ORIGINAL TO GENERAL FILES

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE P. I. No. 0006907, Fulton County
CSSTP-0008-00(907)
Jones Bridge Road at Morton Road-
Intersection Improvements

OFFICE Preconstruction

DATE March 25, 2009

FROM Genetha Rice-Singleton, Assistant Director of Preconstruction

TO SEE DISTRIBUTION

SUBJECT APPROVED PROJECT CONCEPT REPORT

Attached for your files is the approval for subject project.

Attachment

DISTRIBUTION:

Ron Wishon
Glenn Bowman
Ken Thompson
Michael Henry
Keith Golden
Rachel Brown
Paul Liles
Mike Lobdell
Scott Lee
BOARD MEMBER

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

INTERDEPARTMENTAL CORRESPONDENCE

FILE: P.I. No. 0006907, Fulton County
CSSTP-0006-00(907)
Jones Bridge Road at Morton Road-
Intersection Improvements

OFFICE: Preconstruction

DATE: March 4, 2009

FROM: Genetha Rice-Singleton, Assistant Director of Preconstruction

TO: Gerald M. Ross, P.E., Chief Engineer

SUBJECT: ***PROJECT CONCEPT REPORT***

This project is the intersection improvements to Jones Bridge Road at Morton Road in the city of Johns Creek, Georgia. Jones Bridge Road is currently a two lane road with a posted speed of 45 MPH. Jones Bridge Road runs in a north-south direction from McGinnis Ferry Road to the north to Old Alabama Road to the south. Morton Road is a two lane road with a posted speed of 35 MPH. The intersection is stop controlled and Morton Road runs in an east-west direction and is used as a cut through between Jones Bridge Road and State Bridge Road. Jones Bridge Road serves residential developments in the vicinity of the intersection. The proposed project will improve the intersection by adding turn lanes and addressing the intersection site distance deficiencies. The projected volumes are 17,094 VPD on this section of Jones Bridge Road for the year 2011 and 27,916 VPD for the design year 2031. The existing two lane roadway would be inadequate to handle such volumes. Intersection analyses as well as the accident history and accident rates indicate that additional turn lanes are needed to handle the increased traffic volumes and improve safety.

The proposed project consists of adding a 300' left and a 200' right turn lane on the Jones Bridge Road at Morton Road and a 150' right turn lane on Morton Road. The project also includes adding a 235' left and 100' right turn lane on Jones Bridge Road at Indian Village Drive to help facilitate turning movements at this intersection. Sidewalks (5') will be added to the north side of Jones Bridge Road and on both sides of Morton Road. A 10' multi-use trail will be added on the south side of Jones Bridge Road as per the City of Johns Creek's Multi-Use Plan. A new traffic signal is warranted and will be installed at this intersection as part of this project.

Environmental concerns include requiring a Categorical Exclusion be prepared; a Public hearing is not required; Time saving procedures are appropriate.

The estimated costs for this project are:

	PROPOSED	APPROVED	FUNDING	PROG DATE
Construction (includes E&C)	$1,059,000	$ 650,000	L230	2010
Right-of-way & Utilities*	Local	Local		

* Johns Creek signed PFA on 6-21-2007 for PE, Utilities, ROW and 20% CST.

I recommend this project concept be approved.

GRS: JDQ
Attachment

CONCUR _____
Director of Preconstruction

APPROVED _____
Gerald M. Ross, P.E., Chief Engineer

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

DISTRICT SEVEN PRECONSTRUCTION

PROJECT CONCEPT REPORT
Project Number: CSSTP-0006-00(907)
County: Fulton
P. I. Number: 0006907

Federal Route Number: N/A
State Route Number: N/A

Intersection Improvement Project: Jones Bridge Road at Morton Road

See Sheets 2 & 3 for Location Map

Recommendation for approval:

DATE 12/15/08 _____
Project Manager

DATE 12/19/08 _____
District ~~Engineer~~

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

DATE_____ _____
State Transportation Planning Administrator

DATE_____ _____
Office of Financial Management Administrator

DATE_____ _____
State Environment/Location Engineer

DATE 12-22-08 _____
State Traffic Safety and Design Engineer

DATE_____ _____
Project Review Engineer

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE: P.I. No. 0006907 **OFFICE:** Environment/Location

PROJECT No. CSSTP-0006-00(907) / FULTON County DATE: 1/21/09

Intersection Improvement Project: Jones Bridge Rd. at Morton Rd.

FROM: Glenn Bowman, P.E., State Environmental/Location Engineer

TO: Genetha Rice-Singleton, Assistant Director of Preconstruction

SUBJECT: PROJECT CONCEPT REPORT REVIEW

The Concept Report for the above project has been reviewed and it appears satisfactory for approval. It is also noted that this project does not have management directed right of way or construction dates in TPRO; however, construction funds are currently proposed for FY 2011.

If you have any questions, please contact Glenn Bowman at (404) 699-4401.

GB:lc

cc: Ron Wishon
Angela Whitworth
Keith Golden
Angela Alexander
Bryant Poole

RECEIVED
JAN 23 2009

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

DISTRICT SEVEN PRECONSTRUCTION

PROJECT CONCEPT REPORT
Project Number: CSSTP-0006-00(907)
County: Fulton
P. I. Number: 0006907

Federal Route Number: N/A
State Route Number: N/A

Intersection Improvement Project: Jones Bridge Road at Morton Road

See Sheets 2 & 3 for Location Map

Recommendation for approval:

DATE 12/15/08 _____
Project Manager

DATE 12/19/08 _____
District Engineer

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

DATE_____ _____
State Transportation Planning Administrator

DATE_____ _____
Office of Financial Management Administrator

DATE 1/21/09 _____
State Environment/Location Engineer

DATE_____ _____
State Traffic Safety and Design Engineer

DATE_____ _____
Project Review Engineer

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

DISTRICT SEVEN PRECONSTRUCTION

PROJECT CONCEPT REPORT
Project Number: CSSTP-0006-00(907)
County: Fulton
P. I. Number: 0006907

Federal Route Number: N/A
State Route Number: N/A

Intersection Improvement Project: Jones Bridge Road at Morton Road

See Sheets 2 & 3 for Location Map

Recommendation for approval:

DATE 12/15/08 _____
Project Manager

DATE 12/19/08 _____
District Engineer

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

DATE_____ _____
State Transportation Planning Administrator

DATE 12-31-08 _____
Financial Management Administrator

DATE_____ _____
State Environment/Location Engineer

DATE_____ _____
State Traffic Safety and Design Engineer

DATE_____ _____
Project Review Engineer

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

DISTRICT SEVEN PRECONSTRUCTION

PROJECT CONCEPT REPORT
Project Number: CSSTP-0006-00(907)
County: Fulton
P. I. Number: 0006907

Federal Route Number: N/A
State Route Number: N/A

Intersection Improvement Project: Jones Bridge Road at Morton Road

See Sheets 2 & 3 for Location Map

Recommendation for approval:

DATE 12/15/08 _____
Project Manager

DATE 12/19/08 _____
District Engineer

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

DATE_____ _____
State Transportation Planning Administrator

DATE 12-31-08 Angela O. Whitworth (R)
Financial Management Administrator

DATE_____ _____
State Environment/Location Engineer

DATE_____ _____
State Traffic Safety and Design Engineer

DATE_____ _____
Project Review Engineer

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

DISTRICT SEVEN PRECONSTRUCTION

PROJECT CONCEPT REPORT
Project Number: CSSTP-0006-00(907)
County: Fulton
P. I. Number: 0006907

Federal Route Number: N/A
State Route Number: N/A

Intersection Improvement Project: Jones Bridge Road at Morton Road

See Sheets 2 & 3 for Location Map

Recommendation for approval:

DATE 12/19/08 _____
Project Manager

DATE 12/19/08 _____
District Engineer

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

DATE 1-14-09 Angela T. Alexander
State Transportation Planning Administrator

DATE_____ _____
Office of Financial Management Administrator

DATE_____ _____
State Environment/Location Engineer

DATE_____ _____
State Traffic Safety and Design Engineer

DATE_____ _____
Project Review Engineer

NOTICE OF LOCATION AND DESIGN APPROVAL

PROJECT CSSTP-0006-00(907), Fulton County

P. I. NUMBER 0006907

Notice is hereby given in compliance with Georgia Code 22-2-109 that the Georgia Department of Transportation has approved the Location and Design of this project.

