic diagrams
6. Capacity analysis summary *(tabular format)*
7. Summary of TE Study and/or Signal Warrant Analysis
8. Roundabout Data
    a. Planning level assessment
    b. Roundabout feasibility study
    c. Lighting agreement or commitment letter
9. Minutes of Concept meetings
    a. Initial Concept Meeting (03/31/2011)
    b. Concept Meeting (01/20/2012)
10. Minutes of any meetings that shows support or objection to the concept
    a. PIOH Synopsis & Response letter (09/27/2011)
    b. FHWA Coordination Meeting (11/04/2011)

APPROVALS

Exempt Projects

Concur: _____
Director of Engineering

Approve: _____ _____
Chief Engineer Date



DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

FULTON COUNTY
SR 372/CRABAPPLE
INTERSECTION IMPROVEMENTS
CSHPP-0007-00(313) PI# 0007313
(Preferred Alternate)

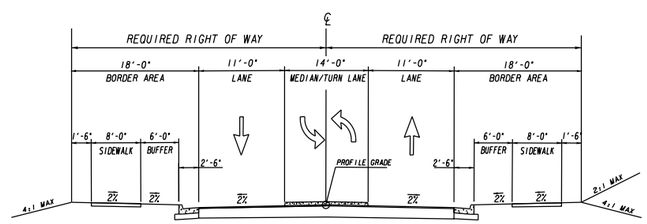
City of Milton

Stantec

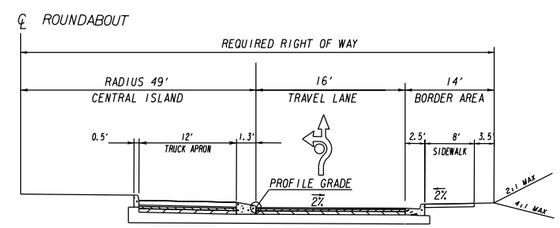
LEGEND:
- PROPERTY AND EXISTING R/W
- REQUIRED R/W LINE
- EASEMENT
- EXISTING TO REMAIN
- PROPOSED NATIONAL REGISTRY BOUNDARY
- PROPOSED NATIONAL REGISTRY DISTRICT
- POTENTIAL DISPLACEMENT

N

SCALE IN FEET
0 100 200 400



TYPICAL SECTION
MCFARLIN LN/PARKSTEADLN/BRANYAN TRL/CRABAPPLE CHASE DR
FULL DEPTH OR OVERLAY



TYPICAL SECTION
ROUNDABOUT

Concept.dgn 6/22/2012 12:49:40 PM

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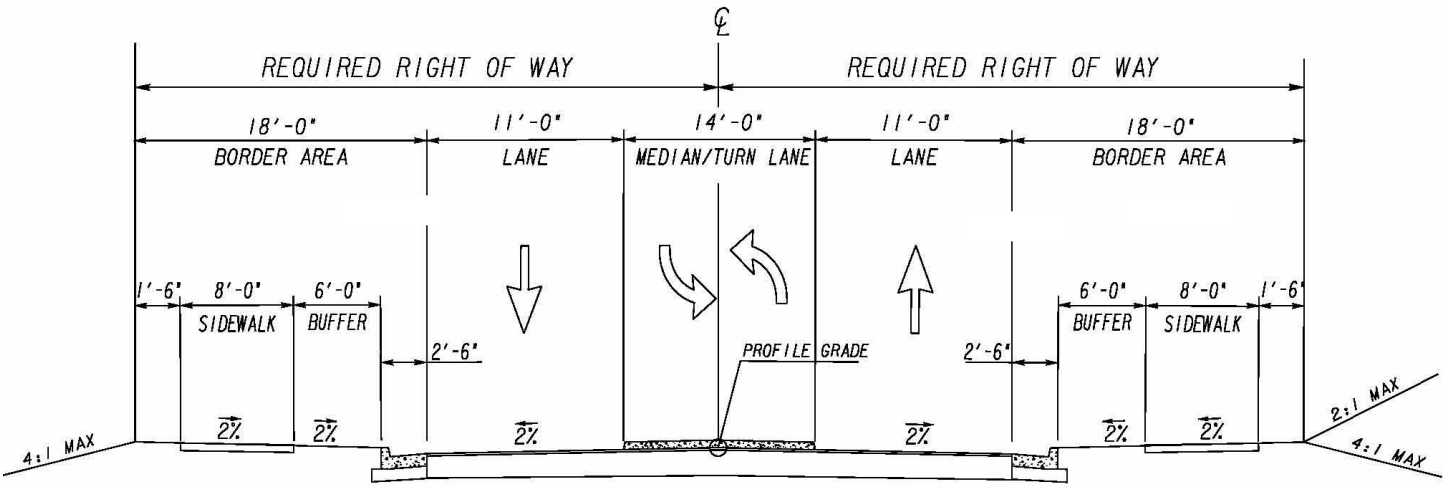
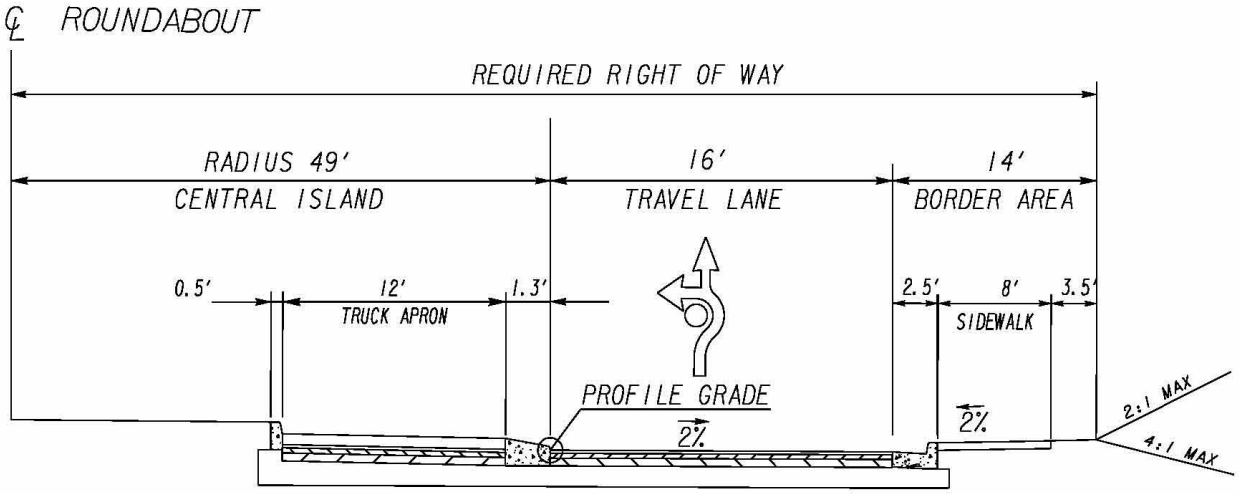
Typical Sections

P. I. Number: 0007313
Project Number: CSHPP00-0007-00(313)
County: Fulton

SR 372 (Crabapple Road/Birmingham Highway) Intersection Improvements



TYPICAL SECTION
MCFARLIN LN/PARKSTEADLN/BRANYAN TRL/CRABAPPLE CHASE DR
FULL DEPTH OR OVERLAY



TYPICAL SECTION
ROUNDABOUT

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STATE HIGHWAY AGENCY

DATE : 03/23/2012

JOB ESTIMATE REPORT

JOB NUMBER : 0007313 SPEC YEAR: 01

DESCRIPTION: SR372 (CRABAPPLE RD/BIRMINGHAM HWY) INTERSECTION IMPROVEMENT

ITEMS FOR JOB 0007313

LINE	ITEM	ALT	UNITS	DESCRIPTION	QUANTITY	PRICE	AMOUNT
5	150-1000		LS	TRAFFIC CONTROL - 0007313	1	100000.00	100000.00
10	153-1100		EA	FIELD ENGINEERS OFFICE TP 1	1	56882.21	56882.21
15	210-0100		LS	GRADING COMPLETE - 0007313	1	100000.00	100000.00
20	310-1101		TN	GR AGGR BASE CRS, INCL MATL	14062	16.19	227716.79
25	402-1812		TN	RECYL AC LEVELING,INC BM&HL	125	80.36	10045.23
30	402-3121		TN	RECYL AC 25MM SP,GP1/2,BM&HL	7846	57.72	452897.33
35	402-3130		TN	RECYL AC 12.5MM SP,GP2,BM&HL	1376	69.84	96109.17
40	402-3190		TN	RECYL AC 19 MM SP,GP 1 OR 2 ,INC BM&HL	2242	65.39	146616.35
45	413-1000		GL	BITUM TACK COAT	3057	2.58	7916.04
50	432-0206		SY	MILL ASPH CONC PVMT/ 1.50" DEP	600	6.95	4170.36
55	441-0018		SY	DRIVEWAY CONCRETE, 8 IN TK	765	37.83	28946.12
60	441-0104		SY	CONC SIDEWALK, 4 IN	9881	23.61	233365.51
65	441-0740		SY	CONC MEDIAN, 4 IN	2014	26.93	54241.43
70	441-5002		LF	CONCRETE HEADER CURB, 6 IN, TP 2	470	14.48	6805.60
75	441-5011		LF	CONCRETE HEADER CURB, 6 IN, TP 9A	620	15.84	9820.80
80	441-6022		LF	CONC CURB & GUTTER, 6"X30"TP2	11116	14.09	156639.22
85	163-0001		LS	EROSION CONTROL, NON-REFUNDABLE DEDUCT	1	60000.00	60000.00
90	163-0232		AC	TEMPORARY GRASSING	1	221.94	221.94
95	163-0240		TN	MULCH	9	257.43	2316.92
100	163-0300		EA	CONSTRUCTION EXIT	2	1075.81	2151.64
105	163-0528		LF	CONSTR AND REM FAB CK DAM -TP C SLT FN	32	4.38	140.27
110	163-0550		EA	CONS & REM INLET SEDIMENT TRAP	37	130.18	4816.99
115	171-0030		LF	TEMPORARY SILT FENCE, TYPE C	11116	2.46	27353.14
120	700-0000		$	SEC 700 GRASSING	1	20000.00	20000.00
125	636-1020		SF	HWY SGN,TP1MAT,REFL SH TP3	19	16.78	318.98
130	636-1033		SF	HWY SIGNS, TP1MAT,REFL SH TP 9	84	20.32	1707.15
135	636-2030		LF	GALV STEEL POSTS, TP 3	145	7.78	1128.10
140	653-0120		EA	THERM PVMT MARK, ARROW, TP 2	13	71.79	933.35
145	653-1501		LF	THERMO SOLID TRAF ST 5 IN, WHI	11116	0.35	3899.60
150	653-1502		LF	THERMO SOLID TRAF ST, 5 IN YEL	11116	0.35	3937.84
155	653-1704		LF	THERM SOLID TRAF STRIPE,24",WH	544	3.36	1828.81
160	653-1804		LF	THERM SOLID TRAF STRIPE, 8",WH	200	1.98	397.61
165	653-3501		GLF	THERMO SKIP TRAF ST, 5 IN, WHI	11116	0.24	2698.19
170	653-3502		GLF	THERMO SKIP TRAF ST, 5 IN, YEL	100	0.50	50.43
175	654-1001		EA	RAISED PVMT MARKERS TP 1	371	3.35	1244.92
180	654-1003		EA	RAISED PVMT MARKERS TP 3	371	3.82	1419.46
185	550-1180		LF	STM DR PIPE 18",H 1-10	4169	29.80	124271.89
190	550-1300		LF	STM DR PIPE 30",H 1-10	1390	45.61	63404.75
195	550-4218		EA	FLARED END SECT 18 IN, ST DR	1	477.07	477.07
200	550-4230		EA	FLARED END SECT 30 IN, ST DR	1	779.79	779.80
205	668-1100		EA	CATCH BASIN, GP 1	37	2040.32	75491.91
210	668-4300		EA	STORM SEW MANHOLE, TP 1	4	1852.03	7408.14
215	647-1000		LS	TRAF SIGNAL INSTALLATION NO -	1	75000.00	75000.00
220	647-6090		EA	LOOP DETECTOR - 0007313	8	701.26	5610.15
225	702-9100		LS	LANDSCAPING	1	5000.00	5000.00
230	682-9030		LS	LIGHTING SYSTEM	1	310000.00	310000.00
235							

ITEM TOTAL	2496181.21
INFLATED ITEM TOTAL	2496181.21

TOTALS FOR JOB 0007313

ESTIMATED COST:	2496181.21
CONTINGENCY PERCENT (0.0):	0
ESTIMATED TOTAL:	2496181.21

ENGINEERING & INSPECTION (5%)	124809.06
FUEL& ASPH ADJUSTMENT	224755.72
CONSTRUCTION COST ESTIMATE	2845745.99

PROJ. NO.	CSHPP-0007-00(313)	CALL NO.
P.I. NO.	0007313	
DATE	3/23/2012	

INDEX (TYPE)	**DATE**	**INDEX**
REG. UNLEADED	Mar-12	$ 3.679
DIESEL		$ 4.070
LIQUID AC		$ 614.00

Link to Fuel and AC Index:
http://www.dot.ga.gov/doingbusiness/Materials/Pages/asphaltcementindex.aspx

LIQUID AC ADJUSTMENTS

PA=[((APM-APL)/APL)]xTMTxAPL

Asphalt

Price Adjustment (PA)				**213469.38**	**$**	**213,469.38**
Monthly Asphalt Cement Price month placed (APM)	Max. Cap	60%	$	982.40		
Monthly Asphalt Cement Price month project let (APL)			$	614.00		
Total Monthly Tonnage of asphalt cement (TMT)				579.45		

ASPHALT	**Tons**	**%AC**	**AC ton**
Leveling	125	5.0%	6.25
12.5 OGFC		5.0%	0
12.5 mm	1376	5.0%	68.8
9.5 mm SP	0	5.0%	0
25 mm SP	7846	5.0%	392.3
19 mm SP	2242	5.0%	112.1
	11589		**579.45**

BITUMINOUS TACK COAT

Price Adjustment (PA)			**$**	**4,837.14**	**$**	**4,837.14**
Monthly Asphalt Cement Price month placed (APM)	Max. Cap	60%	$	982.40		
Monthly Asphalt Cement Price month project let (APL)			$	614.00		
Total Monthly Tonnage of asphalt cement (TMT)				13.13012352		

Bitum Tack Gals	gals/ton	tons
3057	232.8234	13.1301235

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PROJ. NO.	CSHPP-0007-00(313)	CALL NO.	
P.I. NO.	0007313		
DATE	3/23/2012		

BITUMINOUS TACK COAT (surface treatment)

Price Adjustment (PA)			**6449.200209**	**$**	**6,449.20**
Monthly Asphalt Cement Price month placed (APM)	Max. Cap	60%	$ 982.40		
Monthly Asphalt Cement Price month project let (APL)			$ 614.00		
Total Monthly Tonnage of asphalt cement (TMT)			17.50597234		

Bitum Tack	SY	Gals/SY	Gals	gals/ton	tons
Single Surf. Trmt.	20379	0.20	4075.8	232.8234	17.50597234
Double Surf.Trmt.	0	0.44	0	232.8234	0
Triple Surf. Trmt	0	0.71	0	232.8234	0
					17.50597234

TOTAL LIQUID AC ADJUSTMENT	**$**	**224,755.72**

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GEORGIA DEPARTMENT OF TRANSPORTATION
PRELIMINARY ROW COST ESTIMATE SUMMARY

Date: 4/17/2012 Project: CSHPP-0007-00(313)
Revised: County: Fulton
PI: 0007313

Description: Intersection improvement
Project Termini: Broadwell Rd/Birmingham Hwy; Crabapple Rd/Mayfield Rd; Crabapple Chase

Existing ROW: Varies
Parcels: 29 Required ROW: Varies

Land and Improvements	$1,074,600.00
Proximity Damage	*$0.00*
Consequential Damage	*$0.00*
Cost to Cures	*$0.00*
Trade Fixtures	*$0.00*
Improvements	*$200,000.00*
Valuation Services	$48,750.00
Legal Services	$207,075.00
Relocation	$98,000.00
Demolition	$15,000.00
Administrative	$250,500.00
TOTAL ESTIMATED COSTS	$1,693,925.00
TOTAL ESTIMATED COSTS (ROUNDED)	***$1,694,000.00***

Preparation Credits	Hours	Signature

Prepared By: LaShore Alexander CG#: 2886999 4/DATE/2012
Approved By: LaShore Alexander CG#: 2886999 4/DATE/2012

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

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Georgia Department of Transportation
Preliminary ROW Cost Estimate Worksheet

Project/County/PI CSHPP-0007-00(313) Fulton 0007313

		A	B	C	D
	Land and Improvements	**Agriculture**	**Residential**	**Commercial**	**Industrial**
1	Estimate Low (ac)	$0.00	$0.00	$0.00	$0.00
2	Estimate High (ac)	$0.00	$0.00	$0.00	$0.00
3	Estimate Used (ac)	$0.00	$35,000.00	$200,000.00	$0.00
4	Fee Simple Area (ac)	0.00	2.64	2.12	0.00
5	Fee Simple Estimate	$0.00	$92,400.00	$424,000.00	$0.00
6	Perm Esmt Area (ac)	0.00	0.00	0.00	0.00
7	Perm Esmt Factor	0%	0%	0%	0%
8	Perm Esmt Estimate	$0.00	$0.00	$0.00	$0.00
9	Temp Esmt Area (ac)	0.00	0.00	0.00	0.00
10	Temp East Factor	0%	0%	0%	0%
11	Temp Esmt Estimate	$0.00	$0.00	$0.00	$0.00
12	Proximity Damages	$0.00	$0.00	$0.00	$0.00
13	Consequential Damages	$0.00	$0.00	$0.00	$0.00
14	Cost to Cures	$0.00	$0.00	$0.00	$0.00
15	Improvements	$0.00	$200,000.00	$0.00	$0.00
16	Trade Fixtures	$0.00	$0.00	$0.00	$0.00
17					
18	PROPERTY TYPE TOTALS	$0.00	$292,400.00	$424,000.00	$0.00
19			SUB TOTAL PROPERTY TYPES		$716,400.00
20			Counter Offers and Condemnation Increases		$358,200.00
21					
22			**GRAND TOTAL LANDS AND IMPROVEMENTS**		$1,074,600.00

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Georgia Department of Transportation
Preliminary ROW Cost Estimate Worksheet

Project/County/PI CSHPP-0007-00(313) Fulton 0007313

		A	B	C	D
	Valuation Services	**Agriculture**	**Residential**	**Commercial**	**Industrial**
1	Appraisals (# of Parcels)	0	19	10	0
2	Estimated Fees (per Parcel)	$0.00	$1,000.00	$2,000.00	$0.00
3	TOTAL APPRAISALS	$0.00	$19,000.00	$20,000.00	$0.00
4	Sign Estimates	0	0	0	0
5	Estimated Fees	$0.00	$0.00	$0.00	$0.00
6	TOTAL SIGN ESTIMATES	$0.00	$0.00	$0.00	$0.00
7	Specialty Reports	0	0	0	0
8	Estimated Fees	$0.00	$0.00	$0.00	$0.00
9	TOTAL SPECIALTY REPORTS	$0.00	$0.00	$0.00	$0.00
10	Septic/Well Reports	0	0	0	0
11	Estimated Fees	$0.00	$0.00	$0.00	$0.00
12	TOTAL SEPTIC/WELL REPORTS	$0.00	$0.00	$0.00	$0.00
13					
14					
15					
16	TOTAL VALUATION FEES	$0.00	$19,000.00	$20,000.00	$0.00
17			SUB TOTAL VALUATION SERVICES		$39,000.00
18			Updates and Incidentals (Min $2,500 or 25%)		$9,750.00
19			**GRAND TOTAL VALUATION SERVICES**		$48,750.00

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Georgia Department of Transportation
Preliminary ROW Cost Estimate Worksheet

Project/County/PI CSHPP-0007-00(313) Fulton 0007313

		A	B	C	D
	Legal Services	**Parcels**	**Estimated Fees**		**TOTALS**
1	Meeting with Attorney	29	$125.00		$3,625.00
2	Preliminary Titles	29	$200.00		$5,800.00
3	Closing and Final Title	29	$300.00		$8,700.00
4	Recording Fees	29	$50.00		$1,450.00
5	Condemnation Filing	5	$5,000.00		$25,000.00
6	Litigation Costs	5	$25,000.00		$125,000.00
7	Updates and Incidentials	5	$7,500.00		$37,500.00
8					
9					
10					
11					
12					
13					
14					
15					
16					
17			**GRAND TOTAL LEGAL SERVICES**		$207,075.00

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Georgia Department of Transportation
Preliminary ROW Cost Estimate Worksheet

Project/County/PI CSHPP-0007-00(313) Fulton 0007313

		A	B	C	D
	Relocation	**Displacements**	**Estimated Costs**		**TOTALS**
1	Business Displacement		$15,000.00		$0.00
2	Residential Tenant		$20,000.00		$0.00
3	Residential Owner	1	$40,000.00		$40,000.00
4	Pro-Rata Taxes	29	$1,000.00		$29,000.00
5	Property Pin Replacement	29	$1,000.00		$29,000.00
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17			**GRAND TOTAL RELOCATION**		$98,000.00

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Georgia Department of Transportation
Preliminary ROW Cost Estimate Worksheet

Project/County/PI CSHPP-0007-00(313) Fulton 0007313

		A	B	C	D
	Demolition	**Items/Improvements**	**Estimated Costs**		**TOTALS**
1	Residential Structures	1	$15,000.00		$15,000.00
2	Commercial Structures		$25,000.00		$0.00
3	Hotels/Apartments		$60,000.00		$0.00
4	UST's - Dispensers		$50,000.00		$0.00
5	Billboards		$8,000.00		$0.00
6	Signs - Light Standards		$1,500.00		$0.00
7	Water Vaults		$15,000.00		$0.00
8	Gas/Water Service Separation		$2,500.00		$0.00
9					
10					
11					
12					
13					
14					
15					
16					
17			**GRAND TOTAL DEMOLITION**		$15,000.00

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Georgia Department of Transportation
Preliminary ROW Cost Estimate Worksheet

Project/County/PI CSHPP-0007-00(313) Fulton 0007313

		A	B	C	D
	Administrative	**Parcels**	**Man hours per Parcel**		**TOTALS**
1	Pre-Acquisition	29	40		$58,000.00
2	Acquisition	29	100		$145,000.00
3	Relocation	1	50		$2,500.00
4	Administrative Appeals	8	50		$20,000.00
5	Post-Acquisition	5	100		$25,000.00
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17			**GRAND TOTAL INHOUSE**		$250,500.00

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DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE **CSHPP-0007-00(313) Fulton County**
CR 1324/Mayfield Road @ CR 1336/Mid-Broadwell Rd.
P.I. No. 0007313

OFFICE District 7
Chamblee
DATE April 9, 2012

FROM **Jonathan Walker**
District Utilities Engineer

TO **Bobby Hilliard P.E., State Program Delivery Engineer**
ATTN **Issa Moussa, P.E., Project Manager**

SUBJECT **PRELIMINARY UTILITY COST (ESTIMATE)**

As requested by your office, we are furnishing you with a Preliminary Utility Cost estimate for each utility with facilities potentially located within the project limits.

FACILITY OWNER	NON-REIMBURSABLE	REIMBURSABLE	GRAND TOTAL
Atlanta Gas Light Company	$ 15,000.00	$ 0.00	
AT&T Formerly BellSouth	$ 35,000.00	$ 5,000.00	
Fulton County Pub. Works	$ 18,000.00	$ 0.00	
Sawnee EMC	$ 60,000.00	$ 0.00	
Comcast	$ 13,500.00	$ 0.00	
Totals	**$ 141,500.00**	**$ 5,000.00**	**146,500.00**

If you have any questions, please contact Clyde Cunningham at 770-986-1117.

BRP/JW/CAC

C: Jeff Baker, P.E., State Utilities Engineer
Angela Robinson, Office of Financial Management
Sebastian Nesbitt, Area Engineer

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AccidentN	LocalCode	Date	Time	County	Route	M	R	IntersectingRoute	MannerOfCollision	FirstHa	Injuries	Fatalities	M	LatDecima	LongDecin
805732	2007001258	1/19/2007	17:21:00	FULTON	SR 372	0	0	MAYFIELD RD	Angle	Motor	0	0	#	-1	-1
868453	7030179	3/9/2007	8:30:00	FULTON	CRABAPPLE RD ENTRANCE RP	0	1	CRABAPPLE RD	Angle	Motor	0	0	#	-1	-1
1073807	700842	9/3/2007	10:10:00	FULTON	SR 372	0	0	CRABAPPLE RD	Angle	Motor	0	0	#	-1	-1
432438	700866	9/7/2007	16:45:00	FULTON	BIRMINGHAM HWY	0	0	CRABAPPLE RD	Angle	Motor	0	0	#	34.0903	-84.3392
450667	7110007	11/1/2007	11:11:00	FULTON	CRABAPPLE RD	0	0	BROADWELL RD	Angle	Motor	0	0	#	34.09	-84.3393
486245	701486	12/13/2007	17:50:00	FULTON	CRABAPPLE RD	0	0	ITASKA WALK	Angle	Motor	1	0	#	-1	-1
466640	701215	11/2/2007	7:22:00	FULTON	CRABAPPLE RD	0	0	CRABAPPLE CHASE DR	Not A Collision with M	Deer	0	0	#	-1	-1
834941	2007003209	2/16/2007	13:41:00	FULTON	HWY 372 BIRMINGHAM HWY	0	0	CRABAPPLE RD	Rear End	Motor	0	0	#	-1	-1
946669	70243	5/29/2007	7:06:00	FULTON	BIRMINGHAM HWY	0	0	CRABAPPLE RD	Rear End	Motor	0	0	#	-1	-1
1056174	605700	9/30/2007	17:00:00	FULTON	BIRMINGHAM HWY	0	0	MAYFIELD RD	Rear End	Motor	0	0	#	-1	-1
477694	701416	12/4/2007	15:48:00	FULTON	CRABAPPLE RD	0	0	MARSTROW DR	Rear End	Motor	0	0	#	-1	-1
109552	802383	11/19/2008	8:51:00	FULTON	CRABAPPLE RD	0	0	ITASKA WALK	Angle	Motor	0	0	#	0	0
127427	802566	12/18/2008	7:33:00	FULTON	BIRMINGHAM HWY	0	0	BENTWORTH LN	Angle	Motor	0	0	#	0	0
626680	801085	6/29/2008	10:30:00	FULTON	BIRMINGHAM HWY	0	0	MAYFIELD RD	Head On	Motor	1	0	#	34.09	-84.3393
109540	802320	11/10/2008	18:26:00	FULTON	CRABAPPLE RD	0	0		Head On	Motor	0	0	#	34.0887	-84.3478
507288	8010305	1/14/2008	17:29:00	FULTON	CRABAPPLE RD	0	0	CRABAPPLE RD	Rear End	Motor	1	0	#	34.089	-84.3432
109545	802342	11/13/2008	15:37:00	FULTON	CRABAPPLE RD	0	0	0048	Rear End	Motor	0	0	#	34.0897	-84.341
127439	802615	12/24/2008	20:35:00	FULTON	CRABAPPLE RD	0	0	0040	Rear End	Motor	0	0	#	34.0901	-84.3395
619635	800705	4/28/2008	14:19:00	FULTON	STATE HWY 372	0	0	MAYFIELD RD	Sideswipe-Opposite I	Motor	0	0	#	-1	-1
735830	801602	9/6/2008	10:51:00	FULTON	BIRMINGHAM HWY SR	0	0	MAYFIELD RD	Sideswipe-Opposite I	Motor	0	0	#	-1	-1
127403	802463	12/3/2008	13:10:00	FULTON	BIRMINGHAM HWY SR	0	0	0040	Sideswipe-Same Dire	Motor	0	0	#	34.0901	-84.3395
169383	900163	1/23/2009	18:21:00	FULTON	ST HWY 372	0	0	BENTWORTH LN	Angle	Motor	1	0	#	0	0
182614	900237	2/2/2009	20:36:00	FULTON	CRABAPPLE RD	0	0	0197	Angle	Motor	0	0	#	34.0905	-84.3395
206424	900540	3/23/2009	17:00:00	FULTON	BIRMINGHAM HWY	0	0		Angle	Motor	0	0	#	34.093	-84.3394
1782737	902150	11/10/2009	21:09:00	FULTON	CRABAPPLE RD	0	0	BIRMINGHAM HWY	Angle	Motor	0	0	#	34.0903	-84.3392
167635	900075	1/10/2009	23:13:00	FULTON	CRABAPPLE RD	0	0	LECOMA TRCE	Not A Collision with M	Curb	0	0	#	0	0
182612	900225	2/1/2009	5:44:00	FULTON	CRABAPPLE RD	0	0	LECOMA TRC	Not A Collision with M	Curb	0	0	#	0	0
199737	900467	3/10/2009	9:50:00	FULTON	BIRMINGHAM HWY	0	0		Not A Collision with M	Deer	0	0	#	34.0939	-84.3394
310798	901319	7/11/2009	0:01:00	FULTON	CRABAPPLE RD	0	0	LECOMA TRCE	Not A Collision with M	Other -	0	0	#	0	0
167640	900039	1/6/2009	16:47:00	FULTON	BIRMINGHAM HWY	0	0	0040	Rear End	Motor	0	0	#	34.0901	-84.3395
167631	900052	1/7/2009	15:54:00	FULTON	CRABAPPLE RD	0	0	ITASKA WALK	Rear End	Motor	0	0	#	0	0
169218	900105	1/15/2009	16:41:00	FULTON	ST HWY 372	0	0	0048	Rear End	Motor	0	0	#	34.0897	-84.341
169385	900178	1/26/2009	12:50:00	FULTON	CRABAPPLE RD	0	0		Rear End	Motor	2	0	#	34.0887	-84.3447
202037	900516	3/18/2009	7:15:00	FULTON	BIRMINGHAM HWY	0	0		Rear End	Motor	3	0	#	34.0953	-84.3394
206426	900548	3/23/2009	19:26:00	FULTON	CRABAPPLE RD	0	0	0040	Rear End	Parked	1	0	#	34.0901	-84.3395
228309	900685	4/11/2009	17:00:00	FULTON	CRABAPPLE RD	0	0		Rear End	Motor	1	0	#	34.0887	-84.3447
286900	900761	4/24/2009	6:25:00	FULTON	BIRMINGHAM HWY	0	0	CRABAPPLE RD	Rear End	Motor	0	0	#	34.0903	-84.3392
284417	901125	6/17/2009	11:20:00	FULTON	BIRMINGHAM HWY	0	0	BENTWORTH LN	Rear End	Motor	0	0	#	0	0
351492	901487	8/6/2009	17:40:00	FULTON	HWY 372	0	0	BENTWORTH LN	Rear End	Motor	0	0	#	-1	-1
3400750	902351	12/8/2009	17:10:00	FULTON	STATE HIGHWAY 372	0	0	BROADWELL RD	Rear End	Motor	0	0	#	-1	-1

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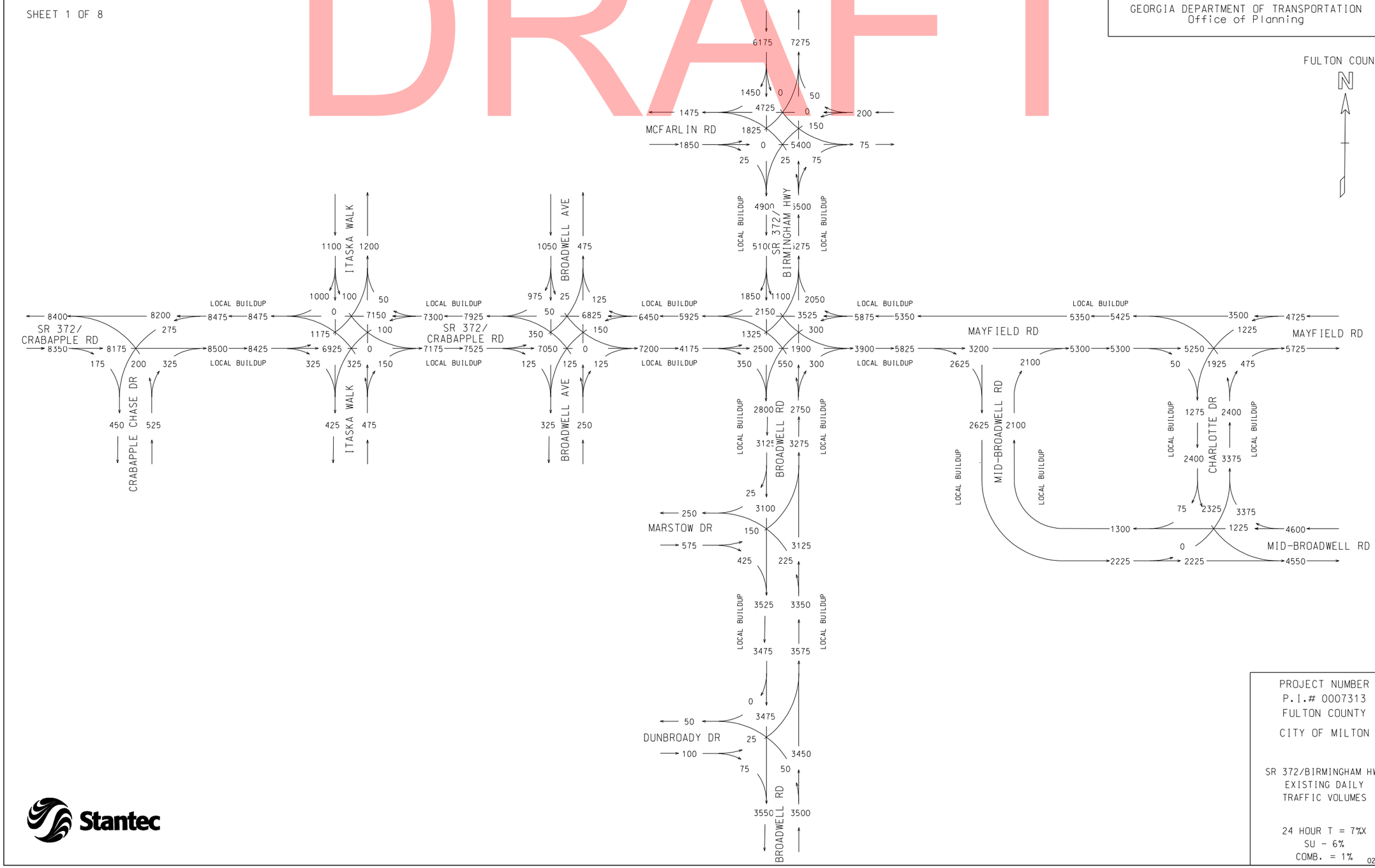
Office of Planning

FULTON COUNTY



Stantec

PROJECT NUMBER
P.I.# 0007313
FULTON COUNTY

CITY OF MILTON

SR 372/BIRMINGHAM HWY
EXISTING DAILY
TRAFFIC VOLUMES

24 HOUR T = 7%X
SU - 6%
COMB. = 1%

RCP
02/2012

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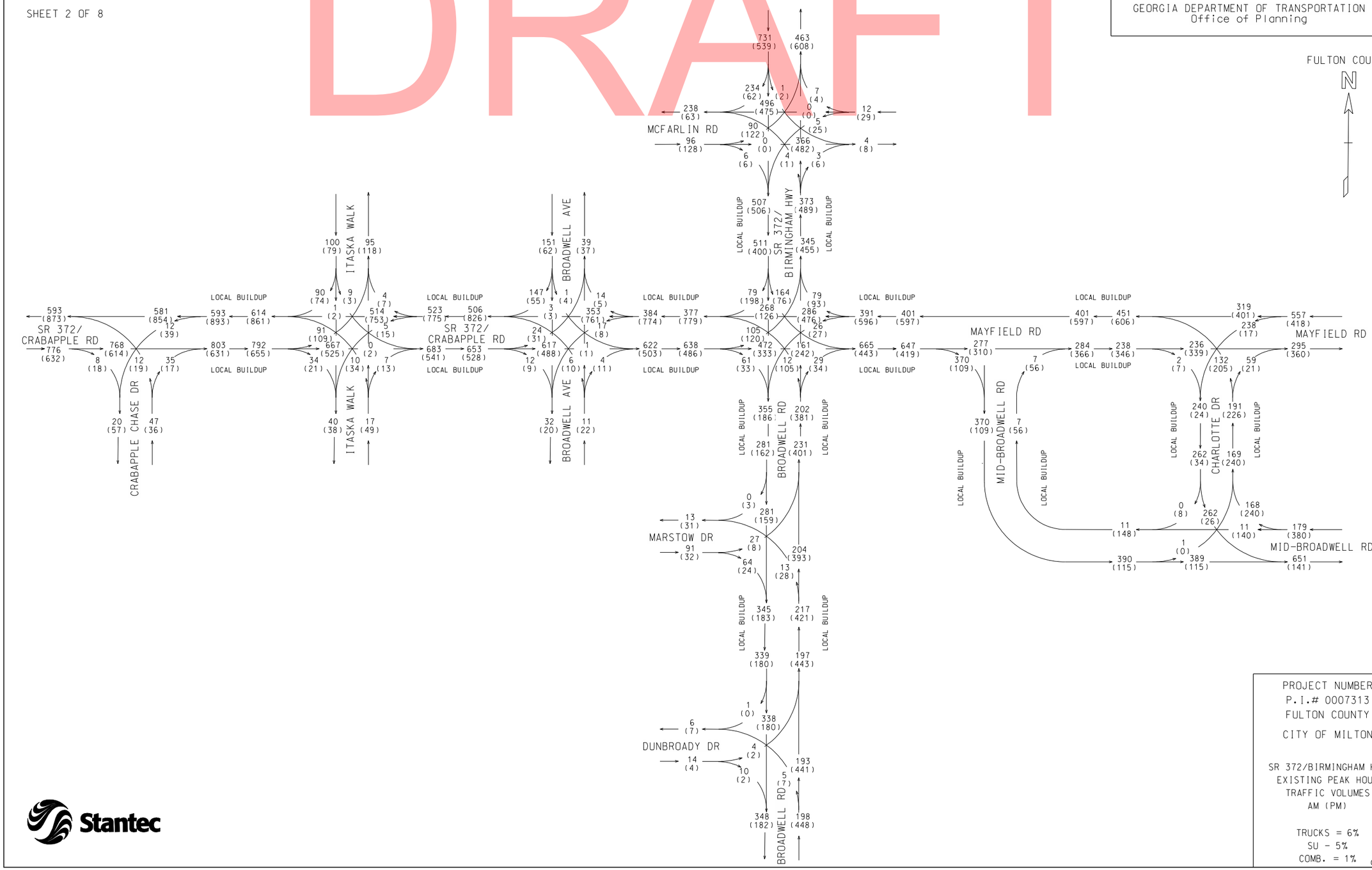
Office of Planning

FULTON COUNTY



PROJECT NUMBER
P.I.# 0007313
FULTON COUNTY

CITY OF MILTON

SR 372/BIRMINGHAM HWY
EXISTING PEAK HOUR
TRAFFIC VOLUMES
AM (PM)

TRUCKS = 6%
SU - 5%
COMB. = 1%

RCP
02/2012

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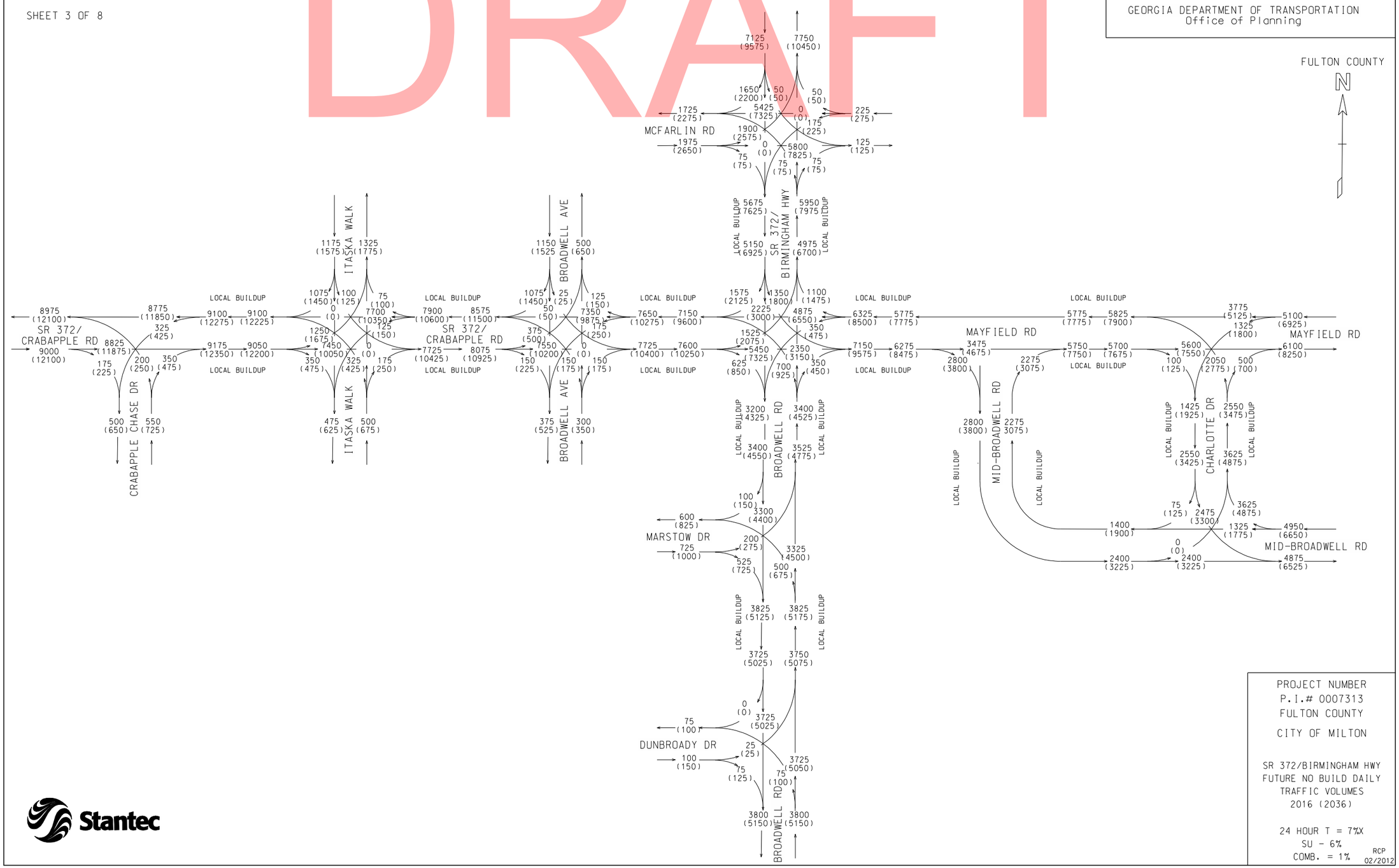
Office of Planning

FULTON COUNTY



PROJECT NUMBER
P.I.# 0007313
FULTON COUNTY

CITY OF MILTON

SR 372/BIRMINGHAM HWY
FUTURE NO BUILD DAILY
TRAFFIC VOLUMES
2016 (2036)

24 HOUR T = 7%X
SU - 6%
COMB. = 1%

RCP
02/2012

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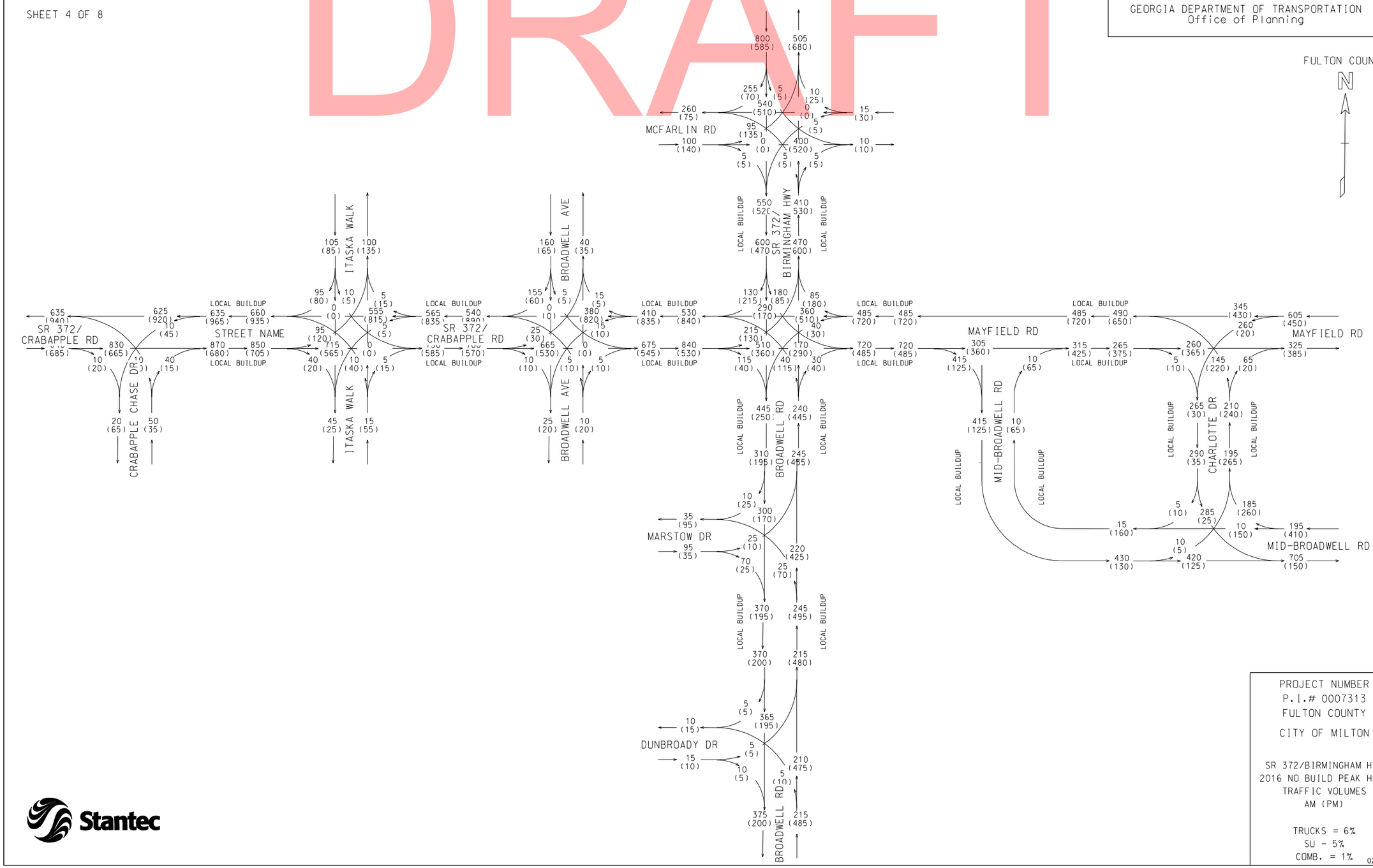
Office of Planning

FULTON COUNTY



PROJECT NUMBER
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FULTON COUNTY

CITY OF MILTON

SR 372/BIRMINGHAM HWY
2016 NO BUILD PEAK HOUR
TRAFFIC VOLUMES
AM (PM)

TRUCKS = 6%
SU - 5%
COMB. = 1%

RCP
02/2012

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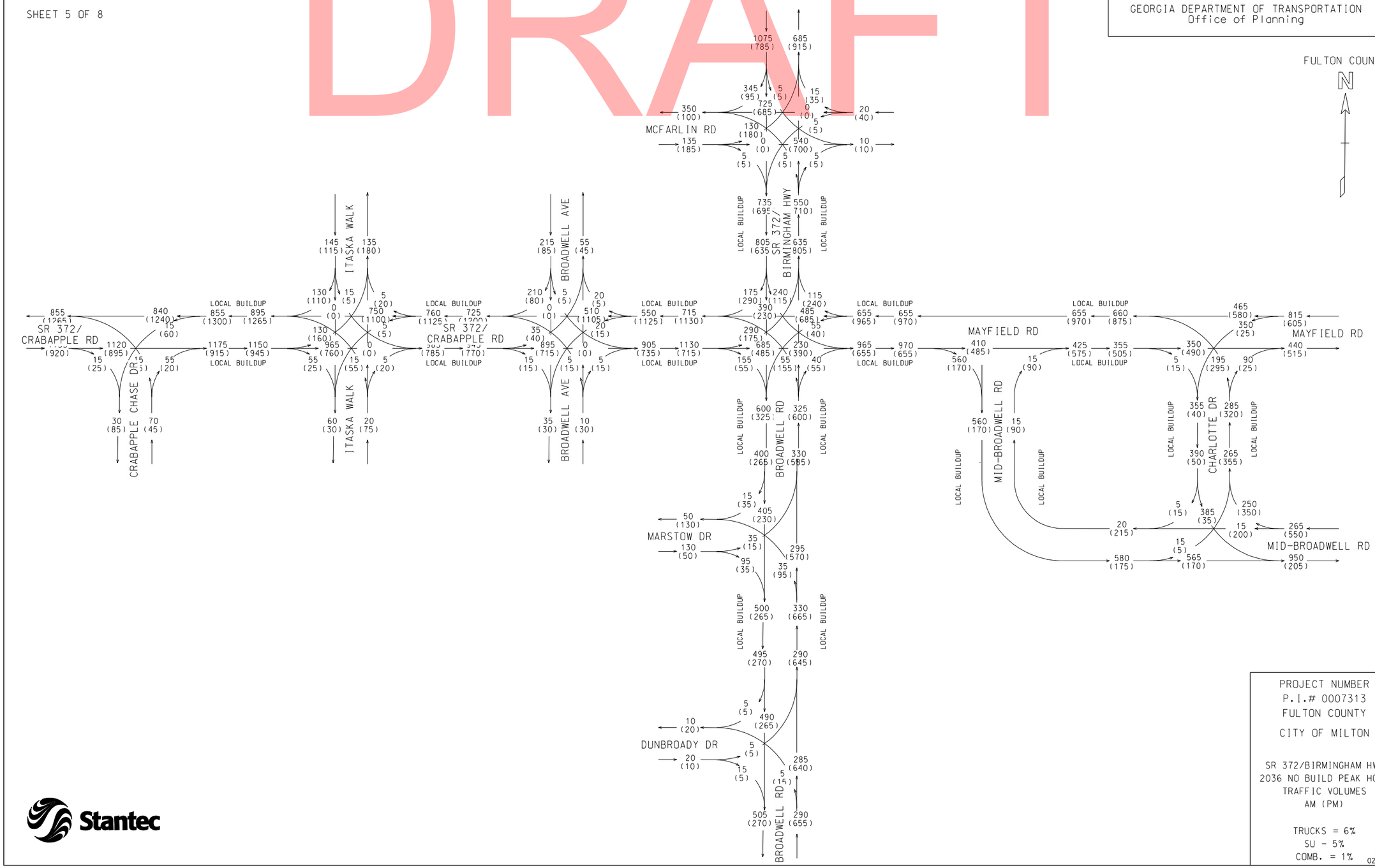

PROJECT NUMBER
P.I.# 0007313
FULTON COUNTY

CITY OF MILTON

SR 372/BIRMINGHAM HWY
2036 NO BUILD PEAK HOUR
TRAFFIC VOLUMES
AM (PM)

TRUCKS = 6%
SU - 5%
COMB. = 1%

RCP
02/2012

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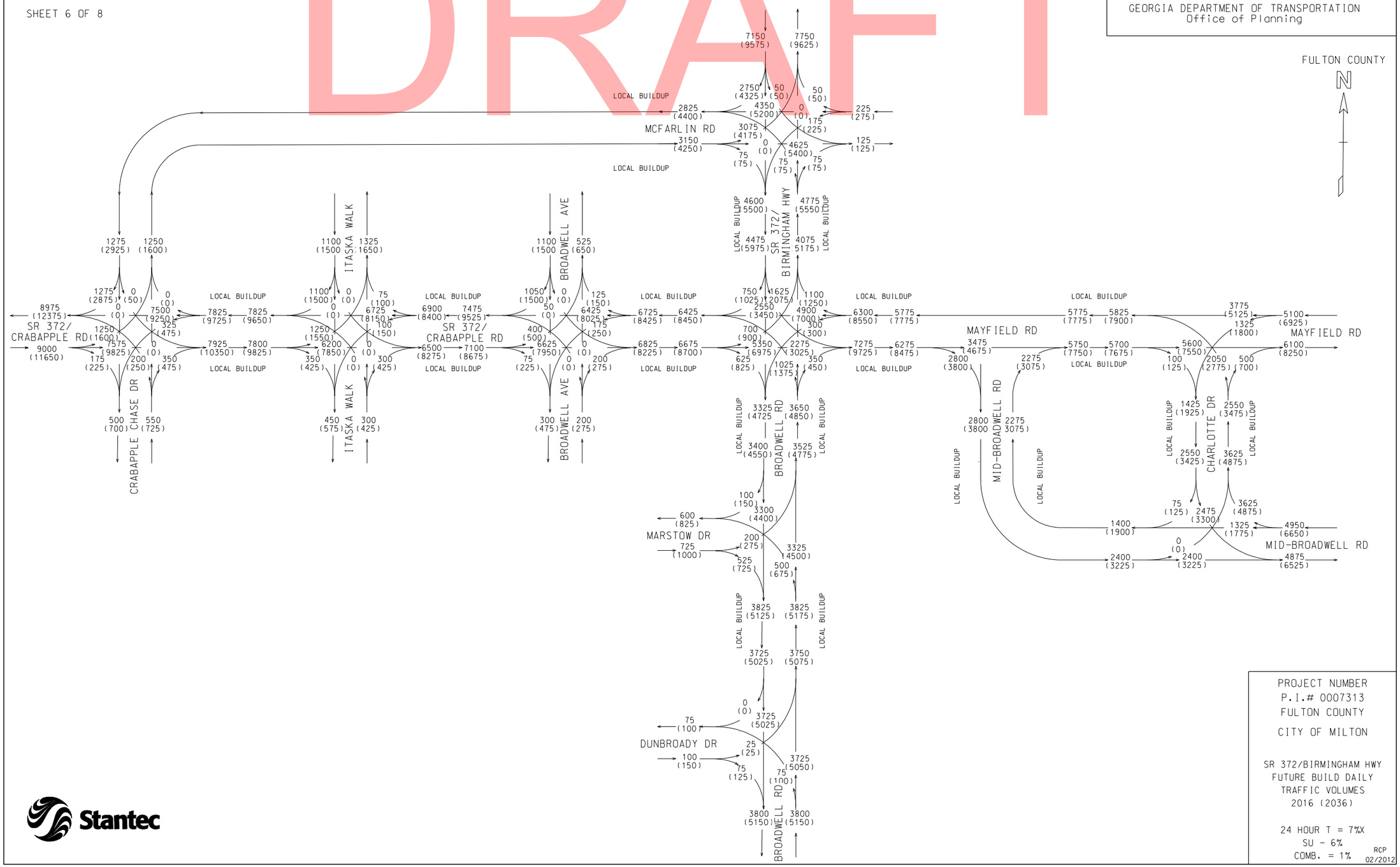
FULTON COUNTY



PROJECT NUMBER
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FULTON COUNTY

CITY OF MILTON

SR 372/BIRMINGHAM HWY
FUTURE BUILD DAILY
TRAFFIC VOLUMES
2016 (2036)

24 HOUR T = 7%X
SU - 6%
COMB. = 1%

RCP
02/2012

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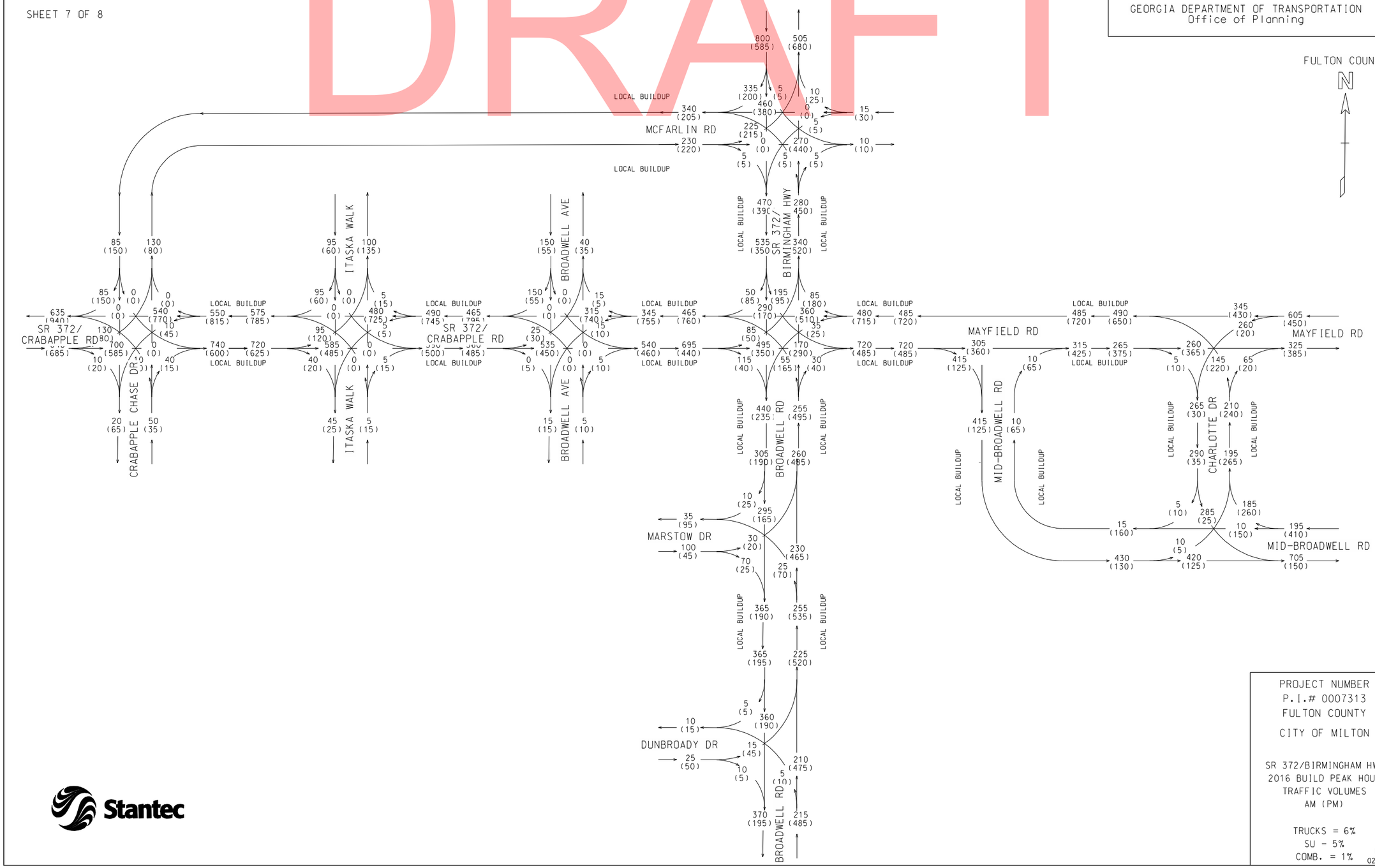
FULTON COUNTY