The date of location approval is March 25, 2009

Project CSSTP-0006-00(907) located in the City of Johns Creek, Fulton County, GA is proposed to improve the existing intersection at Jones Bridge Road and Morton Road. This project includes adding a left and right turn lane on Jones Bridge Road at Morton Road and a right turn lane on Morton Road. The project also includes adding a left and right turn lane on Jones Bridge Road at Indian Village Drive to help facilitate turning movements at this intersection. 5' sidewalks will be added to the north side of Jones Bridge Road and on both sides of Morton Road. A 10' multi-use trail will be added on the south side of Jones Bridge Road as per the City of Johns Creek's Multi-Use Trail Plan. A new traffic signal is warranted and will be constructed at this intersection as part of this project.

The project is located entirely within Fulton County, in Land District 11, Land Lot 380. The project is also 100 percent within Congressional District 13.

Drawings or maps or plats of the proposed project, as approved, are on file and are available for public inspection at the Georgia Department of Transportation:

Sebastian Nesbitt
District 7 Area 2 Engineer
1269 Kennestone Circle
Marietta, GA 30066
(770) 528-3238
snesbitt@dot.ga.gov

Any interested party may obtain a copy of the drawings or maps or plats or portions thereof by paying a nominal fee and requesting in writing to:

Mike Lobdell, PE
District 7 Preconstruction Office
5025 New Peachtree Road
Chamblee, GA 30341
(770) 986-1257
mlobdell@dot.ga.gov

Any written request or communication in reference to this project or notice SHOULD include the Project and P. I. Numbers as noted at the top of this notice.

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

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

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

ENTER APL 450 **ENTER APM** 1012.5

125.00%	INCREASE ADJUSTMENT

L.I.N.	TYPE	TACK (GALLONS)	TACK (TONS)	REMARKS
413-1000	PG 58-22	350	1.5033	

TMT = 1.5033

PRICE ADJUSTMENT($)	$811.77

400 / 402 ASPHALT CEMENT PRICE ADJUSTMENT 125% MAX

ENTER APL 450 **ENTER APM** 1012.5

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

125.00%	INCREASE ADJUSTMENT

L.I.N. / Spec Number	MIX TYPE	HMA	JMF AC%	AC	REMARKS
402-1812	19 mm SP	1190	5.00	59.50	
402-3121	25 mm SP	490	5.00	24.50	
402-3130	12.5 mm SP	640	5.00	32.00	
402-3190	19 mm SP	250	5.00	12.50	
			5.00		
			5.00		
			5.00		
			5.00		
			5.00		
			5.00		
			5.00		
			5.00		
			5.00		
			5.00		
			5.00		
			TMT =	128.50	

PRICE ADJUSTMENT($)	$69,390.00

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

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

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

ENTER APL [ ] ENTER APM [ ]

MISSING APL OR APM	MISSING APL OR APM

Use this side for Asphalt Emulsion Only		
L.I.N.	TYPE	ASPHALT EMULSION (GALLONS)
TMT =		
REMARKS:		

Use this side for Asphalt Cement Only		
L.I.N.	TYPE	TACK (GALLONS)
TMT =		
REMARKS:		

MONTHLY PRICE ADJUSTMENT($)	MISSING APL OR APM

ADJUSTMENT SUMMARY

FUEL PRICE ADJUSTMENT (*ENGLISH 125% MAX)*

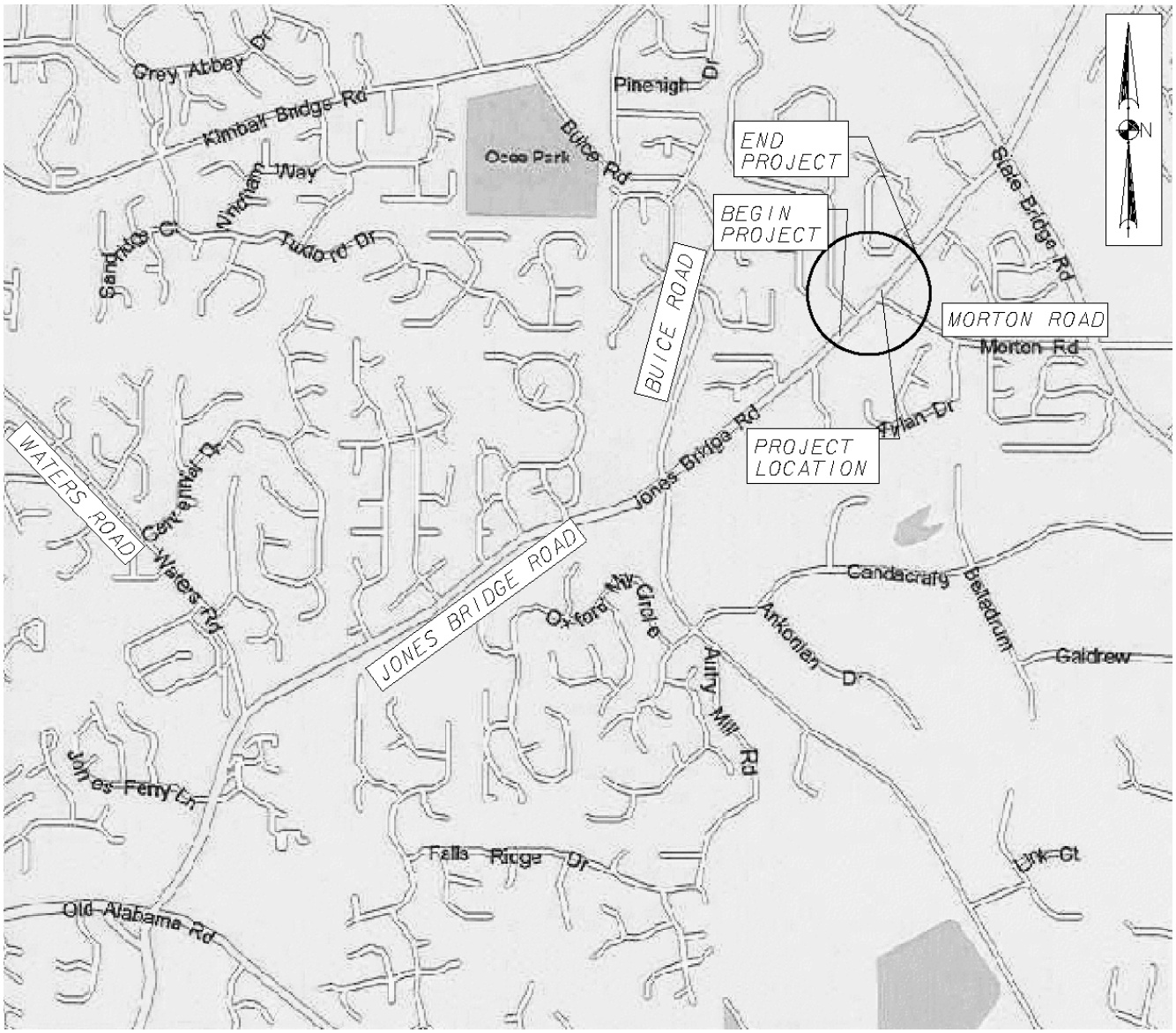
DIESEL PRICE ADJUSTMENT($)	$21,636.75
UNLEADED PRICE ADJUSTMENT($)	$3,994.94
ASPHALT CEMENT PRICE ADJUSTMENT (BITUMINOUS TACK COAT 125% MAX)	$811.77
400 / 402 ASPHALT CEMENT PRICE ADJUSTMENT 125% MAX	$69,390.00
ASPHALT CEMENT PRICE ADJUSTMENT FOR BITUMINOUS TACK COAT(Surface Treatment 125% MAX)	MISSING APL OR APM