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FULTON COUNTY

CITY OF MILTON

SR 372/BIRMINGHAM HWY
2016 BUILD PEAK HOUR
TRAFFIC VOLUMES
AM (PM)

TRUCKS = 6%
SU - 5%
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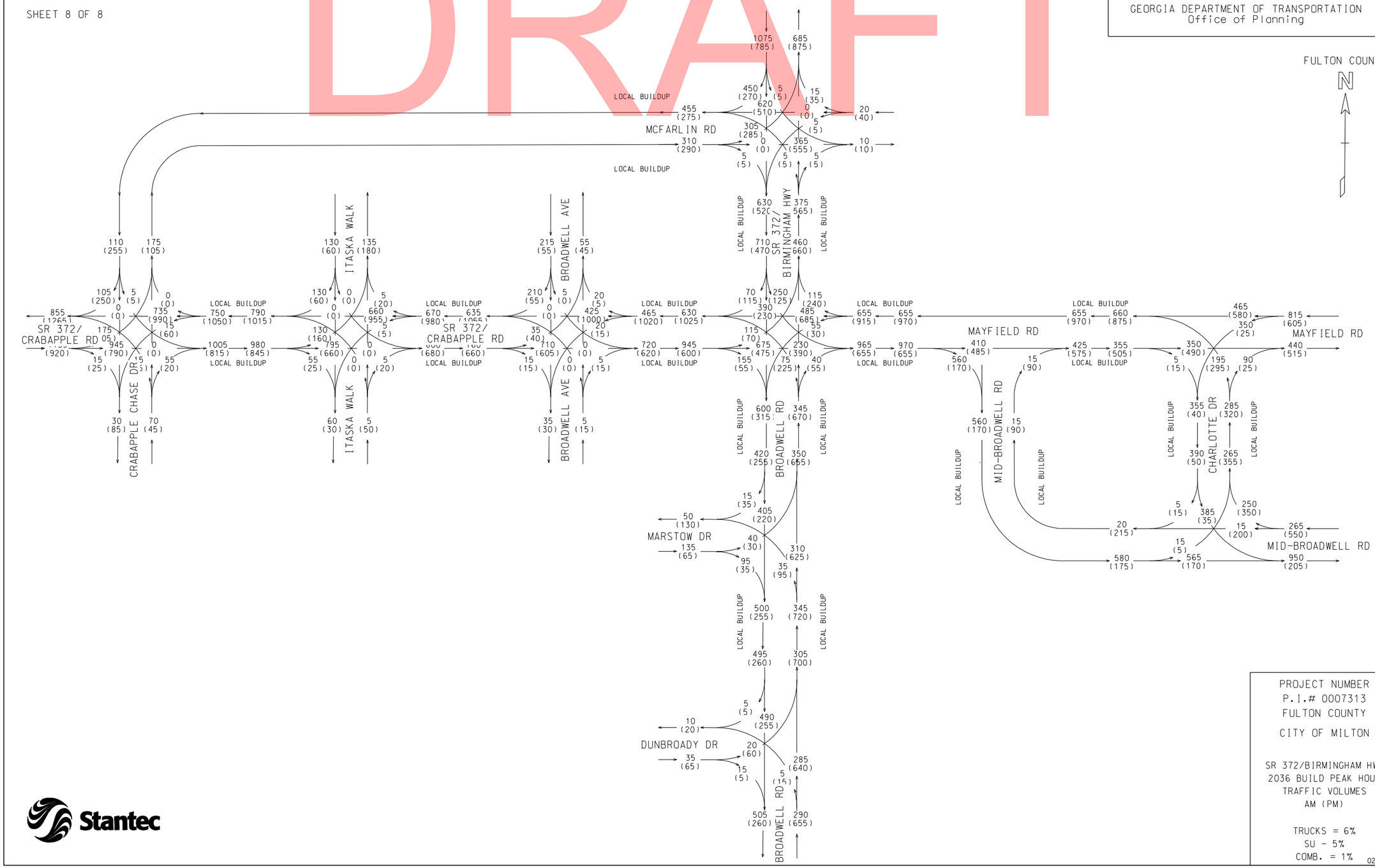
FULTON COUNTY



PROJECT NUMBER
P.I.# 0007313
FULTON COUNTY

CITY OF MILTON

SR 372/BIRMINGHAM HWY
2036 BUILD PEAK HOUR
TRAFFIC VOLUMES
AM (PM)

TRUCKS = 6%
SU - 5%
COMB. = 1%

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Existing Capacity Analyses Summary

Intersection				2011 AM Peak Hour				2011 PM Peak Hour			
#	Name	Control	Lane Group	LOS	V/C	Delay (sec)	95% Queue (ft)	LOS	V/C	Delay (sec)	95% Queue (ft)
1	McFarlin Ln at Birmingham Hwy/ SR 372	Side Street STOP	NBL/T/R	A	0.01	0.2	0	A	0.00	0.0	0
			SBL/T	A	0.00	0.0	0	A	0.00	0.1	0
			SBR	A	0.15	0.0	0	A	0.04	0.0	0
			EBL/T/R	E	0.58	42.3	82	F	0.87	84.3	163
			WBL/T/R	C	0.05	16.1	4	D	0.19	26.6	17
2	Mayfield Rd & Broadwell Rd at SR 372/ Birmingham Hwy/ Crabapple Rd	Traffic Signal	NBL/T/R	B	0.37	17.1	118	D	0.93	46.6	340
			SBL/T/R	E	1.01	64.3	491	C	0.78	27.0	296
			EBL/T	D	0.96	47.3	508	D	0.43	39.8	367
			EB/R	B	0.04	12.4	21	A	0.01	10.0	13
			WBL/T/R	B	0.66	19.9	259	C	0.39	24.4	422
			Overall	D	0.98	40.9	1376	C	0.93	33.0	1425
3	Marstow Dr at Broadwell Rd	Side Street STOP	NBL/T	A	0.01	0.6	1	A	0.02	0.7	2
			SBT/R	A	0.19	0.0	0	A	0.10	0.0	0
			EBL/R	B	0.22	12.4	21	B	0.06	10.6	5
4	Dunbroady Dr at Broadwell Rd	Side Street STOP	NBL/T	A	0.00	0.2	0	A	0.01	0.2	0
			SBT/R	A	0.22	0.0	0	A	0.12	0.0	0
			EBL/R	B	0.03	11.2	2	B	0.01	11.4	1
5	Charlotte Dr at Mayfield Rd	Traffic Signal	NBL/R	C	0.57	22.1	102	B	0.57	13.6	85
			EBT/R	A	0.30	6.2	80	A	.051	9.3	160
			WBL/T	B	0.82	16.2	375	B	0.58	10.2	136
			Overall	B	0.75	14.6	557	B	0.58	10.8	381
6	Charlotte Dr at Mid-Broadwell Rd	Side Street STOP	SBL/R	D	0.66	26.0	120	B	0.07	11.3	6
			EBL/T	A	0.00	0.0	0	A	0.00	0.0	0
			WBL/R	A	0.14	0.0	0	A	0.25	0.0	0
7	Mid-Broadwell Rd at Mayfield Rd	Side Street STOP	NBR	B	0.02	10.2	1	B	0.10	10.5	8
			EBT/R	A	0.39	0.0	0	A	0.26	0.0	0
			WBT	A	0.26	0.0	0	A	0.36	0.0	0
8	Broadwell Ave at SR 372/ Crabapple Rd	Side Street STOP	NBL/T/R	E	0.16	38.1	13	F	0.28	52.9	27
			SBL/T/R	B	0.29	13.2	30	C	0.29	23.3	29
			EBL	A	0.02	8.2	2	B	0.05	10.1	4
			EBT/R	A	0.40	0.0	0	A	0.32	0.0	0
			WBL	A	0.02	9.0	2	A	0.01	8.5	1
			WBT	A	0.24	0.0	0	A	0.48	0.0	0
			WBR	A	0.01	0.0	0	A	0.00	0.0	0
9	Itaska Walk at SR 372/ Crabapple Rd	Side Street STOP	NBL/T/R	F	0.43	76.9	44	F	1.24*	371.1*	128
			SBL/T/R	C	0.43	23.2	51	D	0.37	27.4	40
			EBL	A	0.10	9.1	8	A	0.16	11.0	14
			EBT	A	0.42	0.0	0	A	0.33	0.0	0
			EBR	A	0.02	0.0	0	A	0.01	0.0	0
			WBL	A	0.01	9.1	0	A	0.02	8.6	1
			WBT	A	0.35	0.0	0	A	0.52	0.0	0
			WBR	A	0.00	0.0	0	A	0.00	0.0	0
10	Crabapple Chase Dr at SR 372/ Crabapple Rd	Side Street STOP	NBL/R	C	0.25	24.3	24	E	0.30	36.8	30
			EBT	A	0.50	0.0	0	A	0.40	0.0	0
			EBR	A	0.01	0.0	0	A	0.01	0.0	0
			WBL	A	0.02	9.6	1	A	0.05	9.1	4
			WBT	A	0.38	0.0	0	A	0.53	0.0	0
11	Parkstead Ln at McFarlin Ln	Side Street STOP	NBL/T/R	A	0.23	8.4	23	A	0.14	7.5	13
			SBL/T/R	A	0.03	7.6	3	A	0.00	7.8	0
			EBL/T/R	A	0.02	7.4	3	A	0.01	7.3	0
			WBL/T/R	B	0.41	10.8	50	A	0.25	8.9	25

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2016 No Build Capacity Analyses Summary

Intersection				2016 AM Peak Hour				2016 PM Peak Hour			
#	Name	Control	Lane Group	LOS	V/C	Delay (sec)	95% Queue (ft)	LOS	V/C	Delay (sec)	95% Queue (ft)
1	McFarlin Ln at Birmingham Hwy/ SR 372	Side Street STOP	NBL/T/R	A	0.01	0.2	1	A	0.01	0.2	0
			SBL/T	A	0.01	0.1	0	A	0.01	0.2	0
			SBR	A	0.16	0.0	0	A	0.04	0.0	0
			EBL/T/R	F	0.71	61.7	112	F	1.12	165.2	236
			WBL/T/R	C	0.09	21.8	7	D	0.23	31.5	21
2	Mayfield Rd & Broadwell Rd at SR 372/ Birmingham Hwy/ Crabapple Rd	Traffic Signal	NBL/T/R	B	0.41	19.8	144	F	1.07	87.4	426
			SBL/T/R	F	1.13	108.1	608	D	0.88	40.9	376
			EBL/T	E	1.04	68.8	626	E	1.0	58.5	459
			EB/R	B	0.05	13.1	22	B	0.02	10.6	14
			WBL/T/R	C	0.77	26.3	380	C	0.86	27.6	519
			Overall	E	1.08	62.1	N/A	D	1.03	50.1	N/A
3	Marstow Dr at Broadwell Rd	Side Street STOP	NBL/T	A	0.02	1.0	2	A	0.06	1.6	4
			SBT/R	A	0.21	0.0	0	A	0.12	0.0	0
			EBL/R	B	0.21	12.7	20	B	0.08	11.7	7
4	Dunbroady Dr at Broadwell Rd	Side Street STOP	NBL/T	A	0.0	0.2	0	A	0.01	0.2	1
			SBT/R	A	0.24	0.0	0	A	0.13	0.0	0
			EBL/R	B	0.03	11.7	2	B	0.03	12.0	2
5	Charlotte Dr at Mayfield Rd	Traffic Signal	NBL/R	C	0.64	26.2	123	B	0.60	13.8	92
			EBT/R	B	0.30	6.1	84	B	0.56	10.2	150
			WBL/T	A	0.86	19.0	429	B	0.64	11.5	186
			Overall	B	0.80	17.0	N/A	B	0.62	11.7	N/A
6	Charlotte Dr at Mid-Broadwell Rd	Side Street STOP	SBL/R	D	0.75	32.6	155	B	0.09	11.7	7
			EBL/T	A	0.0	0.0	0	A	0.0	0.0	0
			WBL/R	A	0.15	0.0	0	A	0.27	0.0	0
7	Mid-Broadwell Rd at Mayfield Rd	Side Street STOP	NBR	B	0.02	10.4	2	B	0.11	10.8	9
			EBT/R	A	0.42	0.0	0	A	0.28	0.0	0
			WBT	A	0.27	0.0	0	A	0.39	0.0	0
8	Broadwell Ave at SR 372/ Crabapple Rd	Side Street STOP	NBL/T/R	E	0.12	42.0	10	F	0.40	91.4	38
			SBL/T/R	B	0.33	14.1	36	D	0.42	33.8	49
			EBL	A	0.02	8.3	2	B	0.06	10.6	4
			EBT/R	A	0.43	0.0	0	A	0.35	0.0	0
			WBL	A	0.03	9.2	2	A	0.01	8.7	1
			WBT	A	0.26	0.0	0	A	0.51	0.0	0
			WBR	A	0.01	0.0	0	A	0.0	0.0	0
9	Itaska Walk at SR 372/ Crabapple Rd	Side Street STOP	NBL/T/R	F	0.34	72.4	32	F	1.94	745.8	159
			SBL/T/R	D	0.46	26.6	58	E	0.49	38.4	60
			EBL	A	0.11	9.3	10	B	0.19	11.8	17
			EBT	A	0.45	0.0	0	A	0.36	0.0	0
			EBR	A	0.02	0.0	0	A	0.02	0.0	0
			WBL	A	0.01	9.3	1	A	0.02	8.8	1
			WBT	A	0.38	0.0	0	A	0.55	0.0	0
			WBR	A	0.0	0.0	0	A	0.01	0.0	0
10	Crabapple Chase Dr at SR 372/ Crabapple Rd	Side Street STOP	NBL/R	D	0.34	30.5	36	E	0.38	45.1	40
			EBT	A	0.53	0.0	0	A	0.43	0.0	0
			EBR	A	0.01	0.0	0	A	0.01	0.0	0
			WBL	A	0.02	9.9	2	A	0.05	9.3	4
			WBT	A	0.41	0.0	0	A	0.58	0.0	0
11	Parkstead Ln at McFarlin Ln	Side Street STOP	NBL/T/R	A	0.19	8.2	18	A	0.15	7.6	13
			SBL/T/R	A	0.0	8.0	0	A	0.0	7.6	0
			EBL/T/R	A	0.03	7.7	3	A	0.02	7.2	0
			WBL/T/R	B	0.43	10.9	55	A	0.27	9.1	28

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2036 No Build Capacity Analyses Summary

Intersection				2036 AM Peak Hour				2036 PM Peak Hour			
#	Name	Control	Lane Group	LOS	V/C	Delay (sec)	95% Queue (ft)	LOS	V/C	Delay (sec)	95% Queue (ft)
1	McFarlin Ln at Birmingham Hwy/ SR 372	Side Street STOP	NBL/T/R	A	0.1	0.3	1	A	0.01	0.2	1
			SBL/T	A	0.1	0.2	0	A	0.01	0.2	1
			SBR	A	0.21	0.0	0	A	0.06	0.0	0
			EBL/T/R	F	1.97	550.4	386	F	3.90	-	-
			WBL/T/R	E	0.24	47.4	22	F	0.80	161.5	93
2	Mayfield Rd & Broadwell Rd at SR 372/ Birmingham Hwy/ Crabapple Rd	Traffic Signal	NBL/T/R	D	0.60	35.9	308	F	1.59	325.5	1084
			SBL/T/R	F	1.91	459.4	1391	F	1.34	215.0	1032
			EBL/T	F	1.40	221.0	1354	F	1.54	288.0	1209
			EB/R	B	0.08	16.3	43	B	0.04	16.2	25
			WBL/T/R	F	1.87	424.4	797	F	1.46	248.6	1540
			Overall	F	1.84	302.9	N/A	F	1.56	263.1	N/A
3	Marstow Dr at Broadwell Rd	Side Street STOP	NBL/T	A	0.04	1.2	3	A	0.08	2.0	7
			SBT/R	A	0.28	0.0	0	A	0.17	0.0	0
			EBL/R	C	0.37	17.0	42	B	0.15	14.7	13
4	Dunbroady Dr at Broadwell Rd	Side Street STOP	NBL/T	A	0.01	0.2	0	A	0.01	0.3	1
			SBT/R	A	0.32	0.0	0	A	0.17	0.0	0
			EBL/R	B	0.05	13.2	4	B	0.03	14.3	3
5	Charlotte Dr at Mayfield Rd	Traffic Signal	NBL/R	F	1.15	162.8	505	C	0.76	21.5	181
			EBT/R	A	0.33	6.2	137	B	0.69	13.7	231
			WBL/T	E	1.06	65.0	1193	B	0.78	17.1	279
			Overall	E	1.07	68.7	N/A	B	0.77	17.1	N/A
6	Charlotte Dr at Mid-Broadwell Rd	Side Street STOP	SBL/R	F	1.33	197.4	548	B	0.15	13.6	13
			EBL/T	A	0.20	0.0	0	A	0.0	0.0	0
			WBL/R	A	0.0	0.0	0	A	0.36	0.0	0
7	Mid-Broadwell Rd at Mayfield Rd	Side Street STOP	NBR	B	0.04	11.8	3	B	0.17	12.0	15
			EBT/R	A	0.57	0.0	0	A	0.37	0.0	0
			WBT	A	0.35	0.0	0	A	0.53	0.0	0
8	Broadwell Ave at SR 372/ Crabapple Rd	Side Street STOP	NBL/T/R	F	0.50	232.8	39	F	24.23	-	-
			SBL/T/R	C	0.56	22.1	85	F	2.40	820.7	301
			EBL	A	0.04	8.9	3	C	0.13	15.5	11
			EBT/R	A	0.58	0.0	0	A	0.47	0.0	0
			WBL	B	0.04	102	3	A	0.02	9.4	1
			WBT	A	0.35	0.0	0	A	0.69	0.0	0
			WBR	A	0.01	0.0	0	A	0.0	0.0	0
9	Itaska Walk at SR 372/ Crabapple Rd	Side Street STOP	NBL/T/R	F	3.08	-	-	F	359.76	-	-
			SBL/T/R	F	1.69	421.9	370	F	4.77	-	-
			EBL	B	0.20	11.2	18	C	0.47	24.2	61
			EBT	A	0.61	0.0	0	A	0.48	0.0	0
			EBR	A	0.03	0.0	0	A	0.02	0.0	0
			WBL	B	0.01	10.4	1	A	0.03	9.6	2
			WBT	A	0.51	0.0	0	A	0.75	0.0	0
			WBR	A	0.0	0.0	0	A	0.01	0.0	0
10	Crabapple Chase Dr at SR 372/ Crabapple Rd	Side Street STOP	NBL/R	F	0.90	130.1	136	F	1.12	269.1	137
			EBT	A	0.72	0.0	0	A	0.58	0.0	0
			EBR	A	0.01	0.0	0	A	0.02	0.0	0
			WBL	B	0.04	11.6	0	B	0.08	10.6	7
			WBT	A	0.55	0.0	0	A	0.78	0.0	0
11	Parkstead Ln at McFarlin Ln	Side Street STOP	NBL/T/R	A	0.27	9.2	28	A	0.22	8.3	20
			SBL/T/R	A	0.0	8.4	0	A	0.0	7.9	0
			EBL/T/R	A	0.05	8.1	3	A	0.02	7.5	0
			WBL/T/R	B	0.59	14.3	108	B	0.38	10.3	45

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2016 Build Preferred Alternate Capacity Analyses Summary

Intersection				2016 AM Peak Hour				2016 PM Peak Hour			
#	Name	Control	Lane Group	LOS	V/C	Delay (sec)	95% Queue (ft)	LOS	V/C	Delay (sec)	95% Queue (ft)
1	McFarlin Ln at Birmingham Hwy/ SR 372	Round-about (NCHRP)	NBL/T/R	A	0.37	10.3	50	B	0.63	11.0	120
			SBL/T/R	D	0.93	19.2	225	A	0.61	8.0	113
			EBL/T/R	B	0.52	12.8	75	A	0.42	9.0	55
			WBL/T/R	A	0.03	6.6	0	A	0.08	8.0	7
			Overall	C	0.73	15.8	N/A	A	0.57	9.5	N/A
2	Mayfield Rd & Broadwell Rd at SR 372/ Birmingham Hwy/ Crabapple Rd	Traffic Signal	NBL	B	0.15	18.2	24	C	0.71	34.5	167
			NBT/R	C	0.59	24.5	142	D	0.83	45.5	334
			SBL	C	0.65	23.2	147	C	0.58	34.6	80
			SBT/R	C	0.66	24.7	256	D	0.68	39.1	224
			EBL	B	0.27	14.4	35	B	0.19	13.3	29
			EBT	B	0.70	18.8	272	B	0.39	12.1	172
			EBR	B	0.05	11.3	19	A	0.02	9.5	13
			WBL/T/R	D	0.91	42.4	347	D	0.95	45.9	599
			Overall	C	0.76	26.1	N/A	D	0.93	35.7	N/A
3	Marstow Dr at Broadwell Rd	Side Street STOP	NBL/T	A	0.02	1.0	2	A	0.06	1.6	4
			SBT/R	A	0.21	0.0	0	A	0.12	0.0	0
			EBL/R	B	0.22	12.6	21	B	0.12	13.5	11
4	Dunbroady Dr at Broadwell Rd	Side Street STOP	NBL/T	A	0.0	0.2	0	A	0.01	0.2	1
			SBT/R	A	0.23	0.0	0	A	0.13	0.0	0
			EBL/R	B	0.06	12.6	4	C	0.16	15.3	14
5	Charlotte Dr at Mayfield Rd	Traffic Signal	NBL/R	C	0.64	26.2	123	B	0.60	13.6	82
			EBT/R	A	0.30	6.1	84	B	0.56	10.2	150
			WBL/T	B	0.86	19.0	429	B	0.64	11.5	185
			Overall	B	0.80	17.0	N/A	B	0.62	11.7	N/A
6	Charlotte Dr at Mid-Broadwell Rd	Side Street STOP	SBL/R	D	0.75	32.6	155	B	0.09	11.7	7
			EBL/T	A	0.0	0.0	0	A	0.0	0.0	0
			WBL/R	A	0.15	0.0	0	A	0.27	0.0	0
7	Mid-Broadwell Rd at Mayfield Rd	Side Street STOP	NBR	B	0.02	10.3	1	B	0.11	10.9	9
			EBT/R	A	0.42	0.0	0	A	0.28	0.0	0
			WBT	A	0.27	0.0	0	A	0.39	0.0	0
8	Broadwell Ave at SR 372/ Crabapple Rd	Side Street STOP	NBL/T/R	B	0.01	12.1	1	B	0.02	11.4	2
			SBL/T/R	B	0.28	12.3	29	C	0.23	19.0	22
			EBL	A	0.02	8.1	2	B	0.05	10.1	4
			EBT/R	A	0.34	0.0	0	A	0.29	0.0	0
			WBL	A	0.02	8.7	2	A	0.01	8.4	1
			WBT	A	0.22	0.0	0	A	0.46	0.0	0
			WBR	A	0.01	0.0	0	A	0.0	0.0	0
9	Itaska Walk at SR 372/ Crabapple Rd	Side Street STOP	NBL/T/R	B	0.03	12.7	2	B	0.03	11.7	2
			SBL/T/R	B	0.24	13.9	23	C	0.19	17.0	17
			EBL	A	0.11	9.0	9	B	0.17	11.0	15
			EBT	A	0.37	0.0	0	A	0.31	0.0	0
			EBR	A	0.02	0.0	0	A	0.02	0.0	0
			WBL	A	0.01	8.8	0	A	0.02	8.5	1
			WBT	A	0.33	0.0	0	A	0.49	0.0	0
			WBR	A	0.0	0.0	0	A	0.01	0.0	0
10	Crabapple Chase Dr at SR 372/ Crabapple Rd	Round-about (NCHRP)	NBL/T/R	A	0.17	10.0	16	A	0.10	8.0	9
			SBL/T/R	A	0.16	7.0	15	B	0.40	14.0	49
			EBL/T/R	C	0.86	19.0	300	B	0.72	11.0	171
			WBL/T/R	B	0.67	11.0	141	D	0.94	32.0	416
			Overall	C	0.73	15.2	N/A	C	0.78	21.5	N/A
11	Parkstead Ln at McFarlin Ln	Side Street STOP	NBL/T/R	B	0.42	10.9	0	A	0.42	9.1	0
			SBL/T/R	A	0.0	8.6	0	A	0.0	8.2	0
			EBL/T/R	A	0.04	8.4	0	A	0.04	7.8	0
			WBL/T/R	C	0.61	15.6	0	B	0.61	12.6	0

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2036 Build Preferred Alternate Capacity Analyses Summary

Intersection		Control	Lane Group	2036 AM Peak Hour				2036 PM Peak Hour			
#	Name			LOS	V/C	Delay (sec)	95% Queue (ft)	LOS	V/C	Delay (sec)	95% Queue (ft)
1	McFarlin Ln at Birmingham Hwy/ SR 372	Round-About (UK)	NBL/T/R	A	0.40	6.0	52	A	0.62	9.0	115
			SBL/T/R	A	0.57	7.0	99	A	0.38	5.0	47
			EBL/T/R	A	0.42	8.0	55	A	0.34	6.0	40
			WBL/T/R	A	0.03	5.0	2	A	0.07	6.0	5
			Overall	A	0.48	6.5	N/A	A	0.45	6.5	N/A
2	Mayfield Rd & Broadwell Rd at SR 372/ Birmingham Hwy/ Crabapple Rd	Traffic Signal	NBL	C	0.28	26.3	37	D	0.80	43.3	245
			NBT/R	D	0.84	46.3	290	F	1.09	113.8	538
			SBL	E	0.96	64.1	262	F	0.92	94.4	163
			SBT/R	D	0.80	36.0	438	D	0.68	49.3	216
			EBL	B	0.32	15.7	62	B	0.30	13.3	60
			EBT	C	0.88	32.7	520	B	0.50	15.0	295
			EBR	B	0.06	13.2	23	B	0.03	10.7	16
			WBL/T/R	E	1.04	72.2	570	D	1.00	52.4	948
			Overall	D	0.97	46.3	N/A	D	1.04	54.8	N/A
3	Marstow Dr at Broadwell Rd	Side Street STOP	NBL/T	A	0.04	1.2	3	A	0.08	2.0	6
			SBT/R	A	0.28	0.0	0	A	0.16	0.0	0
			EBL/R	C	0.38	16.9	43	C	0.26	19.7	26
4	Dunbroady Dr at Broadwell Rd	Side Street STOP	NBL/T	A	0.01	0.2	0	A	0.01	0.3	1
			SBT/R	A	0.32	0.0	0	A	0.17	0.0	0
			EBL/R	C	0.10	15.3	8	C	0.30	22.5	30
5	Charlotte Dr at Mayfield Rd	Traffic Signal	NBL/R	F	1.15	162.8	505	C	0.76	21.5	181
			EBT/R	A	0.33	6.2	137	B	0.69	13.7	231
			WBL/T	E	1.06	65.0	1193	B	0.78	17.1	279
			Overall	E	1.07	68.7	N/A	B	0.77	17.1	N/A
6	Charlotte Dr at Mid-Broadwell Rd	Side Street STOP	SBL/R	F	1.33	197.4	548	B	0.15	13.6	13
			EBL/T	A	0.0	0.0	0	A	0.0	0.0	0
			WBL/R	A	0.20	0.0	0	A	0.36	0.0	0
7	Mid-Broadwell Rd at Mayfield Rd	Side Street STOP	NBR	B	0.04	11.9	3	B	0.18	12.5	16
			EBT/R	A	0.57	0.0	0	A	0.37	0.0	0
			WBT	A	0.37	0.0	0	A	0.53	0.0	0
8	Broadwell Ave at SR 372/ Crabapple Rd	Side Street STOP	NBL/T/R	B	0.02	14.2	1	B	0.04	13.1	3
			SBL/T/R	B	0.39	13.9	46	B	0.07	14.8	5
			EBL	A	0.04	8.5	3	B	0.08	11.5	7
			EBT/R	A	0.46	0.0	0	A	0.39	0.0	0
			WBL	A	0.03	9.4	3	A	0.02	8.9	1
			WBT	A	0.29	0.0	0	A	0.55	0.0	0
			WBR	A	0.01	0.0	0	A	0.0	0.0	0
9	Itaska Walk at SR 372/ Crabapple Rd	Side Street STOP	NBL/T/R	C	0.06	15.6	4	B	0.05	13.7	4
			SBL/T/R	C	0.43	20.5	53	C	0.20	18.2	19
			EBL	B	0.18	10.4	16	B	0.28	13.2	28
			EBT	A	0.50	0.0	0	A	0.42	0.0	0
			EBR	A	0.03	0.0	0	A	0.02	0.0	0
			WBL	A	0.01	9.6	1	A	0.03	9.2	2
			WBT	A	0.45	0.0	0	A	0.54	0.0	0
			WBR	A	0.0	0.0	0	A	0.01	0.0	0
10	Crabapple Chase Dr at SR 372/ Crabapple Rd	Round-About (UK)	NBL/T/R	A	0.15	8.0	14	A	0.08	6.0	7
			SBL/T/R	A	0.16	6.0	15	B	0.65	14.0	124
			EBL/T/R	E	1.03	47.0	618	C	0.85	18.0	295
			WBL/T/R	B	0.75	13.0	196	B	0.78	14.0	227
			Overall	D	0.85	31.0	N/A	C	0.77	15.1	N/A
11	Parkstead Ln at McFarlin Ln	Side Street STOP	NBL/T/R	C	0.63	16.5	0	B	0.43	11.3	0
			SBL/T/R	A	0.0	9.5	0	A	0.0	8.9	0
			EBL/T/R	A	0.06	9.4	0	A	0.02	8.3	0
			WBL/T/R	E	0.89	35.9	0	C	0.74	20.7	0

Alternatives LOS
County: Fulton

P.I. Number: 0007313

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The following table indicates the intersections that do not meet the acceptable LOS for each alternative considered.