REMARKS:	

TOTAL ADJUSTMENTS	$95,833.46

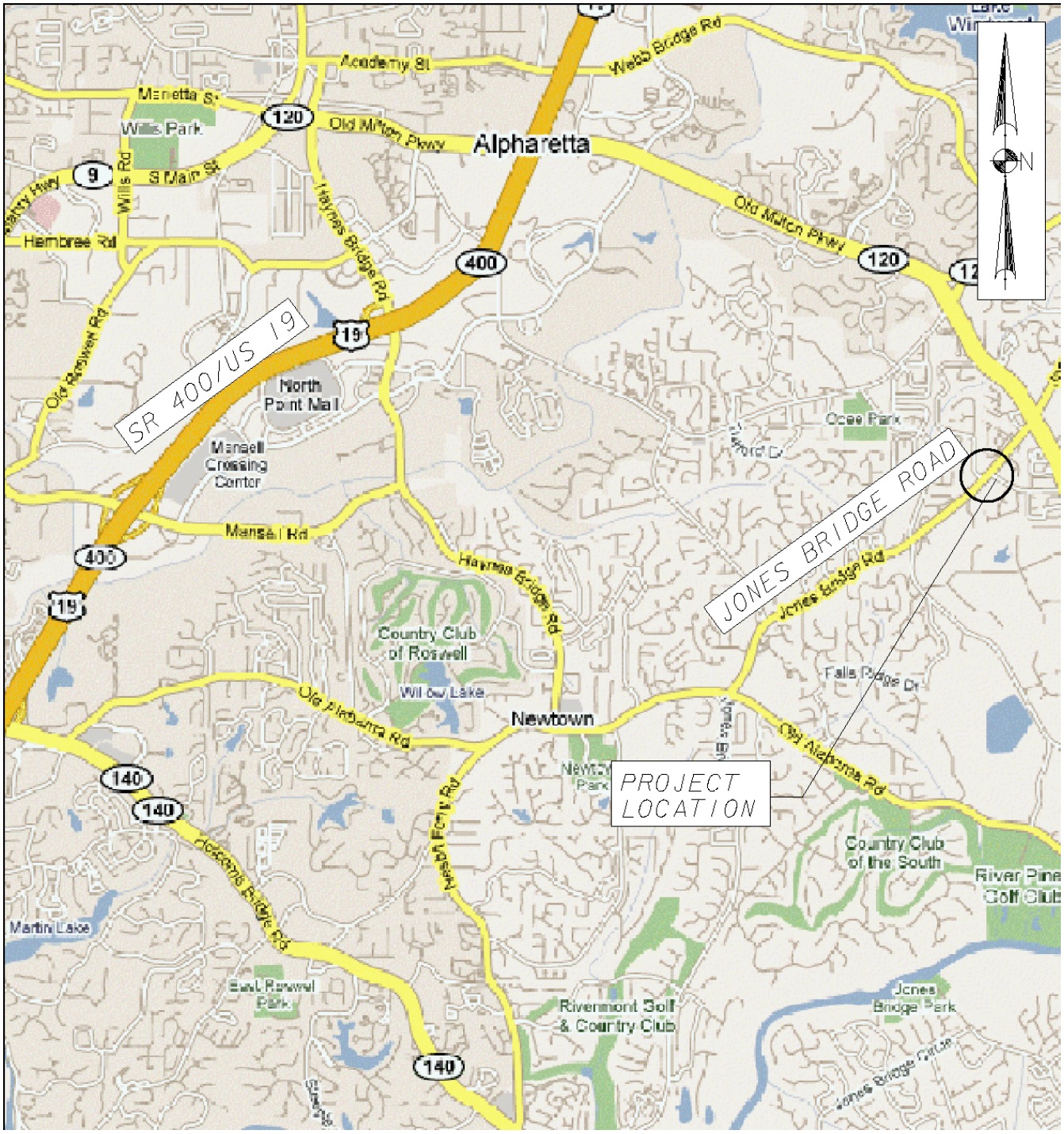
DWM 10/08

PROJECT LOCATION MAP



Project: CSSTP-0006-00(907) Fulton County **PI Number:** 0006907
Project Description: Jones Bridge Road at Morton Road
Intersection Improvement

PROJECT LOCATION MAP



Project: CSSTP-0006-00(907) Fulton County **PI Number:** 0006907
Project Description: Jones Bridge Road at Morton Road
Intersection Improvement

Need and Purpose:
Jones Bridge Road is a two-lane road with a posted speed limit of 45 mph. Jones Bridge Road runs in a north-south direction from McGinnis Ferry Road on the north to Old Alabama Road on the south. The area is residential in the vicinity of the intersection.

Morton Road is a two-lane road with a posted speed limit of 35 mph. Morton Road is stop controlled at the intersection of Jones Bridge Road. Morton Road runs in an east-west direction and is used as a cut-through between Jones Bridge Road and State Bridge Road.

- Jones Bridge Road is an Urban Minor Arterial
- Morton Road is a Collector

This intersection was originally evaluated by Fulton County due to its poor level of service and increasing delays. With its establishment, The City of Johns Creek decided to continue the project by conducting a traffic study and preparing concept layouts for this intersection in order to determine the best course of action. The purpose of the proposed project is to improve the operation of the Jones Bridge Road and Morton Road intersection in the City of Johns Creek, Fulton County, Georgia.

The Average Daily Traffic (ADT) on Jones Bridge Road at this intersection is approximately 17,904 vehicles in the build year (2011) and is projected to increase to approximately 27,916 vehicles by the design year (2031).

The study intersection was initially evaluated with a no build option. This analysis demonstrated what level of service the intersection would operate at in the Build Year (2011) and Design Year (2031) if the existing facility were to remain unchanged. The table below contains the results of capacity analysis of projected volumes for the intersection in the Build and Design Years.

Table 1 – Capacity Analysis Results, No-Build

Intersection	Movement	2011		2031	
		AM Peak	PM Peak	AM Peak	PM Peak
Jones Bridge Road @ Morton Road	NBT/R	A (0.0)	A (0.0)	A (0.0)	A (0.0)
	SBL/T	A (2.5)	A (7.5)	C (16.8)	F (252.8)
	WBL/R	F (764.4)	F (*)	F (*)	F (*)

* = Cannot be calculated due to excessive delay

As shown in Table 1 above, the Morton Road approach operates at an unacceptable LOS in both the Build and Design Year during both AM and PM Peak hours.

Table 2 – Capacity Analysis Results, Build

Intersection	2011 Basic		Basic Failure Year*		2031 Basic		2031 Ultimate	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Jones Bridge Road @ Morton Road	B (13.5)	B (15.2)	2034	2030	D (43.7)	E (65.8)	B (12.0)	B (12.9)

* = Failure based on >LOS D

The critical movements at the intersection are the turn movements off of Morton Road. The proposed project will add a proposed signal with turn lanes to improve these movements and the operation of the intersection in order to maintain a LOS D for the intersection until the year 2030. The improvements required to maintain a LOS D through the design year (2031) would include providing a four lane divided section on Jones Bridge Road which is outside the scope of this project.

Accident data for this intersection for the years 2004 through 2007 are shown in Table 3.