2036 PEAK HR LOS

Intersection			Scenario																	
			No Build		PA		1		2		3 (3a+3b)		4		5		6		7	
#	Type	Dir	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1	SS	NB	A	A			A	A			A	A	A	A	A	A	A	A		
		SB	A	A			A	A			A	A	A	A	A	A	A	A		
		EB	F	F			F	F			F	F	F	F	F	F	F	F		
	RA	NB			A	A			C	D									C	E
		SB			A	A			B	D									F	D
		EB			A	A			B	C									B	C
		WB							B	C										
2	TS	OA	F	F	D	D	D	E	C	D	C	C	D	D	D	D				
	RA	NB															F	F	F	F
		SB															F	E	F	E
		EB															F	E	F	E
		WB															D	F	D	F
3	SS	NB	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
		SB	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
		EB	C	B	C	C	C	B	C	B	F	C	C	B	C	B	C	B	C	B
		WB									F	E								
4	SS	NB	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
		SB	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
		EB	B	B	C	C	B	B	B	B	F	D	B	B	B	B	B	B	B	B
		WB									C	D								
5	TS	OA	E	B	E	B	F	C	C	C	C	B	F	C	F	C	F	C	E	B
6	SS	NB									C	A								
		SB	F	B	F	B	F	C	F	B	C	A	F	C	F	C	F	C	F	B
		EB	A	A	A	A	A	A	A	A	B	A	A	A	A	A	A	A	A	A
		WB	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
	RA	NB									A	A								
		SB									B	A								
		EB									A	A								
		WB									A	B								
7	SS	NB	B	B	B	B	B	B	B	B	B	B	B	B			B	B	B	B
		EB	A	A	A	A	A	A	A	A	A	A	A	A			A	A	A	A
		WB	A	A	A	A	A	A	A	A	A	A	A	A			A	A	A	A
8	SS	NB	F	F	B	B	F	F	F	F	F	F	F	F	F	F	F	F	F	F
		SB	C	F	B	B	C	F	C	F	C	F	C	F	C	F	C	F	C	F
		EB	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
		WB	B	A	A	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A
9	SS	NB	F	F	C	B	F	F	F	F	F	F	F	F	F	F	F	F	F	F
		SB	F	F	C	C	F	F	F	F	F	F	F	F	F	F	F	F	F	F
		EB	B	C	B	B	B	C	B	C	B	C	B	C	B	C	B	C	B	C
		WB	B	A	A	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A
10	SS	NB	F	F			F	F	F	F	F	F	F	F	F	F	F	F		
		SB																		
		EB	A	A			A	A	A	A	A	A	A	A	A	A	A	A		
		WB	B	B			B	B	B	B	B	B	B	B	B	B	B	B		
	RA	NB			A	A													C	B
		SB			A	B														
		EB			E	C													F	E
		WB			B	B													D	F
11	SS	NB	A	A	C	B	A	A	A	A	A	A	A	A	A	A	A	A	A	A
		SB	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
		EB	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
		WB	B	B	E	C	B	B	B	B	B	B	B	B	B	B	B	B	B	B

Legend:

Type of Control		Direction (Dir)		Level of Service	
SS	Side Stop	NB	Northbound		Acceptable
RA	Roundabout	SB	Southbound		N/A
TS	Traffic Signal	EB	Eastbound		LOS E
AWS	All Way Stop	WB	Westbound		LOS F
		OA	Overall		

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Executive Summary (excerpt from Traffic Study, page E.1)

This study presents an analysis of the traffic conditions expected to result from proposed roadway improvements to improve the operations of the intersection of SR 372/Birmingham Highway/ Broadwell Road at SR 372/Crabapple Road/Mayfield Road in the City of Milton, Fulton County, Georgia. Seven (7) alternate route alignments are proposed. For the purpose of the traffic analyses, 2016 is the anticipated opening year of the roadway improvements and the design year of the project is 2036 (twenty years after opening).

Analysis of traffic operations was conducted for existing traffic volumes, for future traffic volumes without improvements, and with the proposed alternate routes. The future "no build" and "build" conditions included the "opening year" of the project, 2016, and the "design year" of the project, 2036. The analysis was conducted for 11 study intersections.

By the year 2036, six (6) of the 11 study intersections are anticipated to experience operational deficiencies if no improvements are made. By 2036, intersections studied can be reasonably expected to operate at adequate Levels of Service (LOS) with changes in intersection control and/or identified improvements for each of the scenarios studied. The identified intersection improvements are shown in the following table and figure.

Minimum Intersection Improvements

Intersection	***Identified Improvements by Alternative***							
	No Build	***1***	***2***	***1+2***	***3***	***2+3***	***3ab***	***1+2+***
SR 372 Crabapple Rd/Mayfield Rd at Birmingham Hwy/Broadwell Rd	*NBL +SBL*	*NBL +SBL*	*SBR*	*None*	*NBL +SBL*	*NBL*	*NBL +SBL*	*None*
McFarlin Ln at SR 372/Birmingham Hwy	*Signal or Roundabout for all scenarios*							
Charlotte Dr at Mayfield Rd	*Signal or Roundabout for all scenarios*							
Charlotte Dr at Mid Broadwell Rd	*All Way Stop Control or Roundabout for all scenarios*							
Crabapple Chase Dr at SR 372/Crabapple Rd	*Signal or Roundabout for all scenarios*							

Summary of Signal Warrant Analysis (excerpt from Traffic Study, page 3.4)

Based on the relatively low side street volumes counted during the peak hours, it is unlikely that a signal would be warranted at the intersection of SR 372/Crabapple Road at Crabapple Chase Drive.

Additionally, it is unlikely that a signal will be permitted at the intersection of SR 372/Birmingham Highway at McFarlin Lane due to its close proximity (600 feet) to the intersection of SR 372/Birmingham Highway at SR 372/Crabapple Road. The minimum distance between signalized intersections on state routes is 1000 feet in urban areas and 1320 in rural areas.

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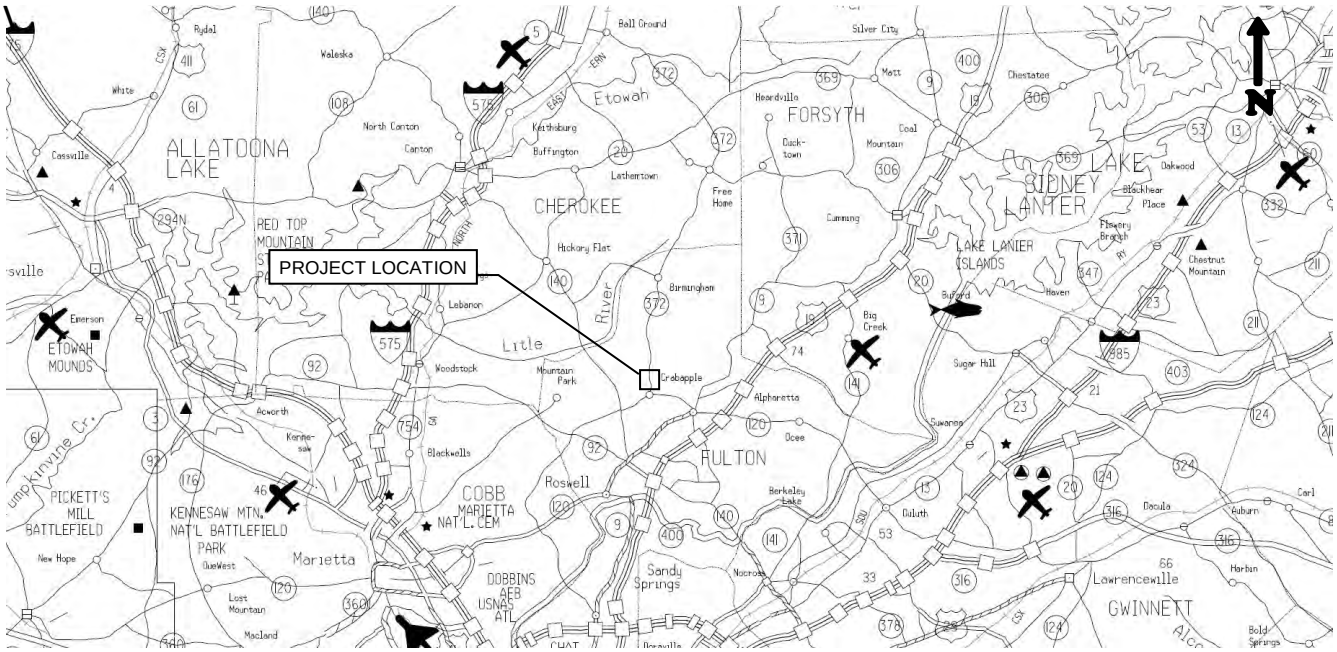
Vicinity Map

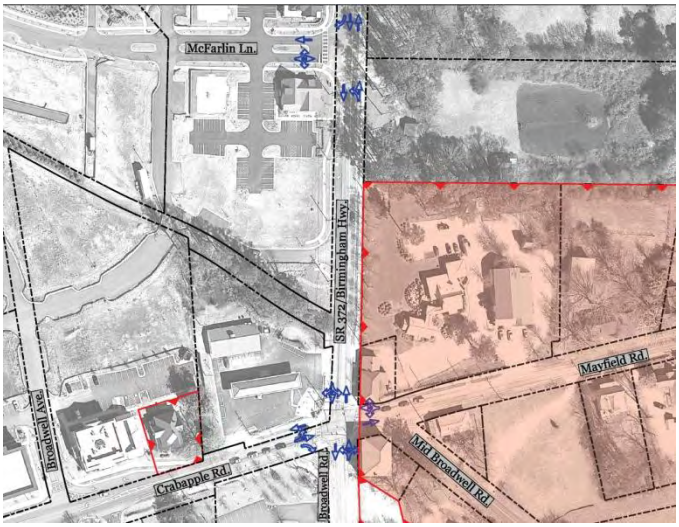
P. I. Number: 0007313
Project Number: CSHPP00-0007-00(313)
County: Fulton

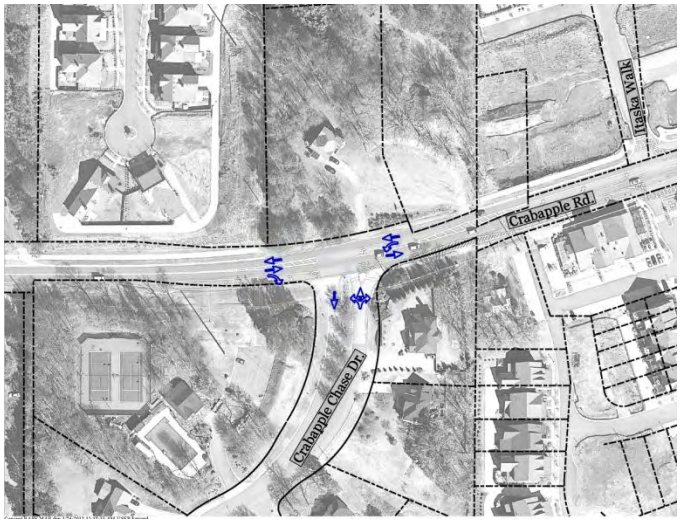
SR 372 (Crabapple Road/Birmingham Highway) Intersection Improvements



Intersection Layout

SR 372 (Crabapple Rd/Birmingham Hwy)/Mayfield Rd/Broadwell Rd – existing signal
SR 372(Birmingham Hwy) and McFarlin – existing stop signs on side street
SR 372 (Crabapple Road) and Crabapple Chase Drive- existing stop signs on side street





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Letter of support from local government

City of Milton
13000 Deerfield Parkway Suite 107C Milton, Georgia 30004

INDICATION OF ROUNDABOUT SUPPORT

To the Georgia Department of Transportation:

Attn: State Traffic Engineer
935 E. Confederate Ave, Building 24
Atlanta, GA 30316

Location

The CITY OF MILTON, in FULTON County supports the consideration of a roundabout at the locations specified below.

Local Street Names: SR 372/BIRMINGHAM HIGHWAY at MCFARLIN LANE
SR 372/CRABAPPLE ROAD at CRABAPPLE CHASE DRIVE

State/County Route Numbers: SR 372

Associated Conditions

The undersigned agrees to participate in the following maintenance of the intersection in the event that the roundabout is selected as the preferred concept alternative:

- The full and entire cost of the electric energy used for any lighting installed (if needed)
- Any maintenance costs associated with the landscaping (after construction is complete)

We agree to participate in a formal Local Government Lighting Project Agreement during the preliminary design phase. This indication of support is submitted and all of the conditions are hereby agreed to. The undersigned are duly authorized to execute this agreement.

This is the 19TH day of MARCH, 2012

Attest: SMGrady
Clerk

By: [signature]

Title: Mayor

City of Milton, Georgia
Incorporated 2006

DRAFT

Crash History

Year	*Total Crashes*	*Type*					*Severity*	
		Angle	*Rear End*	*Non-Vehicle*	*Head On*	*Sideswipe*	*Injuries*	*Fatalities*
2008	*15*	*3*	*8*	*0*	*1*	*3*	*3*	*0*
2009	*21*	*4*	*16*	*1*	*0*	*0*	*3*	*0*
2010	*23*	*7*	*12*	*1*	*1*	*2*	*5*	*0*
Totals	*59*	*14*	*36*	*2*	*2*	*5*	*11*	*0*

Pedestrian and bike activity:

Is this project on a designated bike route? ☒ No ☐ YES

Is this project located on a pedestrian plan? ☐ No ☒ YES

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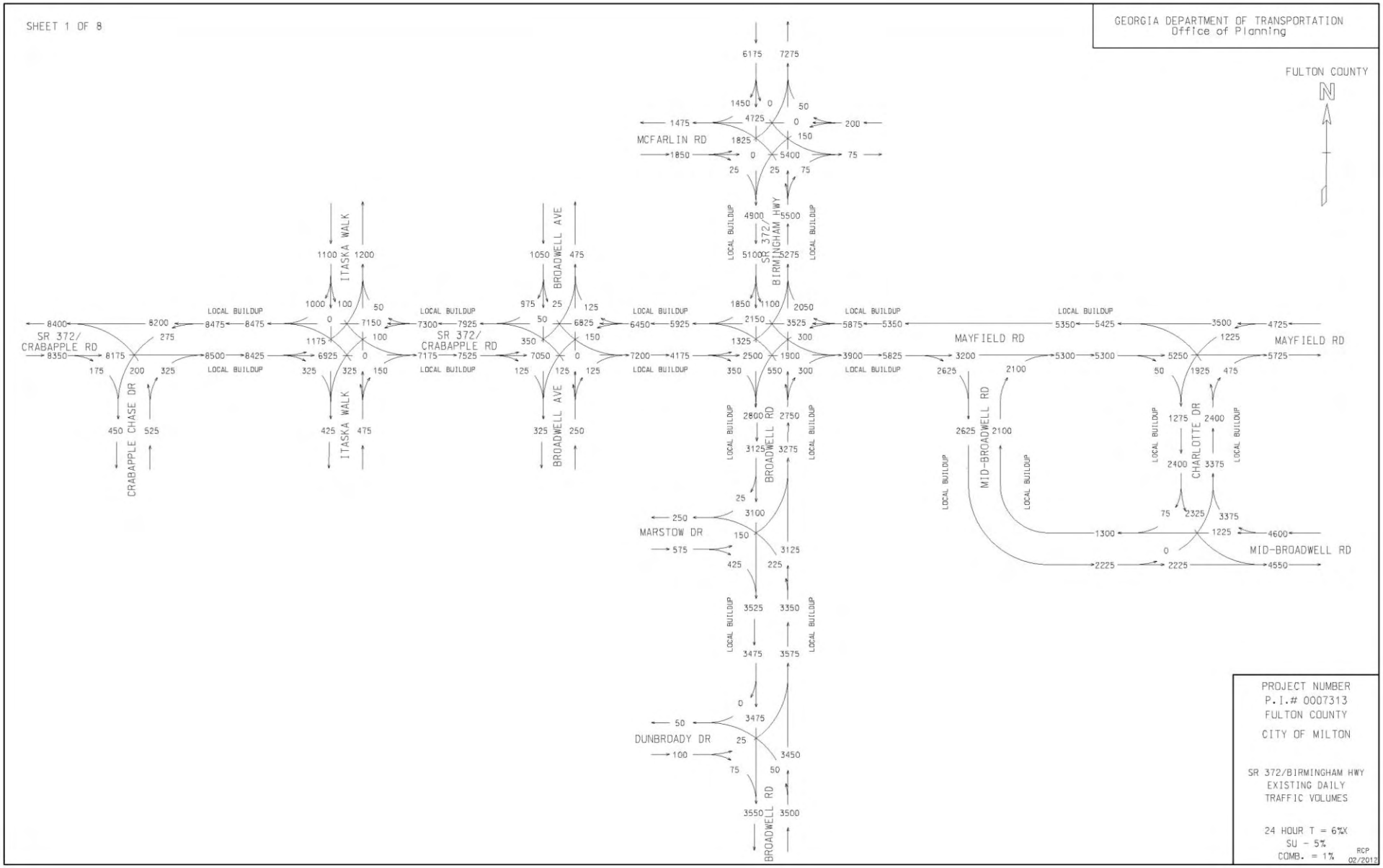
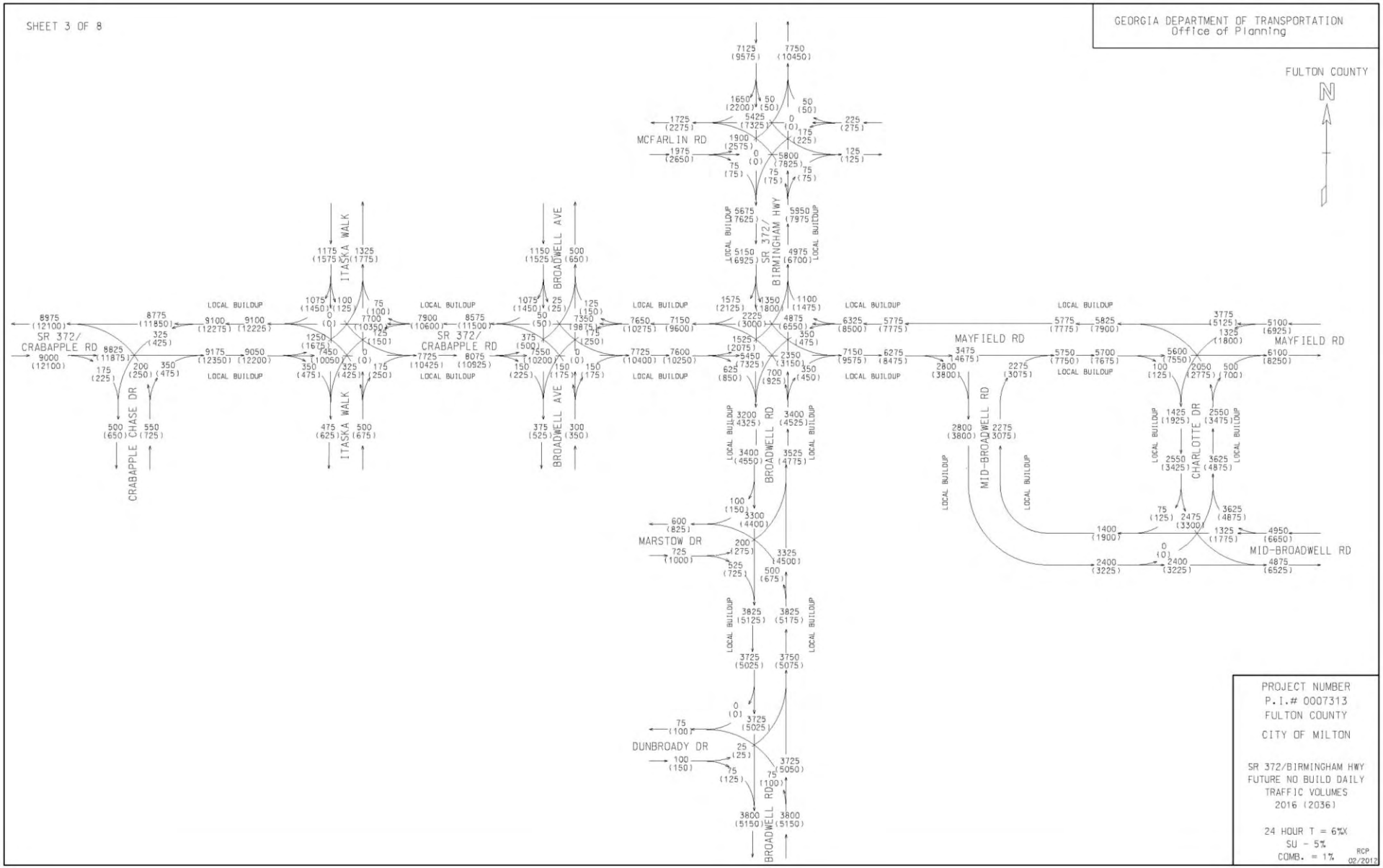
Estimated current traffic volumes



DRAFT

Estimated Design Year Traffic Volumes



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Percent traffic on major roads
"For a roundabout to be a reasonable solution, the opening and design year volumes for traffic entering the roundabout from the major road should be less than 90% of the total volume entering the roundabout."(DPM section 8.2.1)

The intersection has a total Volume Opening Year of 22,475 and a total Volume Design Year of 30,200 vehicles. The major road has been identified to be Crabapple Road/Mayfield Road which has an opening and design year volume of 13, 925 and 18,750, respectively. These volumes amount to approximately 60% of the total volume entering the roundabout.

Number of circulatory lanes: single lane roundabout

Favorable conditions
Operations

- Intersections where traffic growth is expected to be high and future traffic patterns are uncertain. The expansion of a single-lane roundabout to a multilane (to accommodate increased traffic volumes) will often result in a smaller increase in footprint than changing to or reconstructing a signalized intersection. Also, a roundabout often has a greater flexibility to accommodate changes to traffic patterns.

- Intersections where signalization provides an unacceptable delay.

- Locations where the speed environment or number of through lanes of a road changes, for instance, at the transition to an urban environment.

Aesthetics

- Intersections at a gateway or entry point to a campus, neighborhood, commercial development, or urban area.

- Intersections where community enhancement are desirable.

Unfavorable conditions

- Intersections in close proximity to a signalized intersection where queues may spill back into the roundabout.

Purpose of roundabout

The purpose of the SR 372 (Crabapple Road/Birmingham Highway) intersection improvements is to reduce traffic congestion and to improve the capacity of the intersections for current and future travel demands.

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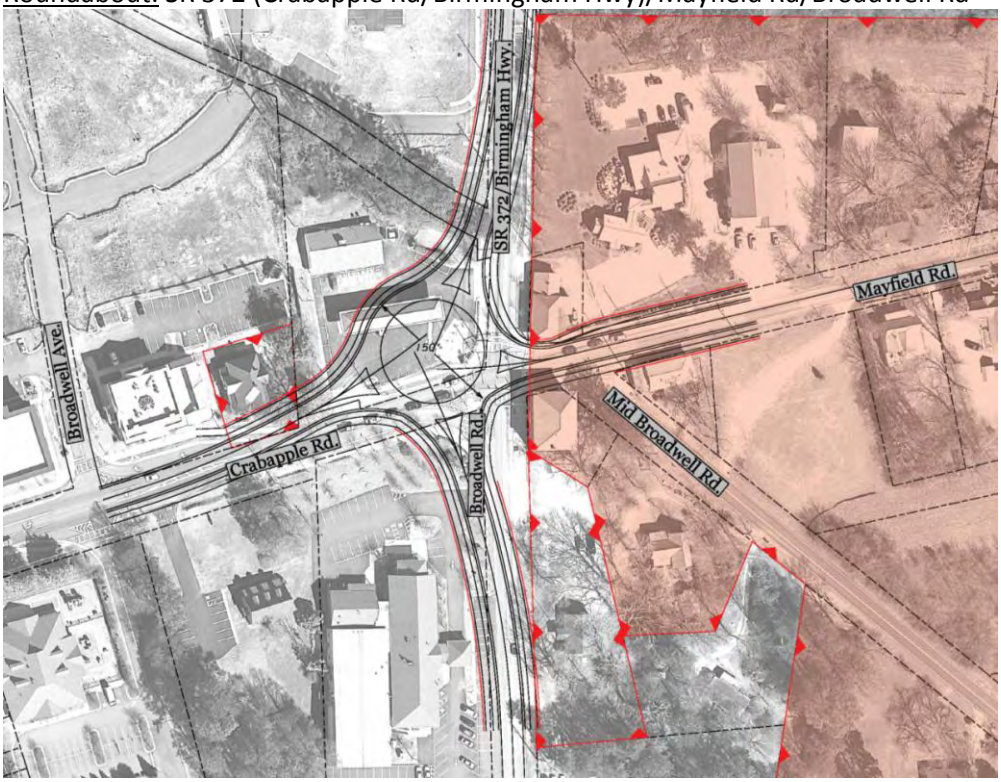
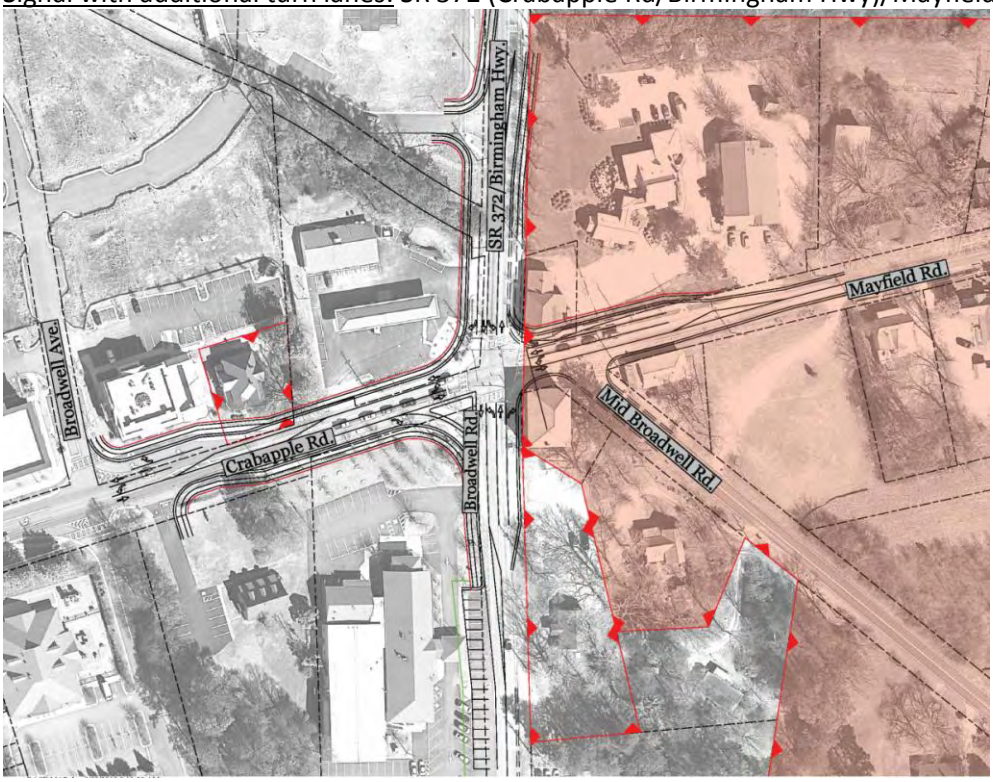
Roundabout sketch

Roundabout: SR 372 (Crabapple Rd/Birmingham Hwy)/Mayfield Rd/Broadwell Rd



Signal with additional turn lanes: SR 372 (Crabapple Rd/Birmingham Hwy)/Mayfield Rd/Broadwell Rd



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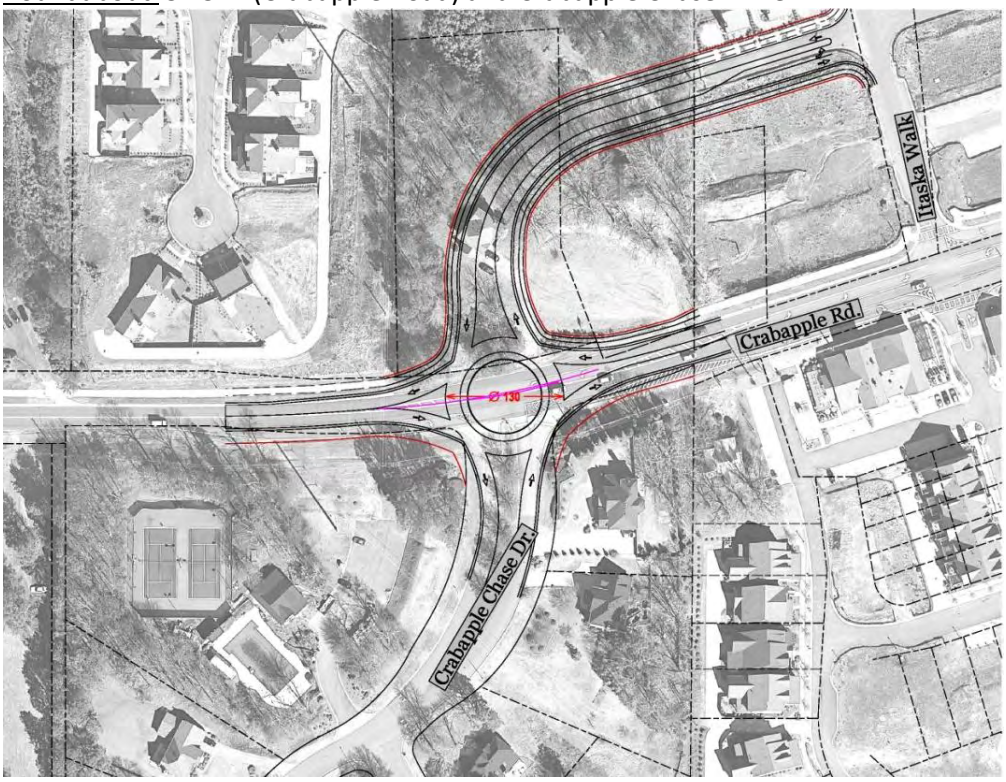
Roundabout: SR 372 (Crabapple Road) and Crabapple Chase Drive



Roundabout: SR 372(Birmingham Hwy) and McFarlin

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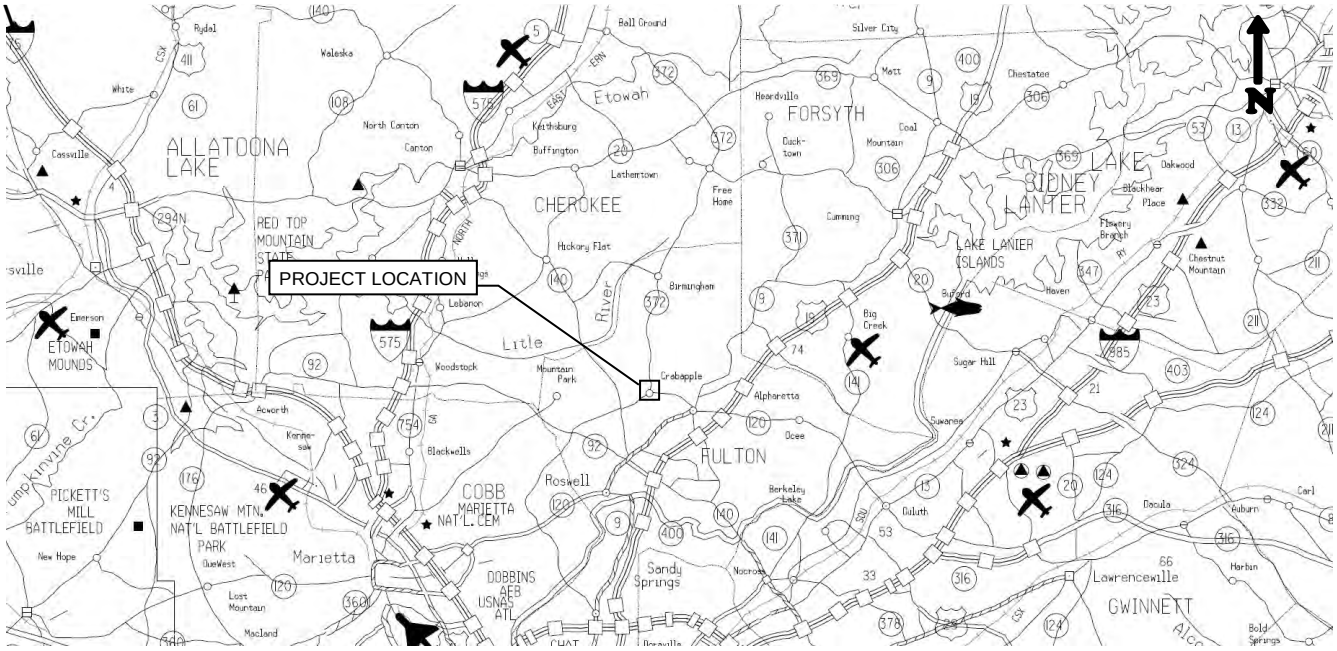
Gather information for concept - for existing intersection and for base & design years

Vicinity Map

P. I. Number: 0007313
Project Number: CSHPP00-0007-00(313)
County: Fulton

SR 372 (Crabapple Road/Birmingham Highway) Intersection Improvements



Approach speeds: 35 mph

Grades: 4% (existing grade varies 7-11%)

Functional Classification:
SR 372 (Crabapple Rd/Birmingham Hwy)/Mayfield Rd/Broadwell Rd: Urban Minor Arterial Street
McFarlin Lane/Parkstead Lane/Branyan Trail/Crabapple Chase Drive: Urban Local Road

Projected Traffic AADT:

SR 372 (Birmingham Hwy)
Current Year (2011): 10,375 Open Year (2016): 8,550 Design Year (2036): 11,150

Broadwell Rd
Current Year (2011): 6,600 Open Year (2016): 6,975 Design Year (2036): 9,575

SR 372 (Crabapple Rd)
Current Year (2011): 10,100 Open Year (2016): 13,100 Design Year (2036): 17,150

Mayfield Rd
Current Year (2011): 9,775 Open Year (2016): 13,575 Design Year (2036): 18,275

McFarlin Lane/Parkstead Lane/Branyan Trail/Crabapple Chase Drive
Current Year (2011): 3,325 Open Year (2016): 5,975 Design Year (2036): 8,650

Future projects: N/A

Desirable LOS: C or D

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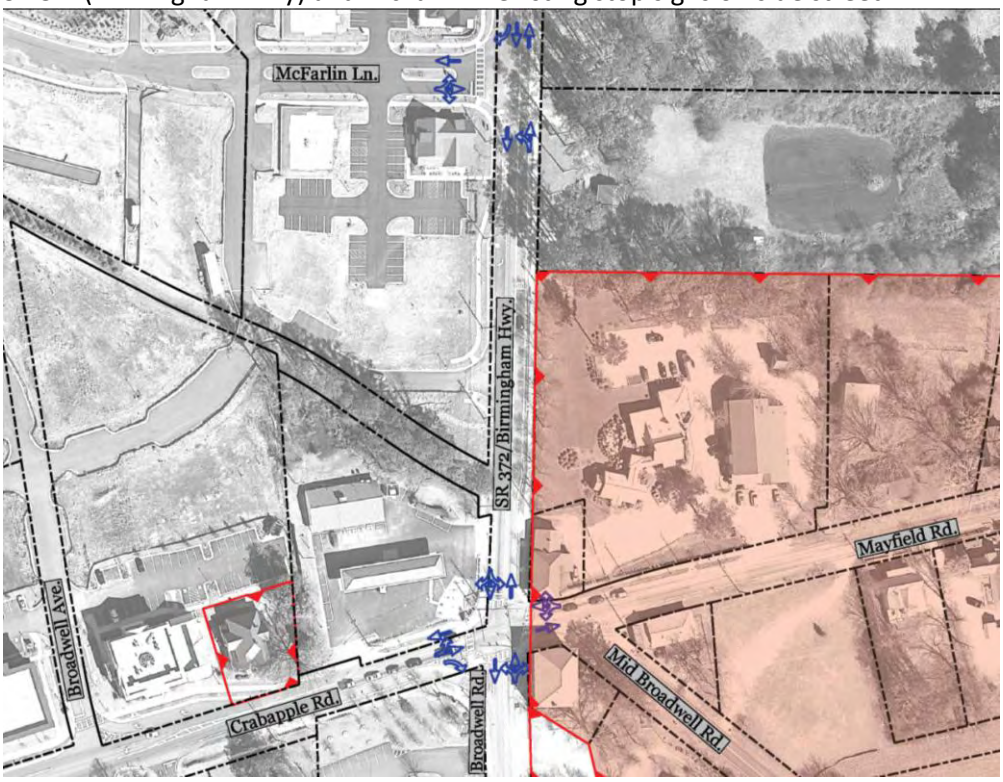
Part 1 - Alternate comparison and selection

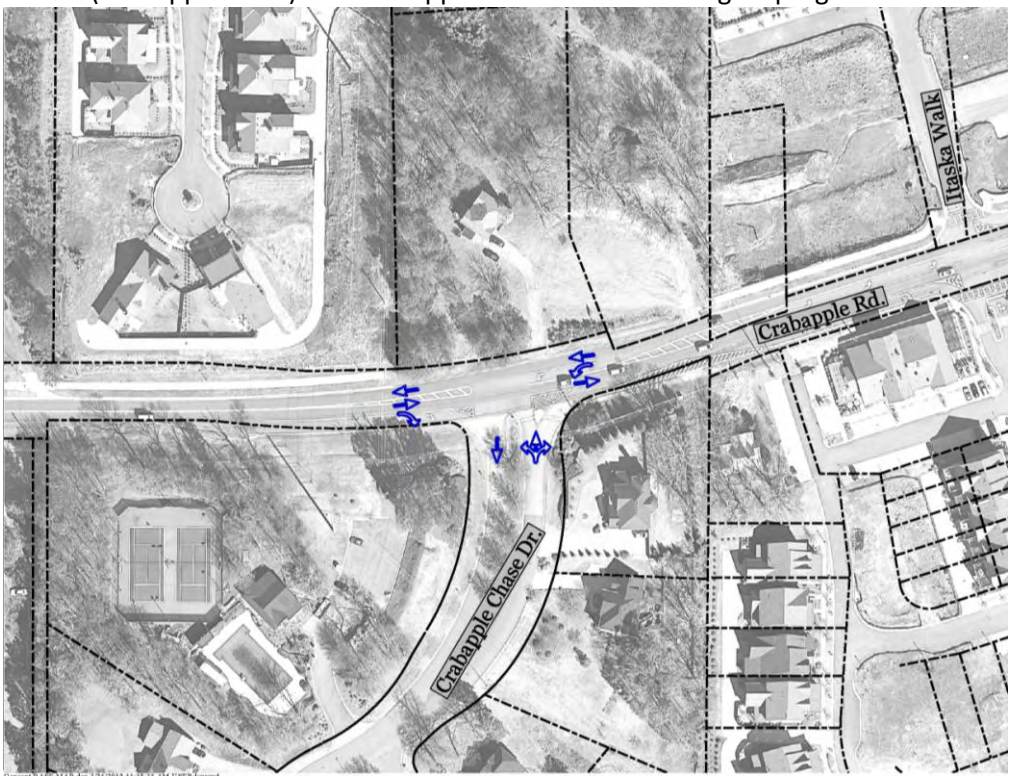
Intersection base map

SR 372 (Crabapple Rd/Birmingham Hwy)/Mayfield Rd/Broadwell Rd – existing signal

SR 372(Birmingham Hwy) and McFarlin – existing stop signs on side street



SR 372 (Crabapple Road) and Crabapple Chase Drive- existing stop signs on side street



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Signal Warrant Study

Based on the relatively low side street volumes counted during the peak hours, it is unlikely that a signal would be warranted at the intersection of SR 372/Crabapple Road at Crabapple Chase Drive.

Additionally, it is unlikely that a signal will be permitted at the intersection of SR 372/Birmingham Highway at McFarlin Lane due to its close proximity (600 feet) to the intersection of SR 372/Birmingham Highway at SR 372/Crabapple Road. The minimum distance between signalized intersections on state routes is 1000 feet in urban areas and 1320 in rural areas.

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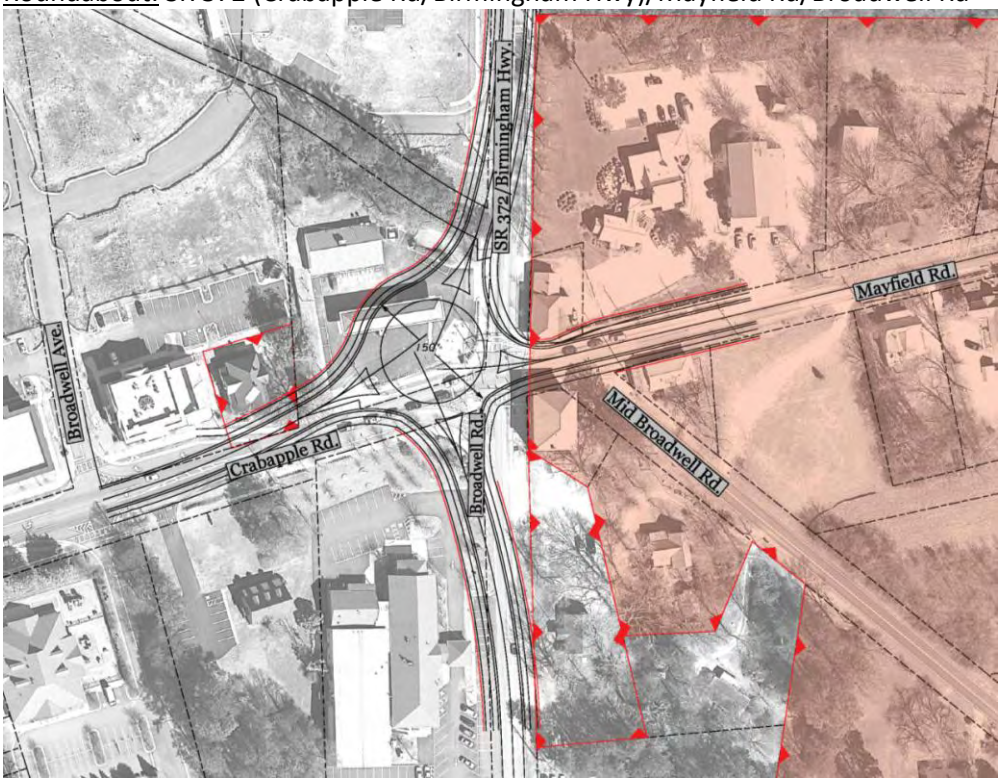
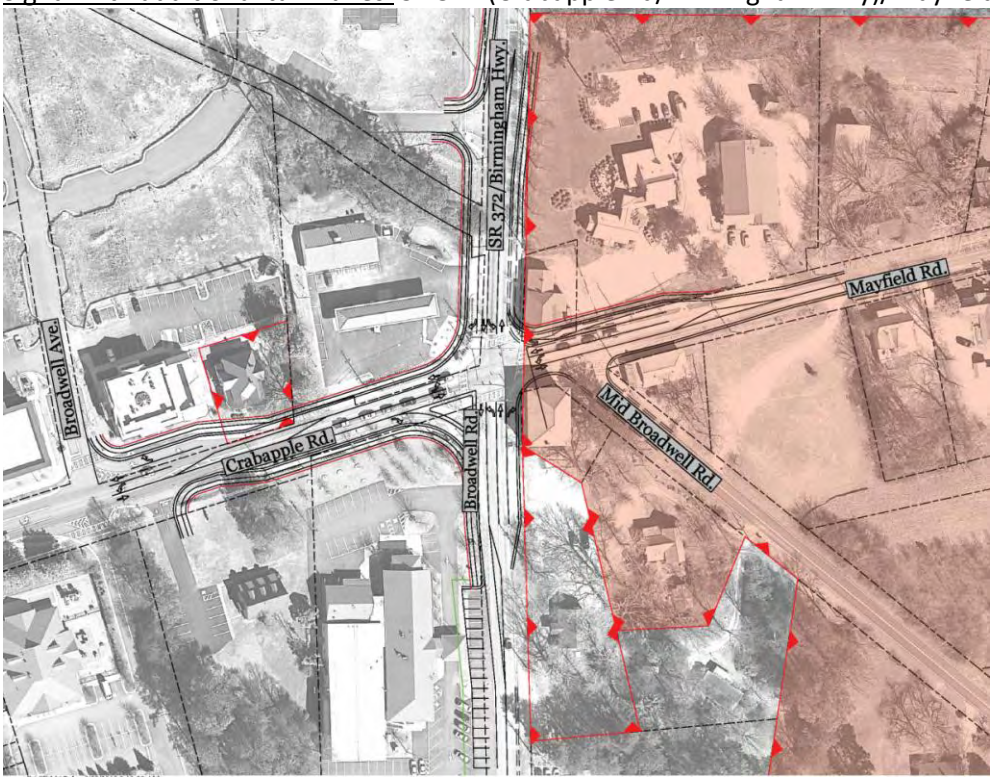
Identify/sketch alternative intersection forms

Roundabout: SR 372 (Crabapple Rd/Birmingham Hwy)/Mayfield Rd/Broadwell Rd



Signal with additional turn lanes: SR 372 (Crabapple Rd/Birmingham Hwy)/Mayfield Rd/Broadwell Rd



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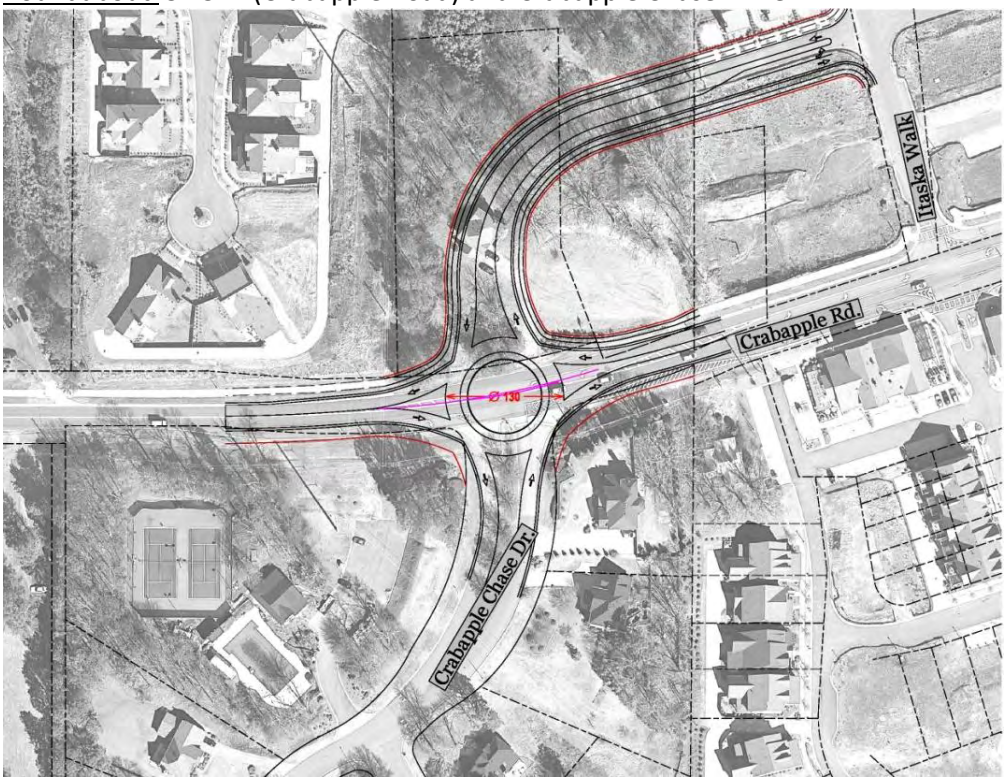
Roundabout: SR 372 (Crabapple Road) and Crabapple Chase Drive



Roundabout: SR 372(Birmingham Hwy) and McFarlin

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Safety assessment

Accident Data

Year	Total Crashes	Type					Severity	
		Angle	Rear End	Non-Vehicle	Head On	Sideswipe	Injuries	Fatalities
SR 372 (Birmingham Hwy)/Broadwell Rd at SR 372 (Crabapple Rd)/Mayfield Rd								
2008	6		2		1	3	3	
2009	8	2	6				1	
2010	12	4	6	1	1		3	
SR 372 (Birmingham Hwy) between Mayfield Rd and McFarlin Ln								
2008	2		2					
2009	3		3					
2010	2	1	1					
SR 372 (Crabapple Rd) between Broadwell Rd and Crabapple Chase Dr								
2008	0							
2009	4	1	2	1			1	
2010	4		4				1	
Broadwell Rd between Mayfield Rd and Marstrow Dr								
2008	1	1						
2009	0							
2010	1					1		
SR 372 (Crabapple Rd) at Crabapple Circle								
2008	1		1					
2009	0							
2010	0							
SR 372 (Crabapple Rd) at Crabapple Chase Dr								
2008	0							
2009	0							
2010	1	1						
SR 372 (Crabapple Rd) at Itaska Walk								
2008	3	1	2					
2009	2		2					
2010	0							
SR 372 (Birmingham Hwy) at McFarlin Ln								
2008	2	1	1					
2009	4	1	3				1	
2010	3	1	1			1	1	
Year	**Total Crashes**	**Type**					**Severity**	
		Angle	**Rear End**	**Non-Vehicle**	**Head On**	**Sideswipe**	**Injuries**	**Fatalities**
2008	15	3	8	0	1	3	3	0
2009	21	4	16	1	0	0	3	0
2010	23	7	12	1	1	2	5	0
Totals	59	14	36	2	2	5	11	0

Number of entry lanes for each approach leg: Single Lane Entry

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Operational Analyses: (see attached)

	2016		2036	
	NCHRP-572		UK Model	
	LOS (AM/PM)	entry lanes	LOS (AM/PM)	entry lanes
SR 372/Mayfield Rd/Broadwell Rd	F/E	single	E/D	single with bypass(4)
SR 372 (Crabapple Rd) and Crabapple Chase Dr	C/C	single	D/C	single
SR 372(Birmingham Hwy) and McFarlin Ln	C/A	single	A/A	single with bypass(1)

Cost Comparison

Alternative	Description	Cost	
Preferred	Adding left turn lanes on SR 372 (Crabapple Rd/Birmingham Hwy) and Broadwell Rd; the extension of Crabapple Chase Dr from SR 372 (Crabapple Rd) to McFarlin Ln at SR 372 (Birmingham Hwy), 2100 feet long of which 700 is new location road. Two single lane roundabouts are proposed; one at SR 372 (Crabapple Rd) and Crabapple Chase Dr and the other at SR 372(Birmingham Hwy) and McFarlin Ln.	$ 2,437,812	Roundabout
4	Reconstruction of existing signalized intersection of SR 372 (Crabapple Road)/Mayfield Road at SR 372 (Birmingham Highway)/Broadwell Road to accommodate future travel demands by adding dedicated left and right turn lanes in all directions.	$ 850,000	Signal
6	Replace existing signalized intersection of SR 372 (Crabapple Road)/Mayfield Road at SR 372 (Birmingham Highway)/Broadwell Road with a roundabout.	$ 1,500,000	Roundabout
7	Replace existing signalized intersection with a roundabout and add two single lane roundabouts; one at SR 372 (Crabapple Rd) and Crabapple Chase Dr and the other at SR 372(Birmingham Hwy) and McFarlin Ln.	$ 3,000,000	Roundabout

Select most favorable alternate

Alternative	Rationale
Preferred	This alternative was selected; it reduces the traffic congestion and improves the capacity of the intersection. It does not impact the historic district, and qualifies for a CE which takes less time to document and approve than an EA.
4	This alternative was not selected; adding a right turn lane on SR 372 (Birmingham Hwy) would have considerable right-of-way impacts to the gas station located on the northwest corner of the intersection. The alternative would qualify for an EA which requires more time to document and approve than a CE.
6	This alternative was not selected; it impacts to the historic district, and qualifies for an EA which requires more time to document and approve than a CE. In addition, the 2009 City of Milton's Comprehensive Transportation Plan analyzed this alternative and found it had more right-of-way impacts to the intersection (likely resulting in significant impact to the gas station on the northwest side of the intersection), less pedestrian friendly due to the location of sidewalks farther outside the intersection, and more susceptible to failure if demand exceeds the maximum volume thresholds.
7	This alternative was not selected; it impacts to the historic district, and qualifies for an EA which requires more time to document and approve than a CE. The construction cost is higher than the preferred alternative and it doesn't provide any significant reduction in the overall LOS of the project area, and more susceptible to failure if demand exceeds the maximum volume thresholds.

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Part 2 - Roundabout layout

Design alternate roundabout layouts: No alternate layouts/locations are needed.

Identify likely impacts : 29 parcels. It does not impact the historic district.

Fastest paths: 25 mph

Design vehicle: WB-67

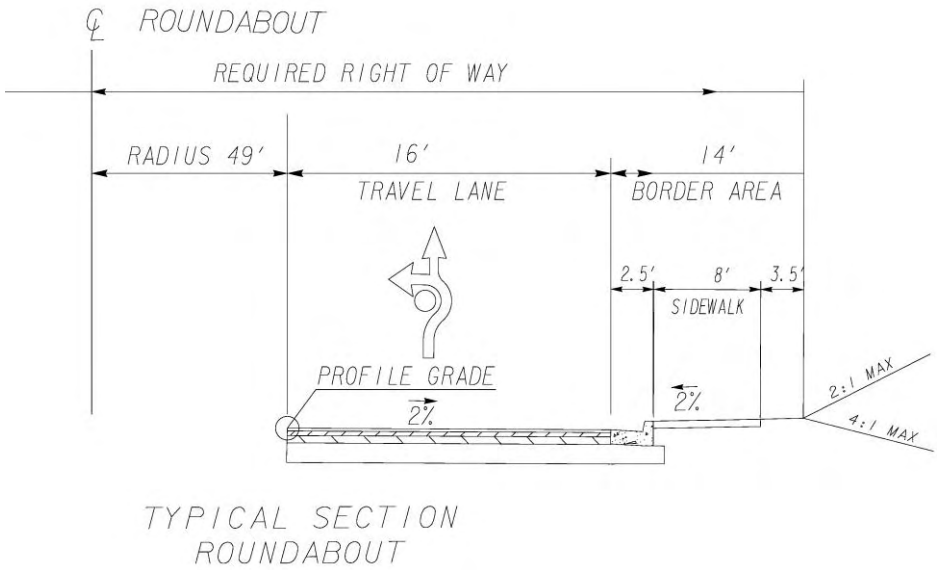
Design vehicle swept path: To be developed during the preliminary design phase.

Stopping sight distance : To be developed during the preliminary design phase.

Staging improvements : To be developed during the preliminary design phase.

Finalize concept layout: See attached

Other information - required for concept report
Typical section:



Construction sequencing: Shall follow DPM 8.3.14, modifications to this sequence will be developed further during the preliminary design phase.

Lighting: The City will participate in a formal Local Government Lighting Project Agreement during the preliminary design phase.

Landscaping requirements: None (however, if added, landscaping shall follow DPM 8.3.13).

Pavement Type: To be developed during the preliminary design phase.