Table 3 – Accident Data

Year	Accident			Injuries			Fatalities		
	Total	Project Rate	Statewide Avg.	Total	Project Rate	Statewide Avg.	Total	Project Rate	Statewide Avg.
2004	13	556	490	5	214	123	0	0	1.41
2005	3	119	534	1	40	135	0	0	1.56
2006	4	183	531	1	46	132	0	0	1.51
2007	4	N/A	N/A	2	N/A	N/A	0	N/A	N/A

It is anticipated that, without the proposed operational improvements, accident rates at this intersection could increase due to increased traffic volumes.

Description of the proposed project:
Project CSSTP-0006-00(907) located in the City of Johns Creek, Fulton County, GA is proposed to improve the existing intersection at Jones Bridge Road and Morton Road. This project includes adding a 300' left and a 200' right turn lane on Jones Bridge Road at Morton Road and a 150' right turn lane on Morton Road. The project also includes adding a 235' left and 100' right turn lane on Jones Bridge Road at Indian Village Drive to help facilitate turning movements at this intersection. 5' sidewalks will be added to the north side of Jones Bridge Road and on both sides of Morton Road. A 10' multi-use trail will be added on the south side of Jones Bridge Road as per the City of Johns Creek's Multi-Use Trail Plan. A new traffic signal is warranted and will be constructed at this intersection as part of this project.

Project Length: 0.33 miles (Jones Bridge Road)
0.09 miles (Morton Road)

Is the project located in a Non-attainment area? ___X___**Yes** _____N**o**
The project includes adding left and right turn lanes and a new traffic signal. This project will improve the operation at the intersection and will not add capacity.
This project conforms to the ARC's TIP (FN-196)

PDP Classification: Major_____ Minor ____X_____

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

Functional Classification:

Jones Bridge Road: Urban Minor Arterial
Morton Road: Collector

U. S. Route Number(s): N/A **State Route Number(s):** N/A

Traffic (AADT): Current Year: (2011) 17,904 Design Year: (2031) 27,916

Existing Design Features:

- Typical Section:

  Jones Bridge Road – 2-12' lanes with 4'-10' grass shoulders

- Posted speed 45 mph Minimum radius for curve: 3,364 ft
- Maximum super-elevation rate for curve: 4 %
- Maximum grade: 4 %
- Width of right-of-way: 60'-70'
- Major structures: N/A
- Major interchanges or intersections along the project: Jones Bridge Road at Morton Road
- Existing length of roadway segment: Jones Bridge Road (0.17 miles)

  Morton Road - 2-12' lanes with 4'-10' grass shoulders

- Posted speed 35 mph Minimum radius for curve: 4,522 ft
- Maximum super-elevation rate for curve: 4%
- Maximum grade: 9 %
- Width of right-of-way: 60'
- Major structures: N/A
- Major interchanges or intersections along the project: Morton Road at Jones Bridge Road
- Existing length of roadway segment: Morton Road (0.09 miles)

Proposed Design Features:

- Proposed typical section(s):
  Jones Bridge Road - Urban Section consisting of 2-12' lanes and left and right turn lanes with 16' to 20' shoulders consisting of curb and gutter and a 5' sidewalk with a 2' grass strip on the north side of the road and a 10' sidewalk/multi-use trail with a 2.5' grass strip on the south side of the road.

  Morton Road – Urban Section consisting of 2-12' lanes and a right turn lane with 10' shoulders consisting of curb and gutter and 5' sidewalks with a 2' grass strip

- Proposed Design Speed Mainline 45 mph
- Proposed Maximum grade Mainline 4 % Maximum grade allowable 6 %
- Proposed Maximum grade Side Street 9 % Maximum grade allowable 10%
- Proposed Maximum grade driveway Residential 15% , Commercial 11%
- Proposed Minimium radius of curve 3,364' Minimum radius allowable 711'
- Right-of-Way
  - Width 60'-80'
  - Easements: Temporary (X), Permanent (X), Utility ( ), Other ( ).
  - Type of access control: Full ( ), Partial ( ), By Permit (X), Other ( ).
  - Number of parcels: 11 Number of displacements: 0
    - Business: 0
    - Residences: 0
    - Mobile homes: 0
    - Other: 0
- Structures:
  - Retaining walls: None Anticipated
- Major intersections and interchanges: Jones Bridge Road at Morton Road
- Traffic control during construction: Maintain traffic on existing alignment
- Design Exceptions to controlling criteria anticipated:

	UNDETERMINED	YES	NO
HORIZONTAL ALIGNMENT:	( )	( )	(X)
ROADWAY WIDTH:	( )	( )	(X)
SHOULDER WIDTH:	( )	( )	(X)
VERTICAL GRADES:	( )	( )	(X)
CROSS SLOPES:	( )	( )	(X)
STOPPING SIGHT DISTANCE:	( )	( )	(X)
SUPERELEVATION RATES:	( )	( )	(X)
HORIZONTAL CLEARANCE:	( )	( )	(X)
SPEED DESIGN:	( )	( )	(X)
VERTICAL CLEARANCE:	( )	( )	(X)
BRIDGE WIDTH:	( )	( )	(X)
BRIDGE STRUCTURAL CAPACITY:	( )	( )	(X)

- Design Variances: None Anticipated
- Environmental issues: None Anticipated
- Level of environmental analysis: CE
  - Are Time Savings Procedures appropriate? Yes (X), No ( )
  - Categorical Exclusion (X)
  - Environmental Assessment/Finding of No Significant Impact (FONSI) ( )
  - Environmental Impact Statement (EIS) ( ).

- Utility involvements:
  - Atlanta Gas/Light
  - at&t
  - Suwanee EMC
  - Georgia Power
  - Comcast
  - Fulton County Water & Sewer

VE Study Required Yes( ) No(X)

Project responsibilities:

- Design: City of Johns Creek/Wolverton & Associates
- Right of Way Acquisition: City of Johns Creek
- Relocation of Utilities: City of Johns Creek/utility companies
- Letting to contract: City of Johns Creek
- Supervision of construction: City of Johns Creek
- Providing material pits: Contractor
- Providing detours: N/A (no offsite detours required)

Coordination

- Initial concept meeting: 5/28/08 (minutes attached)
- Concept Meeting: 9/24/08 (minutes attached)
- P. A. R.: N/A
- FEMA, USCG, and/or TVA: N/A
- Public Involvement: PIOH required (Date and location to be determined)
- Agency Coordination: N/A
- Railroads: N/A
- Local government comments: none
- Other projects in the area:
  - Jones Bridge Road at Buice Road Intersection Improvement, Project # CSSTP-0006-00(910)
  - Jones Bridge Road at Waters Road Intersection Improvement, Project # CSSTP-0006-00(908)

Scheduling – Responsible Parties' Estimate:

- Time to complete the environmental process: 9 months
- Time to complete preliminary construction plans: 6 months
- Time to complete right of way plans: 4 months
- Time to complete the Section 404 Permit: N/A
- Time to complete final construction plans: 4 months
- Time to complete the purchase of right of way: 12 months
- Time to complete the EIS reevaluation: N/A

Other alternates considered:

- Alternative 1 – No Build - This alternative was not chosen because it did not meet the projects need and purpose.
- Alternative 2 – Roundabout – Based on the guidance provided by GDOT in TOPPS 4A-2, a one lane roundabout should not be considered when the ADT of the roadway is greater than 20,000 veh/day. Jones Bridge Road will have an ADT of 17,904 veh/day in the build year and an ADT of 27,916 by the design year. A roundabout was also studied based on research from the USDOT study; Roundabouts: An Informational Guide (FHA Publication No.FHWA-RD-00-067) and based on this information a one lane roundabout can be analyzed using its volume to capacity ratio. According to this study, roundabouts should not be designed to handle any more than 85% of its capacity. As shown in the Traffic Report for this project the alternative was not chosen because the projected volumes exceeded a single lane roundabouts capacity.
- Alternative 3 – Four Lane Jones Bridge Road - This alternative would require two through lanes in each direction on Jones Bridge Road through the intersection with Morton Road. This alternative was not chosen because these improvements were outside the scope of this project.