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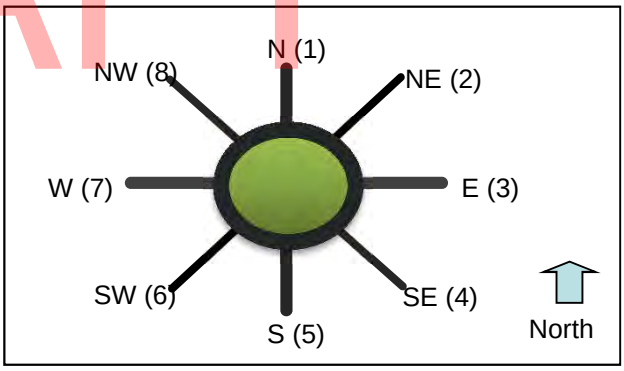
Roundabout Analysis Tool
Single Lane

7/22/11 revised Version 1.3

General & Site Information

Analyst:	rparker
Agency/Company:	Stantec 1782
Date:	2/20/2012
Project Name or PI#:	0007313
Year, Peak Hour:	2016 AM
County/District:	Milton/Fulton Co Dist 7
Intersection:	Birmingham at McFarlin



Volumes

		Entry Legs (FROM)							
		N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
Exit Legs (TO)	N (1), vph			5		265		225	
	NE (2), vph								
	E (3), vph	5				5		0	
	SE (4), vph								
	S (5), vph	455		10				5	
	SW (6), vph								
	W (7), vph	330		0		5			
	NW (8), vph								
Output	Total Vehicles	790	0	15	0	275	0	230	0

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	93%	93%	93%	93%	93%	93%	93%	93%
% SU/ Bus	6%	6%	6%	6%	6%	6%	6%	6%
% Trucks/ Combin.	1%	1%	1%	1%	1%	1%	1%	1%
% Bicycle	0%	0%	0%	0%	0%	0%	0%	0%
PHF	*0.80*	*0.92*	*0.75*	*0.92*	*0.93*	*0.92*	*0.75*	*0.92*
F_{HV}	0.962	1.000	0.962	1.000	0.962	1.000	0.962	1.000

Entry/Conflicting Flows	N	NE	E	SE	S	SW	W	NW
Flow to Leg # N (1), pcu/h	0	0	7	0	296	0	312	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	7	0	0	0	6	0	0	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	592	0	14	0	0	0	7	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	429	0	0	0	6	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	1027	0	21	0	308	0	319	0
Conflicting flow, pcu/h	19	0	614	0	319	0	612	0

Roundabout Type	Standard Single Lane or Urban Compact
Enter type here…	Standard Single Lane

DRAFT

Results: Approach Measures of Effectiveness

NCHRP-572 Model	N	NE	E	SE	S	SW	W	NW
Entry Capacity, pcu/h	1108	NA	612	NA	822	NA	613	NA
V/C ratio	**0.93**		**0.03**		**0.37**		**0.52**	
Control Delay, sec/pcu	**27**		**6**		**7**		**12**	
LOS	D		A		A		B	
95th % Queue (ft)	**395**		**3**		**45**		**78**	

UK Model**	N	NE	E	SE	S	SW	W	NW
Entry Capacity, pcu/h	1201	NA	878	NA	1039	NA	879	NA
V/C ratio	**0.85**		**0.02**		**0.30**		**0.36**	
Control Delay, sec/pcu	**17**		**4**		**5**		**6**	
LOS	C		A		A		A	
95th % Queue (ft)	**300**		**2**		**32**		**43**	

Notes:

NCHRP-572 Overall Delay	**20.0**
NCHRP-572 Overall LOS	**C**
UK Model Overall Delay	**12.7**
UK Model Overall LOS	**B**

Unit Legend:
vph = vehicles per hour
PHF = peak hour factor
F_{HV} = heavy vehicle factor
pcu = passenger car unit

Bypass Lane Merge Point Analysis (if applicable)

Bypass Characteristics	Bypass #1	Bypass #2	Bypass #3	Bypass #4	Bypass #5	Bypass #6
Select Entry Leg from Bypass (FROM)	**N (1)**	**E (3)**	**S (5)**	**W (7)**		
Select Exit Leg for Bypass (TO)	**W (7)**	**N (1)**	**E (3)**	**S (5)**		
Volumes						
Right Turn Volume removed from Entry Leg						
Volume Characteristics (for entry leg)						
PHF						
F_{HV}						
NOTE: Volume Characteristics for Exit Leg are already taken into account						
Entry/Conflicting Flows						
Entry Flow						
Conflicting Flow	435	615	12	612		
Bypass Lane Results (NCHRP-572 Model)						
Entry Capacity at bypass mergepoint, pcu/hr	732	611	1116	613		
V/C ratio						
Control Delay, sec/pcu	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
LOS	N/A	N/A	N/A	N/A	N/A	N/A
95th % Queue (ft)						

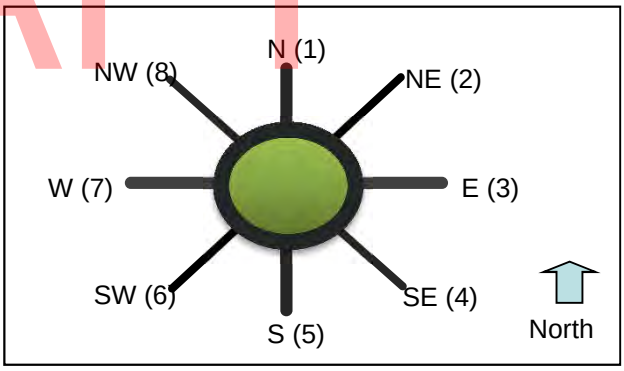
DRAFT

Roundabout Analysis Tool
Single Lane

7/22/11 revised Version 1.3

General & Site Information

Analyst:	rparker
Agency/Company:	Stantec 1782
Date:	2/20/2012
Project Name or PI#:	0007313
Year, Peak Hour:	2016 PM
County/District:	Milton/Fulton Co Dist 7
Intersection:	Birmingham at McFarlin



Volumes

		Entry Legs (FROM)							
		N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
	N (1), vph			5		440		210	
Exit	NE (2), vph								
Legs	E (3), vph	5				5		0	
(TO)	SE (4), vph								
	S (5), vph	380		25				5	
	SW (6), vph								
	W (7), vph	195		0		5			
	NW (8), vph								
Output	Total Vehicles	580	0	30	0	450	0	215	0

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	93%	93%	93%	93%	93%	93%	93%	93%
% SU/ Bus	6%	6%	6%	6%	6%	6%	6%	6%
% Trucks/ Combin.	1%	1%	1%	1%	1%	1%	1%	1%
% Bicycle	0%	0%	0%	0%	0%	0%	0%	0%
PHF	*0.91*	*0.92*	*0.76*	*0.92*	*0.88*	*0.92*	*0.75*	*0.92*
F_{HV}	0.962	1.000	0.962	1.000	0.962	1.000	0.962	1.000

Entry/Conflicting Flows	N	NE	E	SE	S	SW	W	NW
Flow to Leg # N (1), pcu/h	0	0	7	0	520	0	291	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	6	0	0	0	6	0	0	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	434	0	34	0	0	0	7	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	223	0	0	0	6	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	663	0	41	0	532	0	298	0
Conflicting flow, pcu/h	40	0	817	0	297	0	474	0

Roundabout Type	Standard Single Lane or Urban Compact
Enter type here…	Standard Single Lane

DRAFT

Results: Approach Measures of Effectiveness

NCHRP-572 Model	N	NE	E	SE	S	SW	W	NW
Entry Capacity, pcu/h	1086	NA	499	NA	840	NA	703	NA
V/C ratio	**0.61**		**0.08**		**0.63**		**0.42**	
Control Delay, sec/pcu	**8**		**8**		**11**		**9**	
LOS	A		A		B		A	
95th % Queue (ft)	**113**		**7**		**120**		**55**	

UK Model**	N	NE	E	SE	S	SW	W	NW
Entry Capacity, pcu/h	1190	NA	767	NA	1050	NA	954	NA
V/C ratio	**0.56**		**0.05**		**0.51**		**0.31**	
Control Delay, sec/pcu	**7**		**5**		**7**		**5**	
LOS	A		A		A		A	
95th % Queue (ft)	**93**		**4**		**77**		**35**	

Notes:

NCHRP-572 Overall Delay	**9.5**
NCHRP-572 Overall LOS	**A**
UK Model Overall Delay	**6.5**
UK Model Overall LOS	**A**

Unit Legend:
vph = vehicles per hour
PHF = peak hour factor
F_{HV} = heavy vehicle factor
pcu = passenger car unit

Bypass Lane Merge Point Analysis (if applicable)

Bypass Characteristics	Bypass #1	Bypass #2	Bypass #3	Bypass #4	Bypass #5	Bypass #6
Select Entry Leg from Bypass (FROM)	**N (1)**	**E (3)**	**S (5)**	**W (7)**		
Select Exit Leg for Bypass (TO)	**W (7)**	**N (1)**	**E (3)**	**S (5)**		
Volumes						
Right Turn Volume removed from Entry Leg						
Volume Characteristics (for entry leg)						
PHF						
F_{HV}						
NOTE: Volume Characteristics for Exit Leg are already taken into account						
Entry/Conflicting Flows						
Entry Flow						
Conflicting Flow	229	818	12	475		
Bypass Lane Results (NCHRP-572 Model)						
Entry Capacity at bypass mergepoint, pcu/hr	899	499	1117	702		
V/C ratio						
Control Delay, sec/pcu	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
LOS	N/A	N/A	N/A	N/A	N/A	N/A
95th % Queue (ft)						

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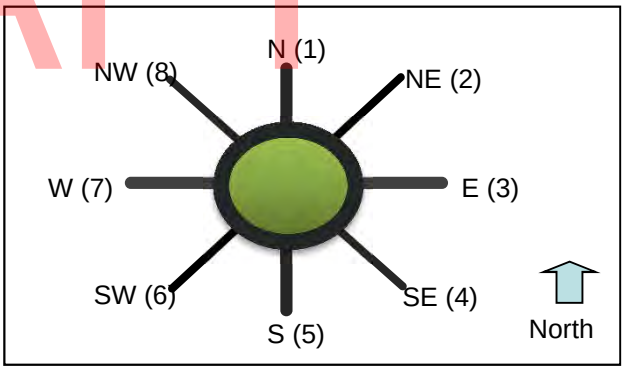
Roundabout Analysis Tool
Single Lane

7/22/11 revised Version 1.3

General & Site Information

Analyst:	rparker
Agency/Company:	Stantec 1782
Date:	2/20/2012
Project Name or PI#:	0007313
Year, Peak Hour:	2016 AM
County/District:	Milton/Fulton Co Dist 7
Intersection:	Crabapple at Crabapple Chase



Volumes

		Entry Legs (FROM)							
		N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
Exit Legs (TO)	N (1), vph			0		0		130	
	NE (2), vph								
	E (3), vph	0				40		695	
	SE (4), vph								
	S (5), vph	0		15				10	
	SW (6), vph								
	W (7), vph	85		540		15			
	NW (8), vph								
Output	Total Vehicles	85	0	555	0	55	0	835	0

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	93%	93%	93%	93%	93%	93%	93%	93%
% SU/ Bus	6%	6%	6%	6%	6%	6%	6%	6%
% Trucks/ Combin.	1%	1%	1%	1%	1%	1%	1%	1%
% Bicycle	0%	0%	0%	0%	0%	0%	0%	0%
PHF	*0.92*	*0.92*	*0.90*	*0.92*	*0.75*	*0.92*	*0.91*	*0.92*
F_{HV}	0.962	1.000	0.962	1.000	0.962	1.000	0.962	1.000

Entry/Conflicting Flows	N	NE	E	SE	S	SW	W	NW
Flow to Leg # N (1), pcu/h	0	0	0	0	0	0	149	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	0	0	0	0	55	0	794	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	0	0	17	0	0	0	11	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	96	0	624	0	21	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	96	0	641	0	76	0	954	0
Conflicting flow, pcu/h	662	0	169	0	943	0	17	0

Roundabout Type	Standard Single Lane or Urban Compact
Enter type here…	Standard Single Lane

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Results: Approach Measures of Effectiveness

NCHRP-572 Model	N	NE	E	SE	S	SW	W	NW
Entry Capacity, pcu/h	583	NA	954	NA	440	NA	1111	NA
V/C ratio	**0.16**		**0.67**		**0.17**		**0.86**	
Control Delay, sec/pcu	**7**		**11**		**10**		**19**	
LOS	A		B		A		C	
95th % Queue (ft)	**15**		**141**		**16**		**300**	

UK Model**	N	NE	E	SE	S	SW	W	NW
Entry Capacity, pcu/h	851	NA	1120	NA	698	NA	1203	NA
V/C ratio	**0.11**		**0.57**		**0.11**		**0.79**	
Control Delay, sec/pcu	**5**		**7**		**6**		**13**	
LOS	A		A		A		B	
95th % Queue (ft)	**10**		**98**		**10**		**233**	

Notes:

NCHRP-572 Overall Delay	**15.2**
NCHRP-572 Overall LOS	**C**
UK Model Overall Delay	**10.5**
UK Model Overall LOS	**B**

Unit Legend:
vph = vehicles per hour
PHF = peak hour factor
F_{HV} = heavy vehicle factor
pcu = passenger car unit

Bypass Lane Merge Point Analysis (if applicable)

Bypass Characteristics	Bypass #1	Bypass #2	Bypass #3	Bypass #4	Bypass #5	Bypass #6
Select Entry Leg from Bypass (FROM)	**N (1)**	**E (3)**	**S (5)**	**W (7)**		
Select Exit Leg for Bypass (TO)	**W (7)**	**N (1)**	**E (3)**	**S (5)**		
Volumes						
Right Turn Volume removed from Entry Leg						
Volume Characteristics (for entry leg)						
PHF	0.92					
F_{HV}	0.96					
NOTE: Volume Characteristics for Exit Leg are already taken into account						
Entry/Conflicting Flows						
Entry Flow	0					
Conflicting Flow	741	149	850	29		
Bypass Lane Results (NCHRP-572 Model)						
Entry Capacity at bypass mergepoint, pcu/hr	539	974	483	1098		
V/C ratio	**0.00**					
Control Delay, sec/pcu	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
LOS	N/A	N/A	N/A	N/A	N/A	N/A
95th % Queue (ft)	**0**					

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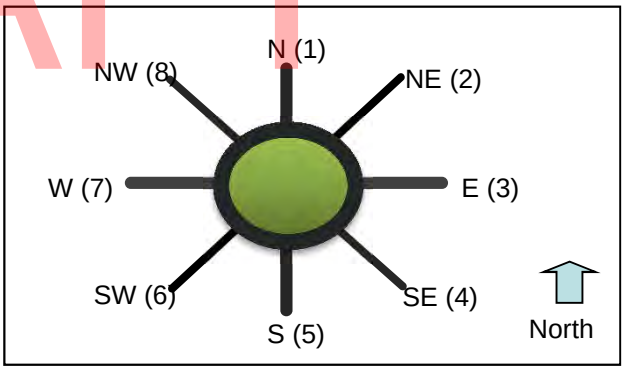
Roundabout Analysis Tool
Single Lane

7/22/11 revised Version 1.3

General & Site Information

Analyst:	rparker
Agency/Company:	Stantec 1782
Date:	2/20/2012
Project Name or PI#:	0007313
Year, Peak Hour:	2016 PM
County/District:	Milton/Fulton Co Dist 7
Intersection:	Crabapple at Crabapple Chase



Volumes

		Entry Legs (FROM)							
		N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
Exit Legs (TO)	N (1), vph			0		0		80	
	NE (2), vph								
	E (3), vph	0				20		580	
	SE (4), vph								
	S (5), vph	0		40				20	
	SW (6), vph								
	W (7), vph	150		770		20			
	NW (8), vph								
Output	Total Vehicles	150	0	810	0	40	0	680	0

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	93%	93%	93%	93%	93%	93%	93%	93%
% SU/ Bus	6%	6%	6%	6%	6%	6%	6%	6%
% Trucks/ Combin.	1%	1%	1%	1%	1%	1%	1%	1%
% Bicycle	0%	0%	0%	0%	0%	0%	0%	0%
PHF	*0.92*	*0.92*	*0.91*	*0.92*	*0.75*	*0.92*	*0.91*	*0.92*
F_{HV}	0.962	1.000	0.940	1.000	0.962	1.000	0.962	1.000

Entry/Conflicting Flows	N	NE	E	SE	S	SW	W	NW
Flow to Leg # N (1), pcu/h	0	0	0	0	0	0	91	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	0	0	0	0	28	0	663	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	0	0	47	0	0	0	23	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	170	0	900	0	28	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	170	0	947	0	55	0	777	0
Conflicting flow, pcu/h	975	0	119	0	754	0	47	0

Roundabout Type	Standard Single Lane or Urban Compact
Enter type here…	Standard Single Lane

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Results: Approach Measures of Effectiveness

NCHRP-572 Model	N	NE	E	SE	S	SW	W	NW
Entry Capacity, pcu/h	426	NA	1003	NA	531	NA	1078	NA
V/C ratio	**0.40**		**0.94**		**0.10**		**0.72**	
Control Delay, sec/pcu	**14**		**32**		**8**		**11**	
LOS	B		D		A		B	
95th % Queue (ft)	**49**		**416**		**9**		**171**	

UK Model**	N	NE	E	SE	S	SW	W	NW
Entry Capacity, pcu/h	681	NA	1147	NA	801	NA	1187	NA
V/C ratio	**0.25**		**0.83**		**0.07**		**0.65**	
Control Delay, sec/pcu	**7**		**16**		**5**		**9**	
LOS	A		C		A		A	
95th % Queue (ft)	**25**		**269**		**6**		**134**	

Notes:

NCHRP-572 Overall Delay	**21.5**
NCHRP-572 Overall LOS	**C**
UK Model Overall Delay	**11.9**
UK Model Overall LOS	**B**

Unit Legend:
vph = vehicles per hour
PHF = peak hour factor
F_{HV} = heavy vehicle factor
pcu = passenger car unit

Bypass Lane Merge Point Analysis (if applicable)

Bypass Characteristics	Bypass #1	Bypass #2	Bypass #3	Bypass #4	Bypass #5	Bypass #6
Select Entry Leg from Bypass (FROM)	**N (1)**	**E (3)**	**S (5)**	**W (7)**		
Select Exit Leg for Bypass (TO)	**W (7)**	**N (1)**	**E (3)**	**S (5)**		
Volumes						
Right Turn Volume removed from Entry Leg						
Volume Characteristics (for entry leg)						
PHF	0.92					
F_{HV}	0.96					
NOTE: Volume Characteristics for Exit Leg are already taken into account						
Entry/Conflicting Flows						
Entry Flow	0					
Conflicting Flow	1097	91	691	70		
Bypass Lane Results (NCHRP-572 Model)						
Entry Capacity at bypass mergepoint, pcu/hr	377	1031	566	1054		
V/C ratio	**0.00**					
Control Delay, sec/pcu	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
LOS	N/A	N/A	N/A	N/A	N/A	N/A
95th % Queue (ft)	**0**					

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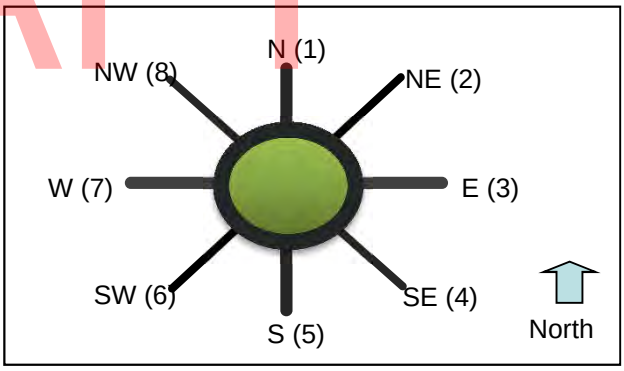
Roundabout Analysis Tool
Single Lane

7/22/11 revised Version 1.3

General & Site Information

Analyst:	rparker
Agency/Company:	Stantec 1782
Date:	2/20/2012
Project Name or PI#:	0007313
Year, Peak Hour:	2036 AM
County/District:	Milton/Fulton Co Dist 7
Intersection:	Birmingham at McFarlin Ln



Volumes

		Entry Legs (FROM)							
		N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
	N (1), vph			5		355		305	
Exit	NE (2), vph								
Legs	E (3), vph	5				5		0	
(TO)	SE (4), vph								
	S (5), vph	605		15				5	
	SW (6), vph								
	W (7), vph	0		0		5			
	NW (8), vph								
Output	Total Vehicles	610	0	20	0	365	0	310	0

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	93%	93%	93%	93%	93%	93%	93%	93%
% SU/ Bus	6%	6%	6%	6%	6%	6%	6%	6%
% Trucks/ Combin.	1%	1%	1%	1%	1%	1%	1%	1%
% Bicycle	0%	0%	0%	0%	0%	0%	0%	0%
PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
F_{HV}	0.962	1.000	0.962	1.000	0.962	1.000	0.962	1.000

Entry/Conflicting Flows	N	NE	E	SE	S	SW	W	NW
Flow to Leg # N (1), pcu/h	0	0	6	0	401	0	345	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	6	0	0	0	6	0	0	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	684	0	17	0	0	0	6	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	0	0	0	0	6	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	690	0	23	0	413	0	350	0
Conflicting flow, pcu/h	23	0	752	0	350	0	707	0

Roundabout Type	Standard Single Lane or Urban Compact
Enter type here…	Standard Single Lane

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Results: Approach Measures of Effectiveness

NCHRP-572 Model	N	NE	E	SE	S	SW	W	NW
Entry Capacity, pcu/h	1105	NA	533	NA	796	NA	557	NA
V/C ratio	**0.62**		**0.04**		**0.52**		**0.63**	
Control Delay, sec/pcu	**9**		**7**		**9**		**17**	
LOS	A		A		A		C	
95th % Queue (ft)	**119**		**3**		**79**		**113**	

UK Model**	N	NE	E	SE	S	SW	W	NW
Entry Capacity, pcu/h	1200	NA	803	NA	1021	NA	827	NA
V/C ratio	**0.57**		**0.03**		**0.40**		**0.42**	
Control Delay, sec/pcu	**7**		**5**		**6**		**8**	
LOS	A		A		A		A	
95th % Queue (ft)	**99**		**2**		**52**		**55**	

Notes:

NCHRP-572 Overall Delay	**9.4**
NCHRP-572 Overall LOS	**A**
UK Model Overall Delay	**6.5**
UK Model Overall LOS	**A**

Unit Legend:
vph = vehicles per hour
PHF = peak hour factor
F_{HV} = heavy vehicle factor
pcu = passenger car unit

Bypass Lane Merge Point Analysis (if applicable)

Bypass Characteristics	Bypass #1	Bypass #2	Bypass #3	Bypass #4	Bypass #5	Bypass #6
Select Entry Leg from Bypass (FROM)	**N (1)**	**E (3)**	**S (5)**	**W (7)**		
Select Exit Leg for Bypass (TO)	**W (7)**	**N (1)**	**E (3)**	**S (5)**		
Volumes						
Right Turn Volume removed from Entry Leg	**450**					
Volume Characteristics (for entry leg)						
PHF	0.92					
F_{HV}	0.96					
NOTE: Volume Characteristics for Exit Leg are already taken into account						
Entry/Conflicting Flows						
Entry Flow	509					
Conflicting Flow	6	752	11	707		
Bypass Lane Results (NCHRP-572 Model)						
Entry Capacity at bypass mergepoint, pcu/hr	1124	533	1117	557		
V/C ratio	**0.45**					
Control Delay, sec/pcu	**5.8**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
LOS	A	N/A	N/A	N/A	N/A	N/A
95th % Queue (ft)	**63**					

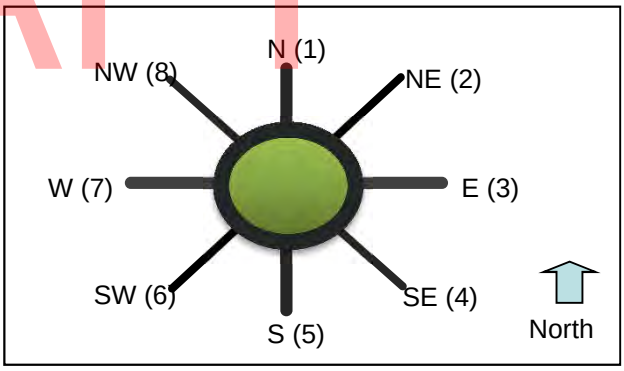
DRAFT

Roundabout Analysis Tool
Single Lane

7/22/11 revised Version 1.3

General & Site Information

Analyst:	rparker
Agency/Company:	Stantec 1782
Date:	2/20/2012
Project Name or PI#:	0007313
Year, Peak Hour:	2036 PM
County/District:	Milton/Fulton Co Dist 7
Intersection:	Birmingham at McFarlin Ln



Volumes

		Entry Legs (FROM)							
		N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
	N (1), vph			5		555		280	
Exit	NE (2), vph								
Legs	E (3), vph	5				5		0	
(TO)	SE (4), vph								
	S (5), vph	395		35				5	
	SW (6), vph								
	W (7), vph	0		0		5			
	NW (8), vph								
Output	Total Vehicles	400	0	40	0	565	0	285	0

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	93%	93%	93%	93%	93%	93%	93%	93%
% SU/ Bus	6%	6%	6%	6%	6%	6%	6%	6%
% Trucks/ Combin.	1%	1%	1%	1%	1%	1%	1%	1%
% Bicycle	0%	0%	0%	0%	0%	0%	0%	0%
PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
F_{HV}	0.962	1.000	0.962	1.000	0.962	1.000	0.962	1.000

Entry/Conflicting Flows	N	NE	E	SE	S	SW	W	NW
Flow to Leg # N (1), pcu/h	0	0	6	0	627	0	317	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	6	0	0	0	6	0	0	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	447	0	40	0	0	0	6	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	0	0	0	0	6	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	452	0	45	0	639	0	322	0
Conflicting flow, pcu/h	45	0	950	0	322	0	492	0

Roundabout Type	Standard Single Lane or Urban Compact
Enter type here…	Standard Single Lane

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Results: Approach Measures of Effectiveness

NCHRP-572 Model	N	NE	E	SE	S	SW	W	NW
Entry Capacity, pcu/h	1080	NA	437	NA	819	NA	691	NA
V/C ratio	**0.42**		**0.10**		**0.78**		**0.47**	
Control Delay, sec/pcu	**6**		**9**		**18**		**10**	
LOS	A		A		C		A	
95th % Queue (ft)	**55**		**9**		**205**		**65**	

UK Model**	N	NE	E	SE	S	SW	W	NW
Entry Capacity, pcu/h	1187	NA	695	NA	1037	NA	944	NA
V/C ratio	**0.38**		**0.07**		**0.62**		**0.34**	
Control Delay, sec/pcu	**5**		**6**		**9**		**6**	
LOS	A		A		A		A	
95th % Queue (ft)	**47**		**5**		**115**		**40**	

Notes:

NCHRP-572 Overall Delay	**10.5**
NCHRP-572 Overall LOS	**B**
UK Model Overall Delay	**6.5**
UK Model Overall LOS	**A**

Unit Legend:
vph = vehicles per hour
PHF = peak hour factor
F_{HV} = heavy vehicle factor
pcu = passenger car unit

Bypass Lane Merge Point Analysis (if applicable)

Bypass Characteristics	Bypass #1	Bypass #2	Bypass #3	Bypass #4	Bypass #5	Bypass #6
Select Entry Leg from Bypass (FROM)	**N (1)**	**E (3)**	**S (5)**	**W (7)**		
Select Exit Leg for Bypass (TO)	**W (7)**	**N (1)**	**E (3)**	**S (5)**		
Volumes						
Right Turn Volume removed from Entry Leg	**380**					
Volume Characteristics (for entry leg)						
PHF	0.92					
F_{HV}	0.96					
NOTE: Volume Characteristics for Exit Leg are already taken into account						
Entry/Conflicting Flows						
Entry Flow	430					
Conflicting Flow	6	950	11	492		
Bypass Lane Results (NCHRP-572 Model)						
Entry Capacity at bypass mergepoint, pcu/hr	1124	437	1117	691		
V/C ratio	**0.38**					
Control Delay, sec/pcu	**5.2**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
LOS	A	N/A	N/A	N/A	N/A	N/A
95th % Queue (ft)	**47**					

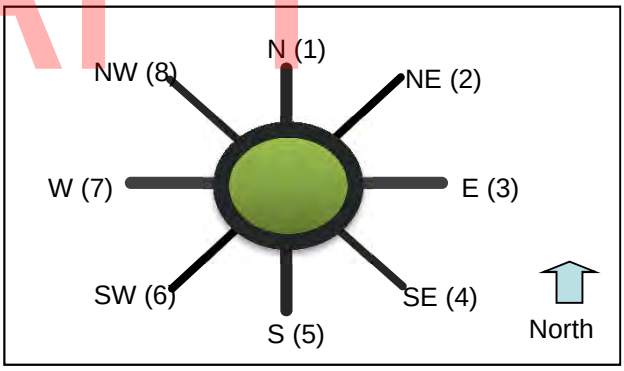
DRAFT

Roundabout Analysis Tool
Single Lane

7/22/11 revised Version 1.3

General & Site Information

Analyst:	rparker
Agency/Company:	Stantec 1782
Date:	2/20/2012
Project Name or PI#:	0007313
Year, Peak Hour:	2036 AM
County/District:	Milton/Fulton Co Dist 7
Intersection:	Crabapple at Crabapple Chase



Volumes

		Entry Legs (FROM)							
		N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
Exit Legs (TO)	N (1), vph			0		0		175	
	NE (2), vph								
	E (3), vph	5				55		935	
	SE (4), vph								
	S (5), vph	0		20				15	
	SW (6), vph								
	W (7), vph	105		735		20			
	NW (8), vph								
Output	Total Vehicles	110	0	755	0	75	0	1125	0

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	93%	93%	93%	93%	93%	93%	93%	93%
% SU/ Bus	6%	6%	6%	6%	6%	6%	6%	6%
% Trucks/ Combin.	1%	1%	1%	1%	1%	1%	1%	1%
% Bicycle	0%	0%	0%	0%	0%	0%	0%	0%
PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
F_{HV}	0.962	1.000	0.962	1.000	0.962	1.000	0.962	1.000

Entry/Conflicting Flows	N	NE	E	SE	S	SW	W	NW
Flow to Leg # N (1), pcu/h	0	0	0	0	0	0	192	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	5	0	0	0	60	0	1024	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	0	0	22	0	0	0	16	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	115	0	805	0	22	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	120	0	827	0	82	0	1232	0
Conflicting flow, pcu/h	848	0	213	0	1221	0	27	0

Roundabout Type	Standard Single Lane or Urban Compact
Enter type here…	Standard Single Lane

DRAFT

Results: Approach Measures of Effectiveness

NCHRP-572 Model	N	NE	E	SE	S	SW	W	NW
Entry Capacity, pcu/h	484	NA	913	NA	333	NA	1099	NA
V/C ratio	**0.25**		**0.91**		**0.25**		**1.12**	
Control Delay, sec/pcu	**10**		**28**		**14**		**79**	
LOS	A		D		B		F	
95th % Queue (ft)	**25**		**339**		**25**		**813**	

UK Model**	N	NE	E	SE	S	SW	W	NW
Entry Capacity, pcu/h	750	NA	1096	NA	547	NA	1197	NA
V/C ratio	**0.16**		**0.75**		**0.15**		**1.03**	
Control Delay, sec/pcu	**6**		**13**		**8**		**47**	
LOS	A		B		A		E	
95th % Queue (ft)	**15**		**196**		**14**		**618**	

Notes:

NCHRP-572 Overall Delay	**54.4**
NCHRP-572 Overall LOS	**F**
UK Model Overall Delay	**31.0**
UK Model Overall LOS	**D**

Unit Legend:
vph = vehicles per hour
PHF = peak hour factor
F_{HV} = heavy vehicle factor
pcu = passenger car unit

Bypass Lane Merge Point Analysis (if applicable)

Bypass Characteristics	Bypass #1	Bypass #2	Bypass #3	Bypass #4	Bypass #5	Bypass #6
Select Entry Leg from Bypass (FROM)	**N (1)**	**E (3)**	**S (5)**	**W (7)**		
Select Exit Leg for Bypass (TO)	**W (7)**	**N (1)**	**E (3)**	**S (5)**		
Volumes						
Right Turn Volume removed from Entry Leg						
Volume Characteristics (for entry leg)						
PHF	0.95	0.95	0.95	0.95		
F_{HV}	0.96	0.96	0.96	0.96		
NOTE: Volume Characteristics for Exit Leg are already taken into account						
Entry/Conflicting Flows						
Entry Flow	0	0	0	0		
Conflicting Flow	941	192	1089	38		
Bypass Lane Results (NCHRP-572 Model)						
Entry Capacity at bypass mergepoint, pcu/hr	441	933	380	1088		
V/C ratio	**0.00**	**0.00**	**0.00**	**0.00**		
Control Delay, sec/pcu	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
LOS	N/A	N/A	N/A	N/A	N/A	N/A
95th % Queue (ft)	**0**	**0**	**0**	**0**		

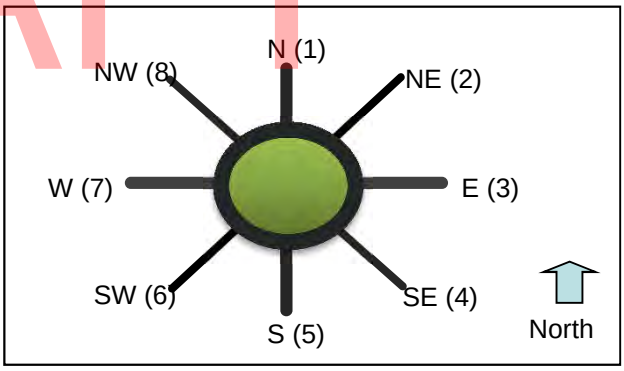
DRAFT

Roundabout Analysis Tool
Single Lane

7/22/11 revised Version 1.3

General & Site Information

Analyst:	rparker
Agency/Company:	Stantec 1782
Date:	2/20/2012
Project Name or PI#:	0007313
Year, Peak Hour:	2036 PM
County/District:	Milton/Fulton Co Dist 7
Intersection:	Crabapple at Crabapple Chase



Volumes

		Entry Legs (FROM)							
		N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
Exit Legs (TO)	N (1), vph			0		0		105	
	NE (2), vph								
	E (3), vph	5				25		785	
	SE (4), vph								
	S (5), vph	0		55				25	
	SW (6), vph								
	W (7), vph	415		740		25			
	NW (8), vph								
Output	Total Vehicles	420	0	795	0	50	0	915	0

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	93%	93%	93%	93%	93%	93%	93%	93%
% SU/ Bus	6%	6%	6%	6%	6%	6%	6%	6%
% Trucks/ Combin.	1%	1%	1%	1%	1%	1%	1%	1%
% Bicycle	0%	0%	0%	0%	0%	0%	0%	0%
PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
F_{HV}	0.962	1.000	0.940	1.000	0.962	1.000	0.962	1.000

Entry/Conflicting Flows	N	NE	E	SE	S	SW	W	NW
Flow to Leg # N (1), pcu/h	0	0	0	0	0	0	115	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	5	0	0	0	27	0	859	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	0	0	62	0	0	0	27	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	454	0	829	0	27	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	460	0	890	0	55	0	1002	0
Conflicting flow, pcu/h	918	0	142	0	980	0	67	0

Roundabout Type	Standard Single Lane or Urban Compact
Enter type here…	Standard Single Lane

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Results: Approach Measures of Effectiveness

NCHRP-572 Model	N	NE	E	SE	S	SW	W	NW
Entry Capacity, pcu/h	451	NA	980	NA	424	NA	1057	NA
V/C ratio	**1.02**		**0.91**		**0.13**		**0.95**	
Control Delay, sec/pcu	**73**		**27**		**10**		**32**	
LOS	F		D		A		D	
95th % Queue (ft)	**355**		**359**		**11**		**422**	

UK Model**	N	NE	E	SE	S	SW	W	NW
Entry Capacity, pcu/h	712	NA	1134	NA	678	NA	1175	NA
V/C ratio	**0.65**		**0.78**		**0.08**		**0.85**	
Control Delay, sec/pcu	**14**		**14**		**6**		**18**	
LOS	B		B		A		C	
95th % Queue (ft)	**124**		**227**		**7**		**295**	

Notes:

NCHRP-572 Overall Delay	**37.3**
NCHRP-572 Overall LOS	**E**
UK Model Overall Delay	**15.1**
UK Model Overall LOS	**C**

Unit Legend:
vph = vehicles per hour
PHF = peak hour factor
F_{HV} = heavy vehicle factor
pcu = passenger car unit

Bypass Lane Merge Point Analysis (if applicable)

Bypass Characteristics	Bypass #1	Bypass #2	Bypass #3	Bypass #4	Bypass #5	Bypass #6
Select Entry Leg from Bypass (FROM)	**N (1)**	**E (3)**	**S (5)**	**W (7)**		
Select Exit Leg for Bypass (TO)	**W (7)**	**N (1)**	**E (3)**	**S (5)**		
Volumes						
Right Turn Volume removed from Entry Leg						
Volume Characteristics (for entry leg)						
PHF	0.95					
F_{HV}	0.96					
NOTE: Volume Characteristics for Exit Leg are already taken into account						
Entry/Conflicting Flows						
Entry Flow	0					
Conflicting Flow	1310	115	892	89		
Bypass Lane Results (NCHRP-572 Model)						
Entry Capacity at bypass mergepoint, pcu/hr	305	1007	463	1034		
V/C ratio	**0.00**					
Control Delay, sec/pcu	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
LOS	N/A	N/A	N/A	N/A	N/A	N/A
95th % Queue (ft)	**0**					

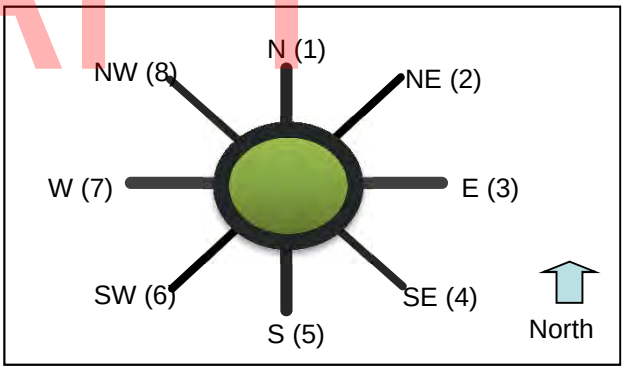
DRAFT

Roundabout Analysis Tool
Single Lane

7/22/11 revised Version 1.3

General & Site Information

Analyst:	rparker
Agency/Company:	Stantec 1782
Date:	2/20/2012
Project Name or PI#:	0007373
Year, Peak Hour:	2016 AM
County/District:	Milton/Fulton Co Dist 7
Intersection:	Crabapple Rd at Birmingham Hwy at Mayfield Rd at



Volumes

		Entry Legs (FROM)							
		N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
Exit Legs (TO)	N (1), vph			85		175		115	
	NE (2), vph								
	E (3), vph	175				30		510	
	SE (4), vph								
	S (5), vph	290		30				65	
	SW (6), vph								
	W (7), vph	85		310		15			
	NW (8), vph								
Output	Total Vehicles	550	0	425	0	220	0	690	0

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	93%	93%	93%	93%	93%	93%	93%	93%
% SU/ Bus	6%	6%	6%	6%	6%	6%	6%	6%
% Trucks/ Combin.	1%	1%	1%	1%	1%	1%	1%	1%
% Bicycle	0%	0%	0%	0%	0%	0%	0%	0%
PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
F_{HV}	0.962	1.000	0.962	1.000	0.962	1.000	0.962	1.000

Entry/Conflicting Flows	N	NE	E	SE	S	SW	W	NW
Flow to Leg # N (1), pcu/h	0	0	96	0	198	0	130	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	198	0	0	0	34	0	577	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	328	0	34	0	0	0	73	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	96	0	350	0	17	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	622	0	480	0	249	0	780	0
Conflicting flow, pcu/h	401	0	345	0	904	0	560	0

Roundabout Type	Standard Single Lane or Urban Compact
Enter type here…	Standard Single Lane

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Results: Approach Measures of Effectiveness

NCHRP-572 Model	N	NE	E	SE	S	SW	W	NW
Entry Capacity, pcu/h	756	NA	800	NA	457	NA	646	NA
V/C ratio	**0.82**		**0.60**		**0.54**		**1.21**	
Control Delay, sec/pcu	**23**		**11**		**17**		**125**	
LOS	C		B		C		F	
95th % Queue (ft)	**234**		**106**		**83**		**713**	

UK Model**	N	NE	E	SE	S	SW	W	NW
Entry Capacity, pcu/h	993	NA	1024	NA	719	NA	907	NA
V/C ratio	**0.63**		**0.47**		**0.35**		**0.86**	
Control Delay, sec/pcu	**9**		**7**		**8**		**23**	
LOS	A		A		A		C	
95th % Queue (ft)	**119**		**66**		**40**		**284**	

Notes:

NCHRP-572 Overall Delay	**56.7**
NCHRP-572 Overall LOS	**F**
UK Model Overall Delay	**13.5**
UK Model Overall LOS	**B**

Unit Legend:
vph = vehicles per hour
PHF = peak hour factor
F_{HV} = heavy vehicle factor
pcu = passenger car unit

Bypass Lane Merge Point Analysis (if applicable)

Bypass Characteristics	Bypass #1	Bypass #2	Bypass #3	Bypass #4	Bypass #5	Bypass #6
Select Entry Leg from Bypass (FROM)	**N (1)**	**E (3)**	**S (5)**	**W (7)**		
Select Exit Leg for Bypass (TO)	**W (7)**	**N (1)**	**E (3)**	**S (5)**		
Volumes						
Right Turn Volume removed from Entry Leg						
Volume Characteristics (for entry leg)						
PHF	0.92	0.92	0.92	0.92		
F_{HV}	0.96	0.96	0.96	0.96		
NOTE: Volume Characteristics for Exit Leg are already taken into account						
Entry/Conflicting Flows						
Entry Flow	0	0	0	0		
Conflicting Flow	463	424	808	435		
Bypass Lane Results (NCHRP-572 Model)						
Entry Capacity at bypass mergepoint, pcu/hr	711	740	504	731		
V/C ratio	**0.00**	**0.00**	**0.00**	**0.00**		
Control Delay, sec/pcu	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
LOS	N/A	N/A	N/A	N/A	N/A	N/A
95th % Queue (ft)	**0**	**0**	**0**	**0**		

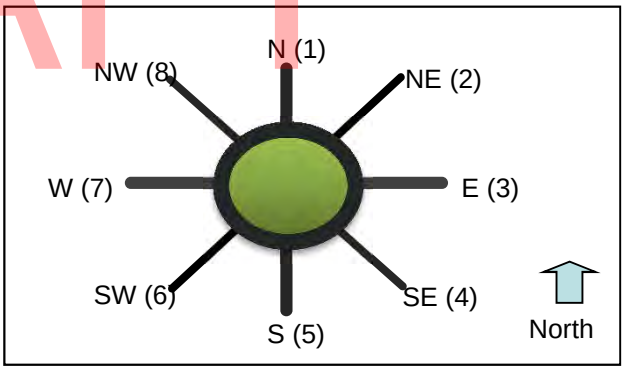
DRAFT

Roundabout Analysis Tool
Single Lane

7/22/11 revised Version 1.3

General & Site Information

Analyst:	rparker
Agency/Company:	Stantec 1782
Date:	2/20/2012
Project Name or PI#:	0007373
Year, Peak Hour:	2016 PM
County/District:	Milton/Fulton Co Dist 7
Intersection:	Crabapple Rd at Birmingham Hwy at Mayfield Rd at



Volumes

		Entry Legs (FROM)							
		N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
Exit Legs (TO)	N (1), vph			100		260		130	
	NE (2), vph								
	E (3), vph	80				35		360	
	SE (4), vph								
	S (5), vph	135		30				35	
	SW (6), vph								
	W (7), vph	215		515		115			
	NW (8), vph								
Output	Total Vehicles	430	0	645	0	410	0	525	0

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	93%	93%	93%	93%	93%	93%	93%	93%
% SU/ Bus	6%	6%	6%	6%	6%	6%	6%	6%
% Trucks/ Combin.	1%	1%	1%	1%	1%	1%	1%	1%
% Bicycle	0%	0%	0%	0%	0%	0%	0%	0%
PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
F_{HV}	0.962	1.000	0.962	1.000	0.962	1.000	0.962	1.000

Entry/Conflicting Flows	N	NE	E	SE	S	SW	W	NW
Flow to Leg # N (1), pcu/h	0	0	113	0	294	0	147	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	90	0	0	0	40	0	407	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	153	0	34	0	0	0	40	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	243	0	582	0	130	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	486	0	729	0	463	0	593	0
Conflicting flow, pcu/h	746	0	571	0	644	0	277	0

Roundabout Type	Standard Single Lane or Urban Compact
Enter type here…	Standard Single Lane

DRAFT

Results: Approach Measures of Effectiveness

NCHRP-572 Model	N	NE	E	SE	S	SW	W	NW
Entry Capacity, pcu/h	536	NA	638	NA	593	NA	857	NA
V/C ratio	**0.91**		**1.14**		**0.78**		**0.69**	
Control Delay, sec/pcu	**42**		**100**		**24**		**13**	
LOS	E		F		C		B	
95th % Queue (ft)	**279**		**602**		**192**		**150**	

UK Model**	N	NE	E	SE	S	SW	W	NW
Entry Capacity, pcu/h	806	NA	901	NA	861	NA	1061	NA
V/C ratio	**0.60**		**0.81**		**0.54**		**0.56**	
Control Delay, sec/pcu	**11**		**18**		**9**		**8**	
LOS	B		C		A		A	
95th % Queue (ft)	**108**		**233**		**85**		**93**	

Notes:

NCHRP-572 Overall Delay	**49.6**
NCHRP-572 Overall LOS	**E**
UK Model Overall Delay	**12.1**
UK Model Overall LOS	**B**

Unit Legend:
vph = vehicles per hour
PHF = peak hour factor
F_{HV} = heavy vehicle factor
pcu = passenger car unit

Bypass Lane Merge Point Analysis (if applicable)

Bypass Characteristics	Bypass #1	Bypass #2	Bypass #3	Bypass #4	Bypass #5	Bypass #6
Select Entry Leg from Bypass (FROM)	**N (1)**	**E (3)**	**S (5)**	**W (7)**		
Select Exit Leg for Bypass (TO)	**W (7)**	**N (1)**	**E (3)**	**S (5)**		
Volumes						
Right Turn Volume removed from Entry Leg						
Volume Characteristics (for entry leg)						
PHF						
F_{HV}	0.96			0.96		
NOTE: Volume Characteristics for Exit Leg are already taken into account						
Entry/Conflicting Flows						
Entry Flow						
Conflicting Flow	955	554	537	226		
Bypass Lane Results (NCHRP-572 Model)						
Entry Capacity at bypass mergepoint, pcu/hr	435	649	661	901		
V/C ratio						
Control Delay, sec/pcu	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
LOS	N/A	N/A	N/A	N/A	N/A	N/A
95th % Queue (ft)						

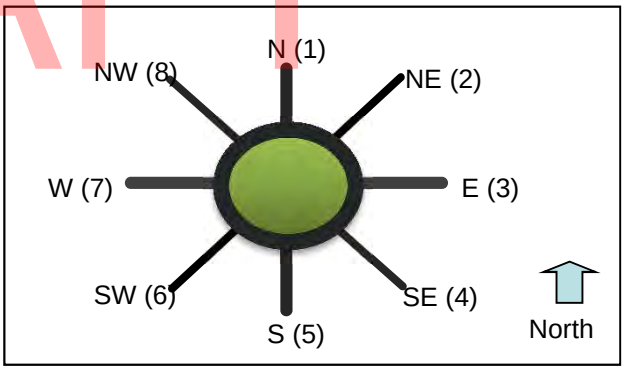
DRAFT

Roundabout Analysis Tool
Single Lane

7/22/11 revised Version 1.3

General & Site Information

Analyst:	rparker
Agency/Company:	Stantec 1782
Date:	2/20/2012
Project Name or PI#:	0007373
Year, Peak Hour:	2036 AM
County/District:	Milton/Fulton Co Dist 7
Intersection:	Crabapple Rd at Birmingham Hwy at Mayfield Rd at



Volumes

		Entry Legs (FROM)							
		N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
Exit Legs (TO)	N (1), vph			0		235		155	
	NE (2), vph								
	E (3), vph	235				0		685	
	SE (4), vph								
	S (5), vph	390		40				0	
	SW (6), vph								
	W (7), vph	0		420		20			
	NW (8), vph								
Output	Total Vehicles	625	0	460	0	255	0	840	0

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	93%	93%	93%	93%	93%	93%	93%	93%
% SU/ Bus	6%	6%	6%	6%	6%	6%	6%	6%
% Trucks/ Combin.	1%	1%	1%	1%	1%	1%	1%	1%
% Bicycle	0%	0%	0%	0%	0%	0%	0%	0%
PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
F_{HV}	0.962	1.000	0.962	1.000	0.962	1.000	0.962	1.000

Entry/Conflicting Flows	N	NE	E	SE	S	SW	W	NW
Flow to Leg # N (1), pcu/h	0	0	0	0	266	0	175	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	266	0	0	0	0	0	774	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	441	0	45	0	0	0	0	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	0	0	475	0	23	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	707	0	520	0	288	0	950	0
Conflicting flow, pcu/h	543	0	463	0	1215	0	752	0

Roundabout Type	Standard Single Lane or Urban Compact
Enter type here…	Standard Single Lane

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Results: Approach Measures of Effectiveness

NCHRP-572 Model	N	NE	E	SE	S	SW	W	NW
Entry Capacity, pcu/h	657	NA	711	NA	335	NA	533	NA
V/C ratio	**1.08**		**0.73**		**0.86**		**1.78**	
Control Delay, sec/pcu	**77**		**18**		**51**		**373**	
LOS	F		C		F		F	
95th % Queue (ft)	**512**		**167**		**205**		**1513**	

UK Model**	N	NE	E	SE	S	SW	W	NW
Entry Capacity, pcu/h	916	NA	960	NA	550	NA	803	NA
V/C ratio	**0.77**		**0.54**		**0.52**		**1.18**	
Control Delay, sec/pcu	**16**		**8**		**14**		**110**	
LOS	C		A		B		F	
95th % Queue (ft)	**202**		**87**		**79**		**785**	

Notes:

NCHRP-572 Overall Delay	**151.6**
NCHRP-572 Overall LOS	**F**
UK Model Overall Delay	**43.9**
UK Model Overall LOS	**E**

Unit Legend:
vph = vehicles per hour
PHF = peak hour factor
F_{HV} = heavy vehicle factor
pcu = passenger car unit

Bypass Lane Merge Point Analysis (if applicable)

Bypass Characteristics	Bypass #1	Bypass #2	Bypass #3	Bypass #4	Bypass #5	Bypass #6
Select Entry Leg from Bypass (FROM)	**N (1)**	**E (3)**	**S (5)**	**W (7)**		
Select Exit Leg for Bypass (TO)	**W (7)**	**N (1)**	**E (3)**	**S (5)**		
Volumes						
Right Turn Volume removed from Entry Leg	**115**	**115**	**40**	**90**		
Volume Characteristics (for entry leg)						
PHF	0.92	0.92	0.92	0.92		
F_{HV}	0.96	0.96	0.96	0.96		
NOTE: Volume Characteristics for Exit Leg are already taken into account						
Entry/Conflicting Flows						
Entry Flow	130	130	45	102		
Conflicting Flow	497	441	1040	486		
Bypass Lane Results (NCHRP-572 Model)						
Entry Capacity at bypass mergepoint, pcu/hr	687	727	399	695		
V/C ratio	**0.19**	**0.18**	**0.11**	**0.15**		
Control Delay, sec/pcu	**6.5**	**6.0**	**10.2**	**6.1**	**0.0**	**0.0**
LOS	A	A	B	A	N/A	N/A
95th % Queue (ft)	**18**	**17**	**10**	**13**		

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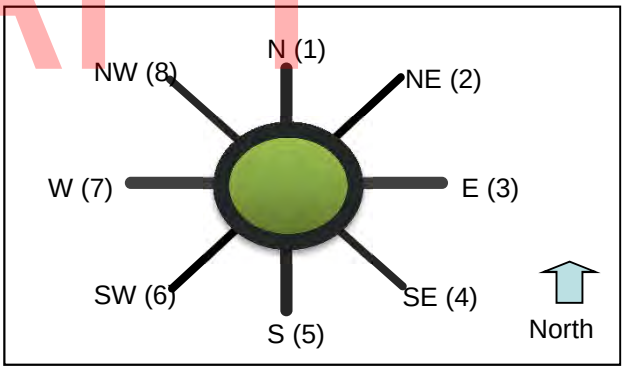
Roundabout Analysis Tool
Single Lane

7/22/11 revised Version 1.3

General & Site Information

Analyst:	rparker
Agency/Company:	Stantec 1782
Date:	2/20/2012
Project Name or PI#:	0007373
Year, Peak Hour:	2036 PM
County/District:	Milton/Fulton Co Dist 7
Intersection:	Crabapple Rd at Birmingham Hwy at Mayfield Rd at



Volumes

		Entry Legs (FROM)							
		N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
Exit Legs (TO)	N (1), vph			0		350		175	
	NE (2), vph								
	E (3), vph	110				0		485	
	SE (4), vph								
	S (5), vph	180		40				0	
	SW (6), vph								
	W (7), vph	0		695		155			
	NW (8), vph								
Output	Total Vehicles	290	0	735	0	505	0	660	0

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	93%	93%	93%	93%	93%	93%	93%	93%
% SU/ Bus	6%	6%	6%	6%	6%	6%	6%	6%
% Trucks/ Combin.	1%	1%	1%	1%	1%	1%	1%	1%
% Bicycle	0%	0%	0%	0%	0%	0%	0%	0%
PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
F_{HV}	0.962	1.000	0.962	1.000	0.962	1.000	0.962	1.000

Entry/Conflicting Flows	N	NE	E	SE	S	SW	W	NW
Flow to Leg # N (1), pcu/h	0	0	0	0	396	0	198	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	124	0	0	0	0	0	548	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	203	0	45	0	0	0	0	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	0	0	786	0	175	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	328	0	831	0	571	0	746	0
Conflicting flow, pcu/h	1006	0	769	0	870	0	373	0

Roundabout Type	Standard Single Lane or Urban Compact
Enter type here…	Standard Single Lane

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Results: Approach Measures of Effectiveness

NCHRP-572 Model	N	NE	E	SE	S	SW	W	NW
Entry Capacity, pcu/h	413	NA	524	NA	473	NA	778	NA
V/C ratio	**0.79**		**1.59**		**1.21**		**0.96**	
Control Delay, sec/pcu	**35**		**288**		**133**		**41**	
LOS	D		F		F		E	
95th % Queue (ft)	**181**		**1177**		**571**		**386**	

UK Model**	N	NE	E	SE	S	SW	W	NW
Entry Capacity, pcu/h	664	NA	793	NA	738	NA	1009	NA
V/C ratio	**0.49**		**1.05**		**0.77**		**0.74**	
Control Delay, sec/pcu	**11**		**63**		**19**		**13**	
LOS	B		F		C		B	
95th % Queue (ft)	**71**		**524**		**196**		**183**	

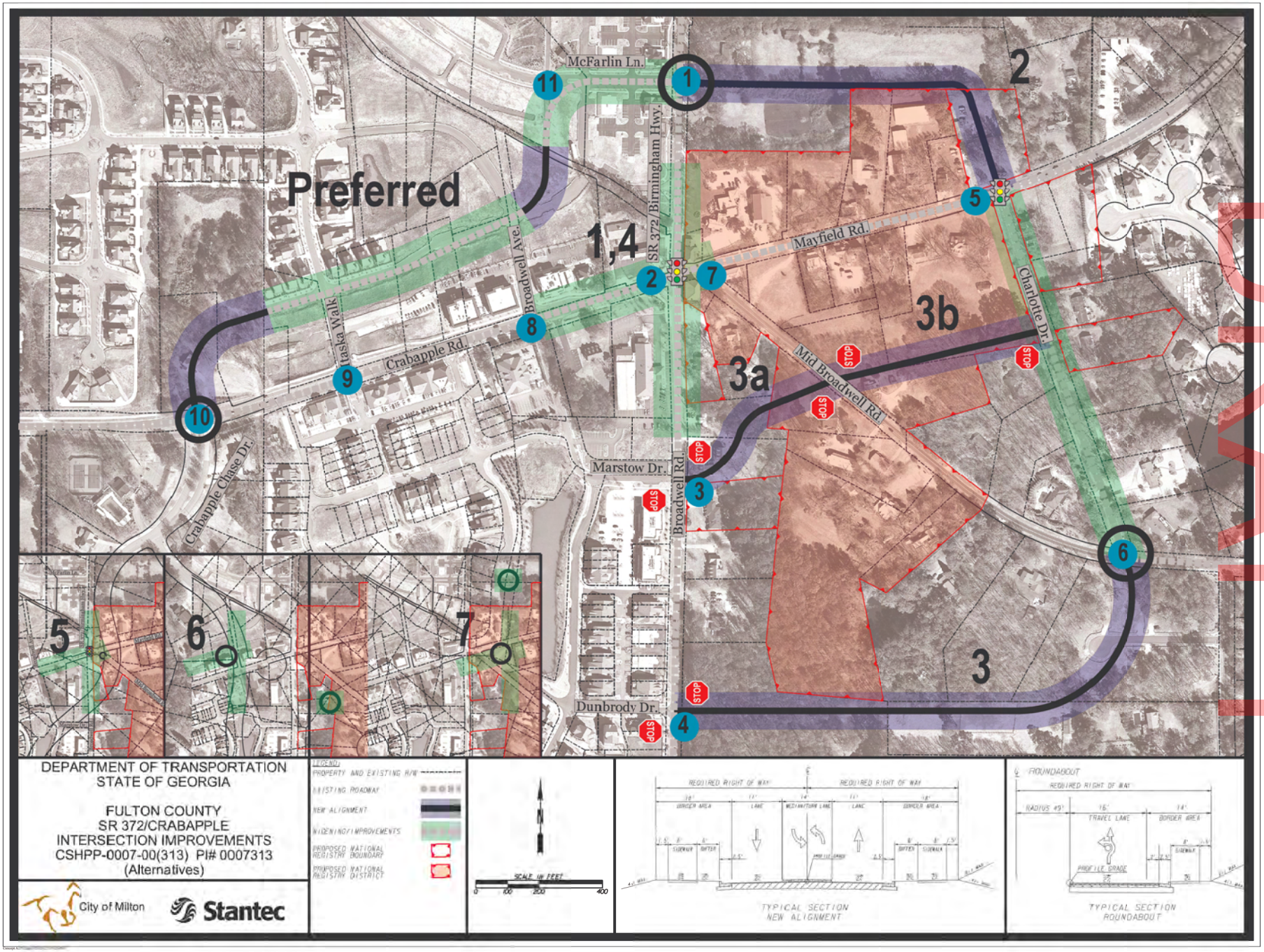
Notes:

NCHRP-572 Overall Delay	**120.7**
NCHRP-572 Overall LOS	**F**
UK Model Overall Delay	**28.7**
UK Model Overall LOS	**D**

Unit Legend:
vph = vehicles per hour
PHF = peak hour factor
F_{HV} = heavy vehicle factor
pcu = passenger car unit

Bypass Lane Merge Point Analysis (if applicable)

Bypass Characteristics	Bypass #1	Bypass #2	Bypass #3	Bypass #4	Bypass #5	Bypass #6
Select Entry Leg from Bypass (FROM)	**N (1)**	**E (3)**	**S (5)**	**W (7)**		
Select Exit Leg for Bypass (TO)	**W (7)**	**N (1)**	**E (3)**	**S (5)**		
Volumes						
Right Turn Volume removed from Entry Leg	**290**	**135**	**45**	**45**		
Volume Characteristics (for entry leg)						
PHF	0.92	0.92	0.92	0.92		
F_{HV}	0.96	0.96	0.96	0.96		
NOTE: Volume Characteristics for Exit Leg are already taken into account						
Entry/Conflicting Flows						
Entry Flow	328	153	51	51		
Conflicting Flow	961	593	673	249		
Bypass Lane Results (NCHRP-572 Model)						
Entry Capacity at bypass mergepoint, pcu/hr	432	624	577	881		
V/C ratio	**0.76**	**0.24**	**0.09**	**0.06**		
Control Delay, sec/pcu	**30.1**	**7.6**	**6.8**	**4.3**	**0.0**	**0.0**
LOS	D	A	A	A	N/A	N/A
95th % Queue (ft)	**165**	**25**	**8**	**5**		


Preferred
1,4
2
3
3a
3b
5
6
7
McFarlin Ln.
SR 372/Birmingham Hwy.
Broadwell Ave.
Taska Walk
Crabapple Rd.
Crabapple Chase Dr.
Mayfield Rd.
Charlotte Dr.
Mid Broadwell Rd.
Marstow Dr.
Broadwell Rd.
Dunbrody Dr.
STOP
DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA
FULTON COUNTY
SR 372/CRABAPPLE
INTERSECTION IMPROVEMENTS
CSHPP-0007-00(313) PI# 0007313
(Alternatives)
City of Milton
Stantec
LEGEND
PROPERTY AND EXISTING R/W
EXISTING ROADWAY
NEW ALIGNMENT
WIDENING/IMPROVEMENTS
PROPOSED NATIONAL REGISTRY BOUNDARY
PROPOSED NATIONAL REGISTRY DISTRICT
SCALE IN FEET
0 100 200 400
REQUIRED RIGHT OF WAY
BORDER AREA
LANE
MEDIAN/TURN LANE
SIDEWALK
BUFFER
PROFILE GRADE
TYPICAL SECTION
NEW ALIGNMENT
ROUNDABOUT
RADIUS 49'
TRAVEL LANE
TYPICAL SECTION
ROUNDABOUT

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City of Milton
13000 Deerfield Parkway Suite 107C Milton, Georgia 30004

INDICATION OF ROUNDABOUT SUPPORT

To the Georgia Department of Transportation:

Attn: State Traffic Engineer
935 E. Confederate Ave, Building 24
Atlanta, GA 30316

Location

The CITY OF MILTON, in FULTON County supports the consideration of a roundabout at the locations specified below.