Attachments:

1. Cost Estimates
    a. Construction (including E&C)
    b. Right of Way
    c. Utilities
2. Typical sections
3. Traffic Study
4. Location and Design Notice
5. Concept drawing
6. Meeting minutes
7. B/C Ratio

ATTACHMENTS

Summary of Costs

Project P.I. No.0006907

Subtotal Construction Cost		$873,345.71
• Engineering & Inspection	5%	$43,667.28
• Construction Contingency	5%	$45,850.65
• Total Fuel Adjustment		$25,631.69
• Total Liquid AC Adjustment		$70,201.77
Total Construction Cost		**$1,058,697.10**
• Right-of-Way -- LOCAL		$706,689.10
• Reimbursable Utilities -- LOCAL		$2,500.00
Total Project Cost		**$1,767,886.20**

Estimate Report for file "0006907"

Section Roadway

Item Number	Quantity	Units	Unit Price	Item Description	Cost
150-1000	1	LS	80000.00	TRAFFIC CONTROL -	80000.00
210-0100	1	LS	55000.00	GRADING COMPLETE -	55000.00
310-1101	1640	TN	19.18	GR AGGR BASE CRS, INCL MATL	31455.20
318-3000	60	TN	22.93	AGGR SURF CRS	1375.80
402-1812	1190	TN	67.28	RECYCLED ASPH CONC LEVELING, INCL BITUM MATL & H LIME	80063.20
402-3121	490	TN	61.08	RECYCLED ASPH CONC 25 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME	29929.20
402-3130	640	TN	62.19	RECYCLED ASPH CONC 12.5 MM SUPERPAVE, GP 2 ONLY, INCL BITUM MATL & H LIME	39801.60
402-3190	250	TN	58.76	RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2,INCL BITUM MATL & H LIME	14690.00
413-1000	350	GL	1.99	BITUM TACK COAT	696.50
441-0016	160	SY	39.25	DRIVEWAY CONCRETE, 6 IN TK	6280.00
441-0104	3360	SY	34.43	CONC SIDEWALK, 4 IN	115684.80
441-0740	30	SY	34.63	CONCRETE MEDIAN, 4 IN	1038.90
441-6216	3830	LF	11.46	CONC CURB & GUTTER, 8 IN X 24 IN, TP 2	43891.80
446-1100	2800	LF	1.99	PVMT REINF FABRIC STRIPS, TP 2, 18 INCH WIDTH	5572.00
500-9999	31	CY	221.45	CLASS B CONC, BASE OR PVMT WIDENING	6864.95
550-1180	2150	LF	39.94	STORM DRAIN PIPE, 18 IN, H 1-10	85871.00
550-1240	600	LF	43.48	STORM DRAIN PIPE, 24 IN, H 1-10	26088.00
603-2181	50	SY	33.11	STN DUMPED RIP RAP, TP 3, 18 IN	1655.50
603-7000	50	SY	5.31	PLASTIC FILTER FABRIC	265.50
634-1200	10	EA	105.16	RIGHT OF WAY MARKERS	1051.60
668-1100	11	EA	2613.36	CATCH BASIN, GP 1	28746.96
668-2100	1	EA	2461.40	DROP INLET, GP 1	2461.40
668-4300	2	EA	2394.06	STORM SEWER MANHOLE, TP 1	4788.12
				Section Sub Total:	**$663,272.03**

Section Erosion Control

Item Number	Quantity	Units	Unit Price	Item Description	Cost
1	1	Lump Sum	25000.00	Erosion Control	25000.00
				Section Sub Total:	**$25,000.00**

Section Signing and Marking and Signal

Item Number	Quantity	Units	Unit Price	Item Description	Cost
2	1	Lump Sum	30000.00	Signing and Marking	30000.00
3	1	Lump Sum	25000.00	SIGNAL INTERCONNECT	25000.00
639-4014	4	EA	7518.42	STRAIN POLE, TP IV, INCL LUMINAIRE ARM	30073.68
647-1000	1	LS	100000.00	TRAFFIC SIGNAL INSTALLATION NO -	100000.00
				Section Sub Total:	**$185,073.68**

Total Estimated Cost: $873,345.71

CITY OF JOHNS CREEK
GEORGIA

To: Clyde Cunningham, District Seven Utilities

From: Kevin Dye, Right-of-way/Utility Coordinator

Date: October 6, 2008

Subject: Jones Bridge at Morton Rd., P.I. # 0006907, CSSTP-0006-00(907)
Preliminary Utility Cost Estimates

This is an intersection improvement project located within the City of Johns Creek, Fulton County. The design includes adding a 300' left and 200' right turn lane on Jones Bridge Rd. and adding a 150' right turn on Morton Rd. Utilities in the immediate area along with their estimated cost for relocations are as follows:

AGL	$0.00 (franchise agreement)
AT&T	$0.00 (franchise agreement)
Comcast	$0.00 (franchise agreement)
Fulton Water and Sewer	$2,500.00
Sawnee EMC	$0.00 (franchise agreement)
TOTAL	**$2,500.00**

Please contact me at 678-512-3254 if you have any questions concerning this estimate

Cc: Project File
Mac Cranford, GDOT District 7
Chris Haggard, Wolverton and Assoc.

12000 Findley Road, Suite 400, Johns Creek, GA 30097-1412 • Tel: 678.512.3200 Fax: 678.512.3199

Department of Transportation
State of Georgia

Interdepartmental Correspondence

FILE	Preliminary R/W Cost Estimate	**OFFICE**	R/W
		DATE	October 17, 2008
FROM	Phil Copeland, Right of Way Administrator		
TO	City of Johns Creek Attention: Kevin Dye		

SUBJECT **Preliminary Right of Way Cost Estimate**
Project:CSSTP-0006-00(907)
P.I. No.:006907
Description: Jones Bridge Road @ Morton Rd. Intersection Improvement

Per your request, we have reviewed the Preliminary Right of Way Cost Estimate on the above referenced project.

Please note the Cost Estimate does conform to our current guidelines.

If you have any questions, please contact Jerry Milligan at District 7 Right of Way Office at (770) 986-1541.

PC:GAM
Attachments
Cc: File

RECEIVED
OCT 20 2008
CITY OF JOHNS CREEK
PUBLIC WORKS DEPT.

Preliminary Right of Way Cost Estimate

Date: 10-16-08
Project: CSSTP-0006-00(907) **P.I. Number:** 006907
Existing/Required R/W: Variable/Variable **No. Parcels:** 11
Project Termini: 180' SW of Jones Bridge Rd. at Wynbridge Dr. to 565' NE of Jones Bridge Rd. at Morton Rd.
Project Description: Jones Bridge Rd. at Morton Rd. Intersection Improvements

Land:

Commercial					
7,102	s.f	@ $10.33	/s.f. =	$73,363.66	
Residential					
4,628	s.f	@ $8.03	/s.f. =	$37,162.84	
Commercial Easements (temporary)					
37,633	s.f	@ $1.03	/s.f. =	$38,761.99	
Residential Easements					
19,271	s.f	@ $0.80	/s.f. =	$15,416.80	
TOTAL					$164,705.29

Improvements: signs, fencing, landscaping $120,250.00

Relocation:

Commercial	@ $25,000/parcel	=	$ N/A
Residential	@ $40,000/parcel	=	$ N/A
TOTAL			$0.00

Damages: Proximity	$ N/A	
Consequential	$ N/A	
Cost to Cure	$ N/A	
TOTAL		$0.00

SUB-TOTAL: $284,955.29

Net Cost		$284,955.29
Scheduling Contingency	55 %	$156,725.40
Adm/Court Cost	60 %	$265,008.41
TOTAL		$706,689.10

Total Cost $706,689.10

Prepared By: Kevin Dye
R/W Coordinator(City of Johns Creek)

Reviewed / Approved: Howard P. Copeland
R/W Administrator

Note: Accuracy of estimate is the sole responsibility of the Preparer.
Note: The Market Appreciation(40%) is not included is this Preliminary Cost Estimate.

REVISED: 2-8-08

Date 1/29/2009

P.I. Number *0006907 County Fulton

Project Number CSSTP-0006-00(907)

Special Provision, Section 109-Measurement and Payment

FUEL PRICE ADJUSTMENT (*ENGLISH 125% MAX)*

ENTER FPL DIESEL	2.373
ENTER FPM DIESEL	5.339

ENTER FPL UNLEADED	1.566
ENTER FPM UNLEADED	3.5235

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

INCREASE ADJUSTMENT
125.00%

INCREASE ADJUSTMENT
125.00%

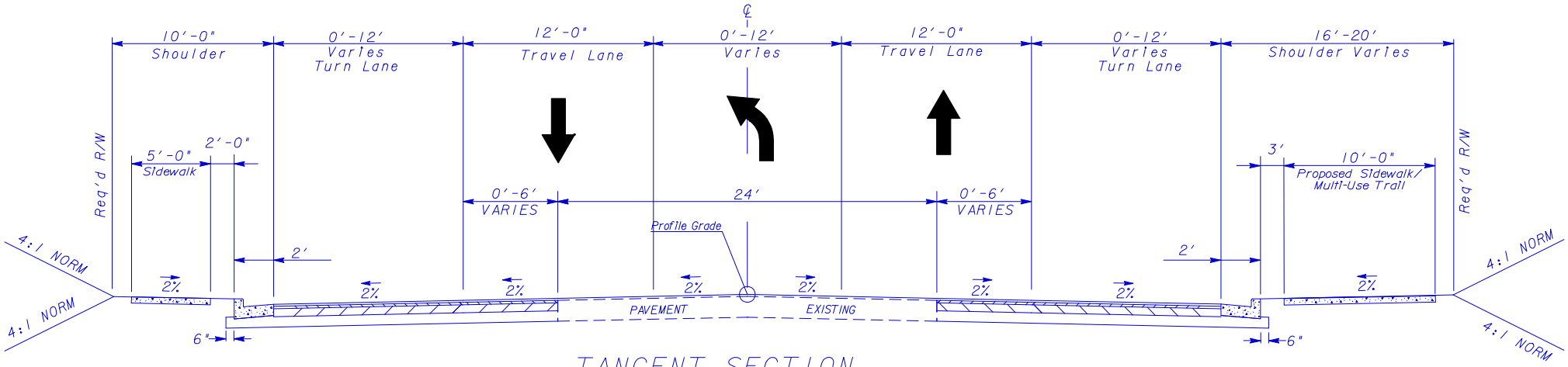
ROADWAY ITEMS	QUANTITY	DIESEL FACTOR	GALLONS DIESEL	UNLEADED FACTOR	GALLONS UNLEADED	REMARKS
Excavations paid as specified by Sections 205 **(CUBIC YARD)**		0.29		0.15		
Excavations paid as specified by Sections 206 **(CUBIC YARD)**		0.29		0.15		
GAB paid as specified by the ton under Section 310 **(TON)**	1640.000	0.29	475.60	0.24	393.60	
Hot Mix Asphalt paid as specified by the ton under Sections 400 **(TON)**		2.90		0.71		
Hot Mix Asphalt paid as specified by the ton under Sections 402 **(TON)**	2570.000	2.90	7453.00	0.71	1824.70	
PCC Pavement paid as specified by the square yard under Section 430 **(SY)**		0.25		0.20		

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

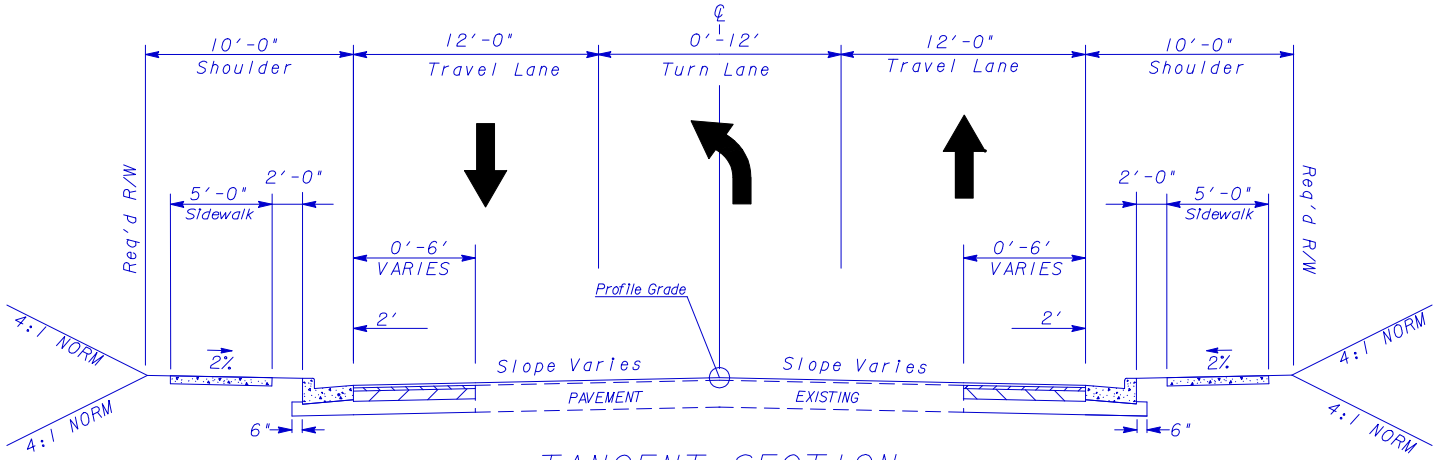
BRIDGE ITEMS	Quantity	Unit Price	QF/1000	Diesel Factor	Gallons Diesel	Unleaded Factor	Gallons Unleaded	REMARKS
Stru Steel Plan Quantity (LB) Section 501				8.00		1.50		
Stru Steel Plan Quantity (LB) Section 501				8.00		1.50		
PSC Beams_____ (LF) Section 507				8.00		1.50		
PSC Beams_____ (LF) Section 507				8.00		1.50		
PSC Beams_____ (LF) Section 507				8.00		1.50		
Stru Reinf Plan Quantity(LB) Section 511				8.00		1.50		
Stru Reinf Plan Quantity(LB) Section 511				8.00		1.50		
Bar Reinf Steel (LB) Section 511				8.00		1.50		
Piling___inch (LF) Section 520				8.00		1.50		
Piling___inch (LF) Section 520				8.00		1.50		
Piling___inch (LF) Section 520				8.00		1.50		
Piling___inch (LF) Section 520				8.00		1.50		
Piling___inch (LF) Section 520				8.00		1.50		
Piling___inch (LF) Section 520				8.00		1.50		
Drilled Caisson,___ (LF) Section 524				8.00		1.50		
Drilled Caisson,___ (LF) Section 524				8.00		1.50		
Drilled Caisson,___ (LF) Section 524				8.00		1.50		
Pile Encasement,___(LF) Section 547				8.00		1.50		
Pile Encasement,___(LF) Section 547				8.00		1.50		

SUM QF DIESEL=	7928.60	SUM QF UNLEADED=	2218.30

DIESEL PRICE ADJUSTMENT($)	$21,636.75
UNLEADED PRICE ADJUSTMENT($)	$3,994.94



TANGENT SECTION
OVERLAY & WIDENING
JONES BRIDGE ROAD



TANGENT SECTION
OVERLAY & WIDENING
MORTON ROAD

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TRAFFIC ENGINEERING REPORT
FOR
PROPOSED ROADWAY IMPROVEMENTS

JONES BRIDGE ROAD @ MORTON ROAD

CITY OF JOHNS CREEK, FULTON COUNTY, GA

Prepared for the
City of Johns Creek

W&A Project No. 08-909
May 13, 2008

WOLVERTON & ASSOCIATES, INC.
6745 SUGARLOAF PARKWAY
SUITE 100
DULUTH, GA 30097
(770) 447-8999 PHONE
(770) 447-9070 FAX
www.wolverton-assoc.com