Local Street Names: SR 372/BIRMINGHAM HIGHWAY at MCFARLIN LANE
SR 372/CRABAPPLE ROAD at CRABAPPLE CHASE DRIVE

State/County Route Numbers: SR 372

Associated Conditions

The undersigned agrees to participate in the following maintenance of the intersection in the event that the roundabout is selected as the preferred concept alternative:

- The full and entire cost of the electric energy used for any lighting installed (if needed)
- Any maintenance costs associated with the landscaping (after construction is complete)

We agree to participate in a formal Local Government Lighting Project Agreement during the preliminary design phase. This indication of support is submitted and all of the conditions are hereby agreed to. The undersigned are duly authorized to execute this agreement.

This is the 19TH day of MARCH, 2012

Attest: SMGordon
Clerk

By: [signature]

Title: Mayor

City of Milton, Georgia
Incorporated 2006

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Meeting Notes

Stantec

Initial Concept Team Meeting

CSHPP-0007-00(313); PI#0007313-City of Milton

Date/Time: March 31, 2011 2:00 PM

Place: District 7 Conference Rooms 144 & 145
5025 New Peachtree Road, Chamblee, GA 30341

Attendees:

Joshua Higgins, GDOT D7 (PM)
David M Robbins, GDOT D7 Design
Scott Lee, GDOT D7 Preconstruction
Mac Cranford, GDOT D7 Planning
Cindy Treadway, GDOT OES/NEPA
Clyde Cunningham, GDOT D7 Utilities
Alex Laffey, GDOT D7
Edlin Regis, GDOT Traffic Ops
Kesha W. Wynn, GDOT Traffic Ops
Linda Washington, GDOT D7 Local Gov't

Andy Anderson, PE, Stantec (Principal)
Kari Ward, PE, Stantec (PM)
Arwin Lopez, EIT, Stantec (Project Engineer)
Randy Parker, Stantec (Traffic Engineer)
Josh Earhart, Edwards-Pitman (Environmental Sub)
Carter Lucas, PE, City of Milton (Director)
Sara Leaders, PE, City of Milton (Client PM)

The purpose of this meeting was to discuss the concept of the proposed CR 1324/Mayfield Rd at CR 1336/Mid-Broadwell Rd intersection improvement project, discuss environmental issues and coordination efforts within the project and review the overall project schedule.

I. **Welcome** (GDOT)

II. **Introduction of Each Attendee**

III. **Project Identification** (City of Milton)
Carter Lucas gave a brief overview of the project as identified in Milton's CTP; the project has been presented to the Community Stakeholders.

IV. **Proposed Project Description** (Stantec)

a. *Alternates Considered*

Kari Ward described the different layouts. She explained that priority #1, addition of left turning lanes at the intersection of Crabapple Rd. and Birmingham Hwy, might not be enough to alleviate traffic.

b. *Traffic Projections*

Randall Parker described the existing traffic conditions; concluding that different left turn in conjunction with right turn movements affects the area. The addition of dedicated left turn lanes would alleviate the intersection's operation.

c. *Environmental Concerns*

Kari Ward pointed out the environmental and historical features within the project limits. Kari Ward request feedback of the initial findings presented.

V. **Project Schedule**

a. *PIOH June 20, 2011*

b. *CTM July 18, 2011*

VI. **Comments from Attendees**
None

VII. **Other Comments or Concerns – Open Discussion**

Scott Lee

Q: There is a project that was recently completed along SR 372, would this project would overlap the completed project.

Carter Lucas

A: No, we do not foresee impacting the completed project along the corridor of SR 372.

Scott Lee

Dunbrody Drive is a good point to connect to Crabapple Road. Roadway improvements would be required on the existing connection to Crabapple to meet the speed design.

Scott Lee

Q: How much the project would cost?

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Carter Lucas

A: $1.9M.

Andy Anderson

The entire project would have to be built in segments; currently, there is not enough money in the budget to build it all.

Kari Ward

The meeting's intent is to obtain feedback from GDOT and obtain confirmation the concept layout is acceptable.

Scott Lee

Q: What about the possibility of buying the gas station [at the northwest corner of the intersection of Crabapple Rd and Birmingham Hwy] in order to place a roundabout.

Carter Lucas

A: The City has had those discussions before.

Randall Parker

A mini-roundabout would fit; however, ultimately a regular size roundabout would be needed. The regular size roundabout's larger footprint would be too big to fit.

Carter Lucas

The City has had meetings to come up with other alternatives. From those meetings an additional alternative has been presented which would connect Crabapple Rd to Birmingham Hwy through Bentworth Lane.

Randall Parker

That alternative would work to alleviate the traffic at the intersection of Crabapple Rd and Birmingham Hwy.

Scott Lee

Q: During the environmental screening process, were any [Underground Storage Tanks] UST's found?

Josh Earhart

A: The initial investigation concluded that the gas station had some problems with tanks leaking and that some work had been done on the gas station to remedy this.

Scott Lee

Q: Are the existing right turn lane along Crabapple Rd warranted?

Randall Parker

A: The right turn lanes are not warranted.

Scott Lee

Crabapple Rd would then be able to be realigned in order to add the left turn lanes at the intersection.

Q: Is traffic going southbound on SR 372 and approaching the intersection of Crabapple able to make a left turn on to Mayfield Rd?

Randall Parker

A: Yes, but the left turn movement is not protected; $^{2}/_{3}$ of the left turning traffic make a right onto Mid-Broadwell Rd.

Carter Lucas

The public has shown opposition to cul-de-sac Mid-Broadwell Rd.

Scott Lee

Q: Have these alternatives been presented to the stakeholders?

Carter Lucas

A: Yes, we have and they have been very receptive to the proposed improvements.

Scott Lee

The new GDOT guidelines require that an investigation for the need of bike lanes must be performed.

Carter Lucas

The City's Transportation Master Plan identifies bike routes which divert from this area.

Q: Would be enough to meet the requirements of the guideline?

Scott Lee

A: Yes.

Josh Earhart

Q: Will multiple alternatives be presented for consideration to the public?

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Kari Ward
A: Yes, a preferred alternative would be shown, along with the other alternatives considered during the concept phase.
Scott Lee
Q: What is the preferred alternative?
Andy Anderson
A: The preferred alternative would include intersection improvements, plus one or maybe two additional roadway improvements.
Sara Leaders
Q: Can the project's intersection lane configuration be of three 10.5 foot lanes?
Scott Lee
A: Birmingham Hwy is a State Route and the requirements would be greater.
Andy Anderson
Q: What is the possibility of using 11 foot lanes on a State Route?
Scott Lee
A: It is possible and that it is done somewhat frequently.
Scott Lee
Q: Who are the stakeholders?
Carter Lucas
A: Schools, business, homeowners, churches. It's been an open house where we have tried to reach out to interested public.
Carter Lucas
Q: Say we come up with a project estimate of $2M and we have $1M on the table, can we use $1M from our trails?
Mac Cranford
A: Yes, we can do that with earmark monies.
Scott Lee
For now, we need the schedule. My concern is that we are so far into 2011 and we still don't have a defined preferred alternative.
Josh Earhart
The potential of 4F impacts would add a year to the schedule.
Scott Lee
Look at the environmental/historic impacts and work back from there to define the schedule.
Scott Lee
Q: What do you think about adding the turn lanes at the cross roads and bring in through Mastow?
Carter Lucas
A: The community would love it.
Andy Anderson
We will incorporate the ITCM comments and develop a concept that is integrated with the City's needs.
Scott Lee
The project may have a new project manager. It will probably go to Program Delivery.

Action Items:
Distribute meeting minutes to all participants.

The meeting adjourned at 3:00 PM.

STANTEC CONSULTING SERVICES INC.

Arwin Lopez, EIT
Arwin.Lopez@stantec.com
The foregoing is considered to be a true and accurate record of all items discussed. If any discrepancies or inconsistencies are noted, please contact the writer immediately.

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Meeting Notes

Stantec

Concept Team Meeting

CSHPP-0007-00(313); PI#0007313-City of Milton

Date/Time: Fri., January 20, 2012 1:30 PM

Place: GDOT GO Conference Room 25CR2L2
600 West Peachtree ST. NW, Atlanta Georgia 30308.

Attendees:

Dr. Moussa Issa, GDOT OPD(PM)
Michael Haithcock, GDOT OPD
Phillip Jackson, GDOT D7 Const
Daniel Pass, GDOT ODPS
Ken Werho, GDOT Traffic
Melanie Hale, GDOT ODPS
Alexis John, GDOT OES/NEPA
Kyle Mote, GDOT Planning
Romare Truly, GDOT OPD FHWA
Katrina Lawrence, GDOT Planning
Kari Ward, PE, Stantec (PM)
Jill Brown, Edwards-Pitman (Environmental Sub)
Carter Lucas, PE, City of Milton (Director)
Sara Leaders, PE, City of Milton (Client PM)
Jean Hee Park, ARC

The purpose of this meeting was to discuss the concept of the proposed Crabapple intersection improvement project, discuss environmental issues and coordination efforts within the project and review the overall project schedule.

I. **Welcome** (Dr. Moussa Issa, GDOT OPD)

II. **Introduction of Each Attendee**

III. **Proposed Project Description** (Kari Ward, Stantec)

The purpose of the project is to alleviate traffic congestion at the intersection of Broadwell Road/Birmingham Highway and Crabapple Road/Mayfield Road. The alternative considered and presented at the PIOH was presented; the public preferred alternative 2. Alternative 2: Adding left turn lanes on Broadwell Rd, Birmingham Hwy and Crabapple Rd; the extension of Crabapple Chase Dr from Crabapple Rd to McFarlin Ln at Birmingham Hwy, Two single lane roundabouts are proposed; one at Crabapple Chase Dr and Crabapple Rd and the other at McFarlin Ln and Birmingham Hwy.

IV. **Comments from Attendees:**

a. **Planning**

Jean Hee Park, ARC

Q: Will you be adding a new roadway?

Kari Ward, Stantec

A: The connection at Crabapple Chase Drive is new, but the remainder of the roadway up to McFarlin Ln is an existing road; a portion of the existing road will be realigned to meet the design speed.

Jean Hee Park, ARC

The City of Milton will need to adjust/amend the plan with ARC TIP because this is not programmed; only the improvements to the intersection of Broadwell Road/Birmingham Highway and Crabapple Road/Mayfield Road are currently in the TIP. The update will include a detailed description and scope. An adjustment may be approved by March and an amendment may be approved in December. We will determine by next week whether an adjustment or amendment is needed. If funds are shifted it will require an amendment, but if the shift happens after the limited updated this year then it may not need to be amended.

Dr. Moussa Issa, GDOT OPD

Q: Is this something new for the City?

Sara Leaders, City of Milton

A: No, we have discussed this with ARC (Jean Hee) previously.

Kyle Mote, GDOT Planning

Based on the current description in the TIP, the extension of Crabapple Chase Dr is out of scope for this project. The project description needs to match the TIP. The Project Justification Statement (PJS, formerly the "need and purpose" section of the report) needs to be revised to the new format of the concept report. It should include an explanation of the logical termini, do not include any proposed alternatives in this section of the concept report. The PJS should only identify existing issues the project intends to address. The PJS will not be approved unless we have confirmation from ARC that an adjustment or amendment is being processed to update the

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TIP to match the concept. With this confirmation, we can proceed with approving the PJS. Please send us the revised PJS ASAP for review and approval.

b. Design Policy and Support (Melanie Hale, GDOT ODPS)

General/Formatting:

- *Please submit with the current format (Concept Report Template Appendix A on http://www.dot.ga.gov/doingbusiness/PoliciesManuals/roads/Pages/OtherResources.aspx#pdp)*
  - *This format should help address other formatting comments I had during the meeting. For instance, P.I.D. determination, removing the schedule from the report.*
- *Please remember to sign to submit (Consultant, PM, and PM's Office Head). Some people forget, so I like to remind at this stage.*
- *Ensure the Project Justification (formerly the "need and purpose" section of the report) has been previously approved through GDOT Planning.*
- *Ensure the traffic included is approved (or concurred) by the traffic section.*

Description of the Proposed Project

- *Please clarify what the project is proposing. Since it is a combination of two previously studied alternatives, perhaps mention this.*

PM 2.5/Ozone Non-Attainment:

- *The proposed project does not appear consistent with the ARC project number referenced (FN-209), but does appear to be included under ARC # FN-237.*

Proposed design features:

- *I would recommend considering describing the functional classification used to design the partial new location/realignment section. I recall someone mentioning that it was designed to the Urban Local Road design standards. Ensure the standards listed in the report meet/match the design standards for this classification.*
- *The maximum super-elevation used may require a design exception (I believe Dan's comments – attached – go into further detail on this).*

Project Cost Estimate and Funding Responsibilities (Table):

- *CST Cost should include the E&I and the "Liquid AC Adjustment" (formerly Fuel Cost and Asphalt Cement Cost Adjustments) – this does not appear to be attached, so I was unable to confirm.*

Attachments:

- *Please ensure that all listed attachments are attached, and in the order listed.*
- *1. Detailed Cost Estimates*
  - *Liquid AC Adjustment does not appear to be attached, nor listed.*
  - *Utility, ROW, & Mitigation estimates must all be concurred or approved by GDOT staff. This is a more recent development (November 2011).*
- *3. Typical Sections – since not attached separately, suggest not listing it as a separate attachment. However, since it is included on the Plan sheet, perhaps note that (i.e. Plan & Typical Section).*
- *8. QC/QA Certification Letter – is not required to be attached.*
- *Additional: As discussed in the meeting, please include any planning level roundabout analysis (very general) on the proposed roundabouts – and perhaps to show that a roundabout was looked at for the main intersection in question as well. In the current Concept Report format, there is a section to discuss roundabouts and what was looked at and decisions made.*

c. Traffic Safety and Design (Daniel Pass, GDOT ODPS)

Roundabout Peer Review:

- *A more detailed development of the roundabout designs will be prepared and reviewed during preliminary design.*

Need & Purpose:

- *The large set of alternates considered is appreciated. That being said, some greater explanation should be provided as to why the reconstruction of Broadwell/Birmingham Hwy and Crabapple/Mayfield was not formally presented as an alternate. A roundabout offset to the west of the existing intersection could be considered and may not impact historical property whereas the selected alternate does impact historical property. This new alternate may result in more significant impacts to businesses, but this would be included in the comparison with other alternates.*
- *Please provide the actual computer output reports for the capacity analyses as well as traffic diagrams. Present the results of operational analyses by lane group and in terms of v/c, 95 percentile queue and delay as well as LOS – at least for the preferred alternate. A careful review of the operational analyses should be performed considering the number of closely spaced intersections affected by the proposed changes.*

Proposed design features:

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- *A proposed maximum SE rate of 6% will require a design exception. Please refer to Page 47 of FHWA Mitigation Strategies for Design Exceptions and DPM Table 4.9.*

Anticipated level of Environmental Analyses:

- *A categorical exclusion seems unlikely as the proposed alternate impacts historical property.*

d. Environmental

Kari Ward, Stantec

A coordination meeting was held on 11/04/11 with FHWA. Alternative 2 was presented as the preferred alternative from the PIOH. At this meeting FHWA agreed that this alternative qualifies as a CE since there are no historical impacts. The current schedule is for a CE approval. If the project becomes an EA, then the schedule will need to be updated and let date changed.

Michael Haithcock, GDOT OPD

The project appears to be an EA. I don't think it will be a CE, an increase in the air and noise along the extension from Crabapple Chase Dr to McFarlin Ln may make it an EA.

Kari Ward, Stantec

We are holding the existing edge of pavement and sidewalk locations on the left side of the existing roadway.

Dr. Moussa Issa, GDOT OPD

Q: Do you want to update the schedule?

Jill Brown, Edwards-Pitman (Environmental Sub)

A: if the project remains a CE, the current environmental schedule is achievable.

V. Other Comments or Concerns – Open Discussion

Melanie Hale, GDOT ODPS

Q: Are there other alternatives considered other than signal timing and turn lanes?

Sara Leaders, City of Milton

A: Yes, we've looked at replacing the signal with a roundabout.

Melanie Hale, GDOT ODPS

Include this in your alternatives considered; include why it wasn't feasible and why you chose to go outside of the intersection improvements to add the bypass.

Ken Werho, GDOT Traffic

Q: Have you looked at the ultimate design of the intersection of Broadwell Road/Birmingham Highway and Crabapple Road/Mayfield Road?

Kari Ward, Stantec

A: No, because of the R/W impacts to the historic district, but we will include this in the alternatives considered.

Melanie Hale, GDOT ODPS

Q: Have you looked at 3 roundabouts, the two proposed at Crabapple Chase Dr and McFarlin Ln and replacing the signal at Broadwell Road/Birmingham Highway and Crabapple Road/Mayfield Road with a roundabout?

Kari Ward, Stantec

A: No, but we will include this in the alternatives considered.

Ken Werho, GDOT Traffic

Submit the alternative showing the roundabout at the intersection of Broadwell Road/Birmingham Highway and Crabapple Road/Mayfield Road to Traffic for review.

Ken Werho, GDOT Traffic

Q: Have you looked at 3 roundabouts without the bypass?

Kari Ward, Stantec

A: No, but we will include this in the alternatives considered.

Dr. Moussa Issa, GDOT OPD

Q: The concept report opening year says 2016, but the traffic study has 2015, which one is correct?

Kari Ward, Stantec

A: 2016 is correct; the traffic study will be revised.

Melanie Hale, GDOT ODPS

Show and list 1 displacement

Ken Werho, GDOT Traffic

Q: Did you look at closing Mid-Broadwell?

Carter Lucas, City of Milton

A: Yes, but the public opposed.

Ken Werho, GDOT Traffic

Q: How about making Mid-Broadwell it a one way in/out?

Carter Lucas, City of Milton

A: It is currently a right in and right out.

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Michael Haithcock, GDOT OPD

Q: This is a five-legged intersection, how is the project improving the intersection? Look at closing Mid-Broadwell.

Kari Ward, Stantec

A: The intersection is being improved by adding left turn lanes at the intersection, and alleviating traffic congestion by diverting traffic onto the bypass. We will include closing Mid-Broadwell in the alternatives considered.

Carter Lucas, City of Milton

With the school redistricting there will be more traffic from Crabapple from students coming from Roswell that will use the bypass.

Dr. Moussa Issa, GDOT OPD

How many parcels are impacted? If there are more than 30 parcels, revise schedule to increase time to purchase right-of-way from 12 to 18 months.

Dr. Moussa Issa, GDOT OPD

Q: Is SUE eligible for this project? UST must be looked at.

Melanie Hale, GDOT ODPS

Adjust L&D Approval Date Advertised on schedule to occur after CE approval, coordinate with R/W plans.

Dr. Moussa Issa, GDOT OPD

Q: Is a constructability review needed?

Kari Ward, Stantec

A: This will be determined at PFPR.

Ken Werho, GDOT Traffic

Q: When are you going to submit the concept report?

Kari Ward, Stantec

A: We plan to submit next month, for approval in April.

Melanie Hale, GDOT ODPS

Please use the new format for the concept report.

Kari Ward, Stantec

We will re-format the concept report.

Ken Werho, GDOT Traffic

A revised permit for signal will be required to determine if this will be a strain pole or mast arm. This will determine if more R/W will be required.

Kari Ward, Stantec

Currently, there are mast arms at this intersection. The existing pole located in the historic district will remain; no additional R/W will be needed.

Action Items:

- *Stantec will distribute meeting minutes to all participants.*
- *The City of Milton will follow up with ARC on whether an adjustment or amendment is needed.*
- *Stantec will re-submit concept report with the new format addressing the CTM comments.*
- *Stantec will submit the Project Justification to GDOT Planning for approval.*
- *Stantec will submit traffic to GDOT Traffic for approval.*

The meeting adjourned at 3:00 PM.

STANTEC CONSULTING SERVICES INC.

Arwin Lopez, EIT
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The foregoing is considered to be a true and accurate record of all items discussed. If any discrepancies or inconsistencies are noted, please contact the writer immediately.

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DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE: P. I. Nos. 0007313 OFFICE: Environmental Services
DATE: September 29, 2011

FROM: Glenn Bowman, P.E., State Environmental Administrator

TO: Distribution Below

SUBJECT: PUBLIC INFORMATION OPEN HOUSE SYNOPSIS

PROJECT Nos. & COUNTY: CSHPP00-0007-00(313), Fulton

PROJECT DESCRIPTION: SR 372/Crabapple Intersection Improvements include adding left turn lanes on Broadwell Road, Birmingham Highway and Crabapple Road and an alternate route to bypass the intersection of Broadwell Road/Birmingham Highway and Crabapple Road/Mayfield Road.

DATE: September 27, 2011

NUMBER IN ATTENDANCE: 57

FOR: 13

CONDITIONAL: 3

UNCOMMITTED: 0

AGAINST: 0

OFFICIALS IN ATTENDANCE:
1. Bob Pepalis, Alpharetta-Milton Patch
2. Jonathan Copsey. Milton Herald
3. Julie Zahner Bailey, Milton City Council

ADDITIONAL COMMENTS: Most of the attendees were in favor of the project, and preferred alternate 2. Several commented that they are concerned with the current timing of the signal at the intersection of Broadwell Road/Birmingham Highway and Crabapple Road/Mayfield Road.

PREPARED BY: Kari Ward, PE, Stantec for Georgia DOT

TELEPHONE No.: (770) 813-0882

cc: Gerald M. Ross, P.E.
Ben Buchan, P.E.
Bryant Poole, P.E.
Kelvin Wilson
Mac Cranford
Scott Lee
Glenn Bowman, P.E.

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Keith Golden, P.E., Commissioner

GEORGIA DEPARTMENT OF TRANSPORTATION

One Georgia Center, 600 West Peachtree Street, NW
Atlanta, Georgia 30308
Telephone: (404) 631-1000

December 8, 2011

«First_Name» «Last_Name»
«Address_Line_1»
«City», «State» «Zip»

Re: Project CSHPP00-0007-00(313), Fulton County, P.I. No. 0007313 – City of Milton Intersection Improvements

«Title» «Last_Name»:

Thank you for attending the September 27, 2011 Public Information Open House (PIOH) for the proposed project noted above. Your attendance at this meeting and your comments are appreciated. Your comments will be made a part of the official record of the project.

There were four alternatives presented at the PIOH to alleviate traffic congestion:

Alternative 1: Adding left-turn lanes on Broadwell Rd., Birmingham Hwy. and Crabapple Rd.

Alternative 2: Adding left-turn lanes on Broadwell Rd., Birmingham Hwy. and Crabapple Rd.; the extension of Crabapple Chase Dr. from Crabapple Rd. to McFarlin Ln. at Birmingham Hwy. Two single lane roundabouts are proposed; one at Crabapple Chase Dr. and Crabapple Rd. and the other at McFarlin Ln. and Birmingham Hwy.

Alternative 3: Adding left-turn lanes on Broadwell Rd., Birmingham Hwy. and Crabapple Rd.; a new roadway from McFarlin Ln. at SR 372/Birmingham Hwy. to Mayfield Rd. at Charlotte Dr. The intersection of Mayfield Rd. at Charlotte Dr. will remain signalized and a single lane roundabout is proposed at McFarlin Ln. and Birmingham Hwy.

Alternative 4: Adding left-turn lanes on Broadwell Rd., Birmingham Hwy. and Crabapple Rd.; a new roadway from Broadwell Rd. to Mid-Broadwell Rd. and connecting to Charlotte Dr. The connections for this alternative may include, (4) an extension of Dunbrody Dr. to the intersection of Mid-Broadwell Rd. at Charlotte Dr. or (4a) an extension of Marstrow Dr. to Mid-Broadwell Rd. and (4b) then to Charlotte Dr. The intersection of Mayfield Rd. at Charlotte Dr. will remain signalized, a single lane roundabout is proposed at Mid-Broadwell Rd. and Charlotte Dr. and all other intersections are to be controlled by stop signs.

A total of 57 people attended the PIOH. Of the 28 comments received, 19 were in support of the projects, 0 were opposed to the project, 4 were uncommitted, and 5 expressed conditional support for the project.

The attendees that left a comment at the PIOH and the persons that sent in comments afterwards raised the following questions and concerns. The Georgia Department of Transportation (GDOT), in cooperation with the City of Milton, has prepared this one response letter that addresses all comments received so that everyone can be aware of the concerns raised and the responses given. Please find the comments summarized below (in italics) followed by our response.

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- *Numerous comments were received that were in support of the project. Several commenters favored specific alternatives.*

  From the comments received, when asked which alternate do you prefer, 7 preferred Alternative 1, 12 preferred Alternative 2, 6 preferred Alternative 3, and 3 preferred Alternative 4. Several comments were in favor of roundabouts and others opposed Alternative 4.

- *Two commenters requested an increase in the length of the turn lanes.*

  Traffic data has been collected and will be used to determine the adequate length of turn lanes required.

- *"How wide would the proposed road be and how many lanes of traffic?"*

  The typical proposed pavement width is 36 feet which includes two 11 foot travel lanes and a 14 foot median for left turns. 18 foot wide graded shoulders are also proposed which includes 8 foot sidewalk constructed on the shoulders.

- *Two commenters asked the following: "What would be done to prevent speeding which currently exists and now endangers children and other pedestrians?" and "Add sidewalks and trails to increase pedestrian activity"*

  Although speeding is ultimately an enforcement issue, the proposed project includes an 8 foot sidewalk on both sides of the roadway. The proposed design speed is 35 mph. Any design elements that will increase pedestrian safety will be considered during the preliminary design phase of the project.

- *"Consider measures to save existing trees"*

  Impacts to existing trees will be considered during the preliminary design phase of the project. Trees may be removed if they are located too close to the roadway edge of travel and pose a safety hazard to motorists whose vehicle leaves the roadway.

- *"Would any attempt be made to move the road away from existing houses on Branyan Trail?"*

  Yes, this will be considered during the preliminary design phase of the project.

- *There were several comments that overall inquired about the following: "Interim improvements to signal timing"*

  The loop devices that recognize when cars arrive to the intersection are on GDOT's repair list to replace. Other interim improvements will be investigated by the City of Milton in coordination with GDOT. There is no estimated completion date at this time.

- *"Consider additional alternatives such as speed bumps to deter drivers from cutting through Crabapple Station and Crabapple Crossing."*

  Additional alternatives such as speed bumps are outside the scope of this project. The comment will be forwarded to the City of Milton for review under the traffic calming program.

- *"I really appreciate that they have taken Crabapple Station out of the bypass."*

  The North Fulton Comprehensive Transportation Plan (CTP) included a bypass alternative which included Crabapple Station. That alignment was not included in the alternates considered for this project.

- *"There were a couple of comments that overall asked the following: Demolish the historic buildings to make room for improvements at the intersection of Birmingham and Crabapple."*

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Federal funding is being used to fund this project; as such, the historic buildings are protected under Section 106 of the National Historic Preservation Act and 49 U.S. Code 303 commonly referred to as Section 4(f) of the US DOT Act. The law requires every effort be made to preserve historic resources by first avoiding impacts to historic resources eligible for inclusion in the National Register for Historic Places. When the resource cannot be completely avoided, then impact minimization and possible mitigation are required to be considered. If there is any prudent and feasible alternative that avoids or minimizes destroying a historic resource available, that alternative must be selected.

If you should have any questions or need additional information, feel free to contact the project manager Dr. Moussa Issa, P.E. of the Office of Program Delivery at (404) 631-1581 or Ms. Cindy Treadway at 404-631-1979 of the Office of Environmental Services.

Sincerely,

Glenn Bowman, P.E.
State Environmental Administrator

BH/vg/kw

CC: Dr. Moussa Issa, GDOT Project Manager
General Files

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FHWA Coordination Meeting Minutes
Intersection Improvements:
Crabapple/Mayfield Road at Broadwell Road/Birmingham Highway
City of Milton, Georgia
GDOT Project CSHPP-0007-00(313), PI No. 0007313
November 3, 2011 10:30-11:30 AM

Attendees:
Jennifer Giersch - FHWA
Michael Murdoch - GDOT Office of Environmental Services
Cindy Treadway - GDOT Office of Environmental Services
Carter Lucas – City of Milton
Sara Leaders – City of Milton
Kari Ward – Stantec
Mark Grindstaff – Edwards-Pitman Environmental, Inc.
Josh Earhart - Edwards-Pitman Environmental, Inc.

Meeting Purpose:
The meeting was held to introduce the project to FHWA, describe resources identified from field surveys, and discuss the level of NEPA documentation.

1) The two primary concerns raised at the meeting were the level of environmental impacts along the project corridor and determining the appropriate level of environmental document (CE or EA) for the project.

2) Mark Grindstaff of Edwards-Pitman Environmental, Inc. explained that two potentially eligible resources were identified along the project corridor—the first being a historic district consisting of multiple properties located east of the intersection at Crabapple/Mayfield Road and Broadwell Road/Birmingham Highway; the second consisting of a single property located approximately 100 feet west of this intersection along Crabapple/Mayfield Road on the north side of the roadway. It was further explained that based on the current design of the proposed project, neither property is likely to be adversely affected.

3) Mr. Grindstaff also explained that approximately five additional historic properties were identified along the corridor during field survey efforts; however, it is highly unlikely that any of these properties are eligible for the National Register.

4) There are no significant archaeological or ecological issues identified along the corridor at this time.

5) Representatives from Stantec summarized the extensive public involvement efforts and coordination that has taken place to date on the project.

6) Based on the public involvement efforts to date and the low level of environmental impacts, Jennifer Giersch explained that it would be acceptable at this point to move forward with a Categorical Exclusion (CE) as the appropriate level of environmental document for the project even though a considerable portion of the project is on new location. She emphasized the need for continued coordination with the public if any changes to the current project design are implemented.