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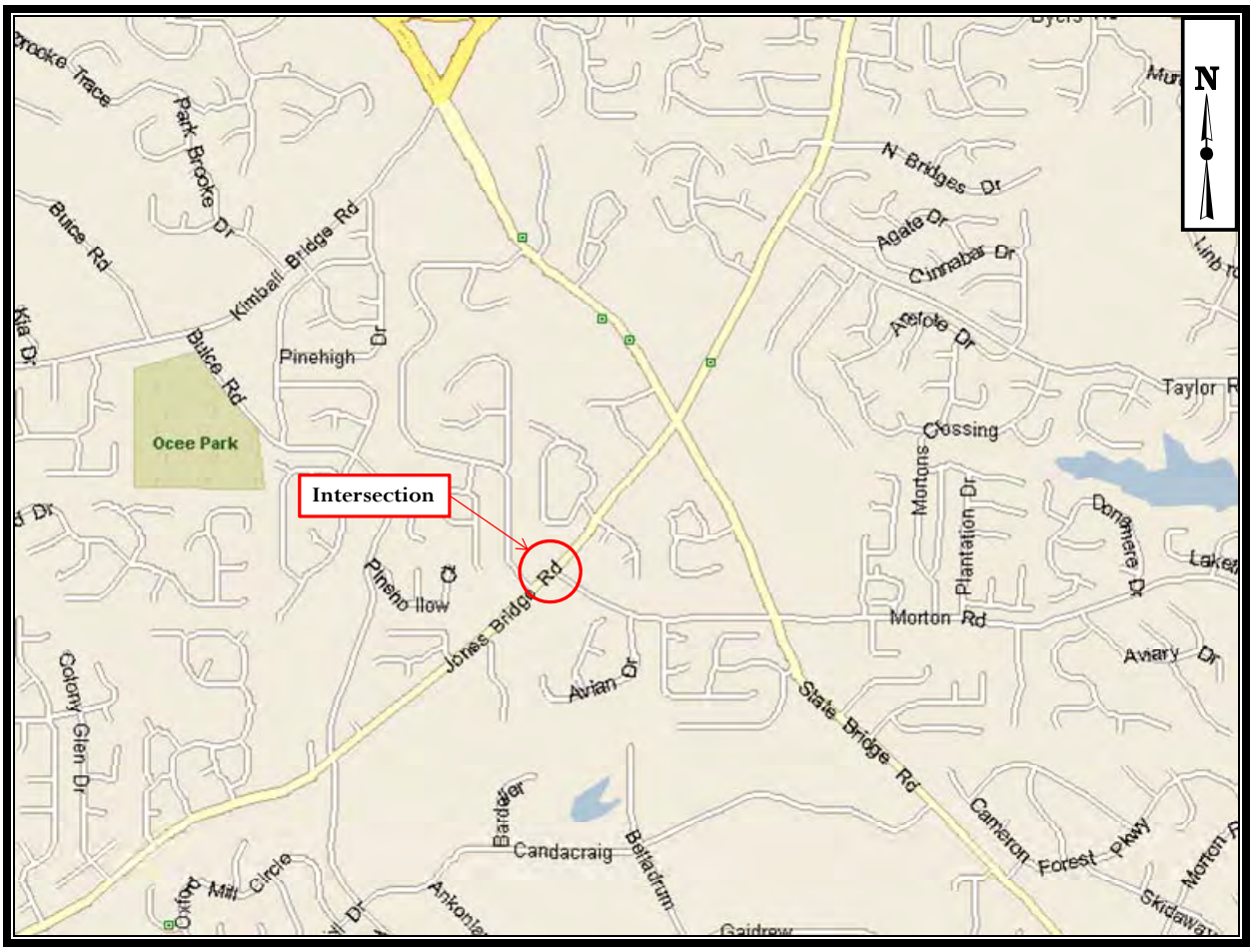
1. INTRODUCTION

JONES BRIDGE @ MORTON TRAFFIC ENGINEERING REPORT

The purpose of this report is to analyze the intersection of Jones Bridge Road @ Morton Road in the City of Johns Creek, Fulton County, GA. A capacity analysis and accident analysis will be done for this intersection. Figure 1 illustrates the project location.

Figure 1 – Project Location Map



Methodology

A growth rate was established to project traffic from existing conditions out to Build (2011) and Design (2031) Year volumes. Then capacity analysis was conducted to show how the intersection will function in the Build and Design Years. A traffic signal warrant analysis will then be done to determine if a signal is warranted at the intersection.

2. EXISTING CONDITIONS

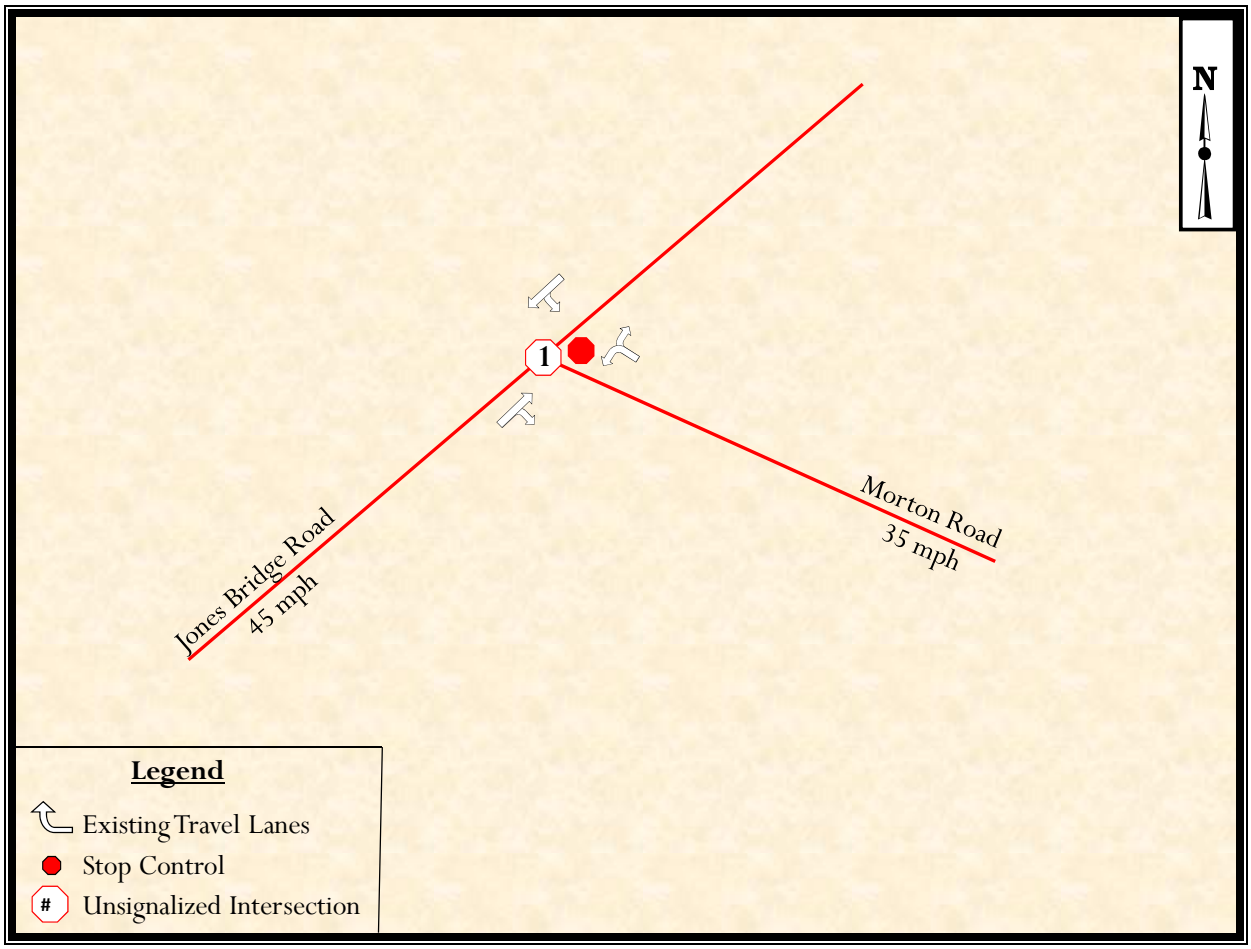
JONES BRIDGE @ MORTON TRAFFIC ENGINEERING REPORT

Jones Bridge Road is a two-lane road with a posted speed limit of 45 mph. Jones Bridge Road runs in a north-south direction from Old Alabama Road on the south to McGinnis Ferry Road on the North. In the vicinity of the intersection, the area is residential.

Morton Road is a two-lane road with a posted speed limit of 35 mph. Morton Road is stop controlled at the intersection of Jones Bridge Road. Morton Road runs in and east-west direction and is used as a cut-through to travel from Jones Bridge Road to State Bridge Road.

Figure 2 shows the existing intersection geometry and traffic control. Pictures of the project vicinity are contained in Appendix A on the CD. For the purposes of this study, Jones Bridge Road will be considered north-south.

Figure 2 – Existing Lane Geometry



3. TRAFFIC DATA

JONES BRIDGE @ MORTON TRAFFIC ENGINEERING REPORT

Turning movement counts (TMCs) were collected on March 26, 2008, at the study intersection and 24-hr approach counts were also collected on March 26, 2008. The existing peak volumes are illustrated in Figure 3. The TMCs and 24-hr approach counts are provided in Appendix B on the CD.

Projected Traffic Volumes

The build and design years for this project are 2011 and 2031, respectively. A growth rate of 1.95% was determined utilizing an average of 10 years of historical traffic data on Jones Bridge Road from the Georgia Department of Transportation website. Historical traffic data can be found in Appendix C on the CD. Figures 4 and 5 show the projected traffic volumes for the Build (2011) and Design (2031) years, respectively.

Average Daily Traffic (ADT) values were determined from the 24-hr approach counts for the intersection. Using the 24-hr count data, 'K' and 'D' factors were calculated. The 'K' factor is the proportion of daily traffic occurring during the peak hour. The 'D' factor or directional factor is the percentage split of traffic traveling in either direction during a particular time of day. The TMCs were converted to ADT volumes, using a calculated 9.4% 'K' factor and calculated 'D' factor at each movement. The 1.95% per year growth rate was applied to the ADTs in order to estimate the 2011 ADTs. The 1.95% per year growth rate was applied to the 2011 ADTs to estimate the 2031 ADTs.

A diagram illustrating the 2008, 2011, and 2031 ADT's can be found in Appendix D on the CD.

Figure 3 – Existing Traffic Volumes

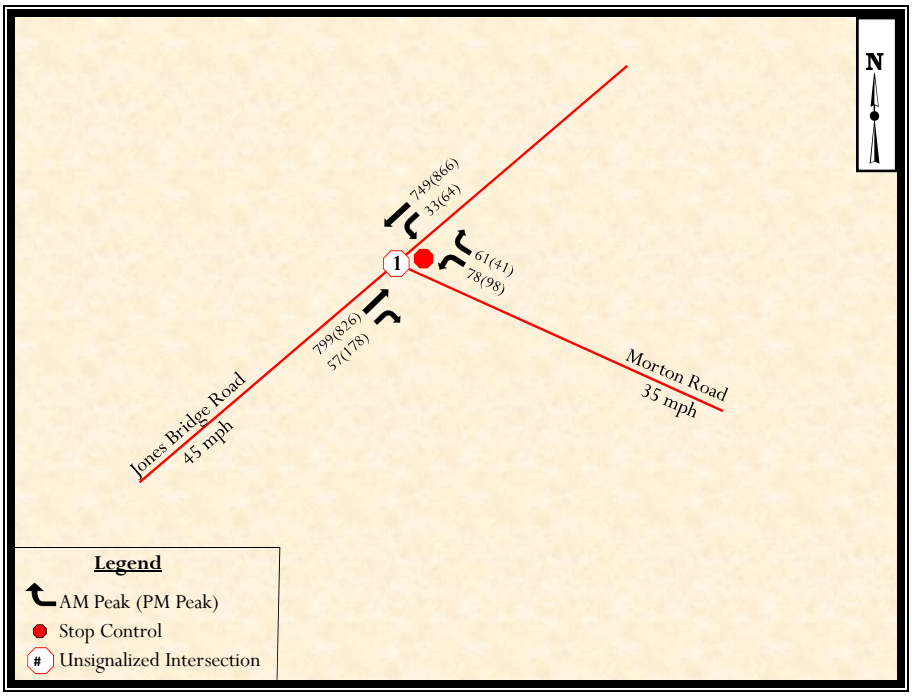


Figure 4 – Build Year (2011) Traffic Volumes

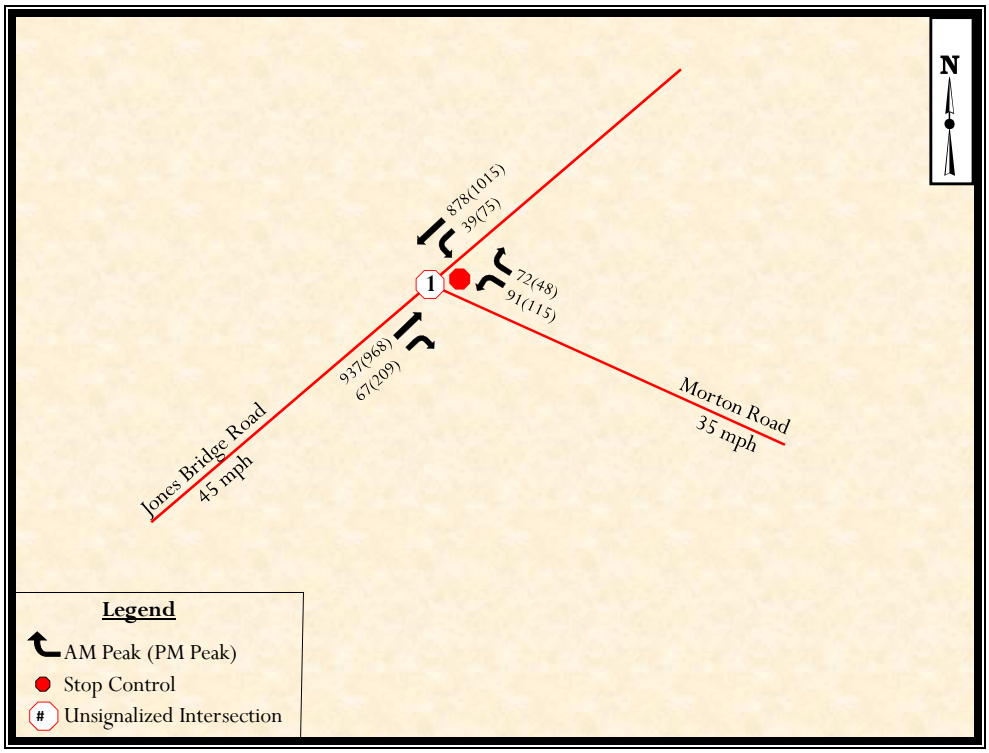
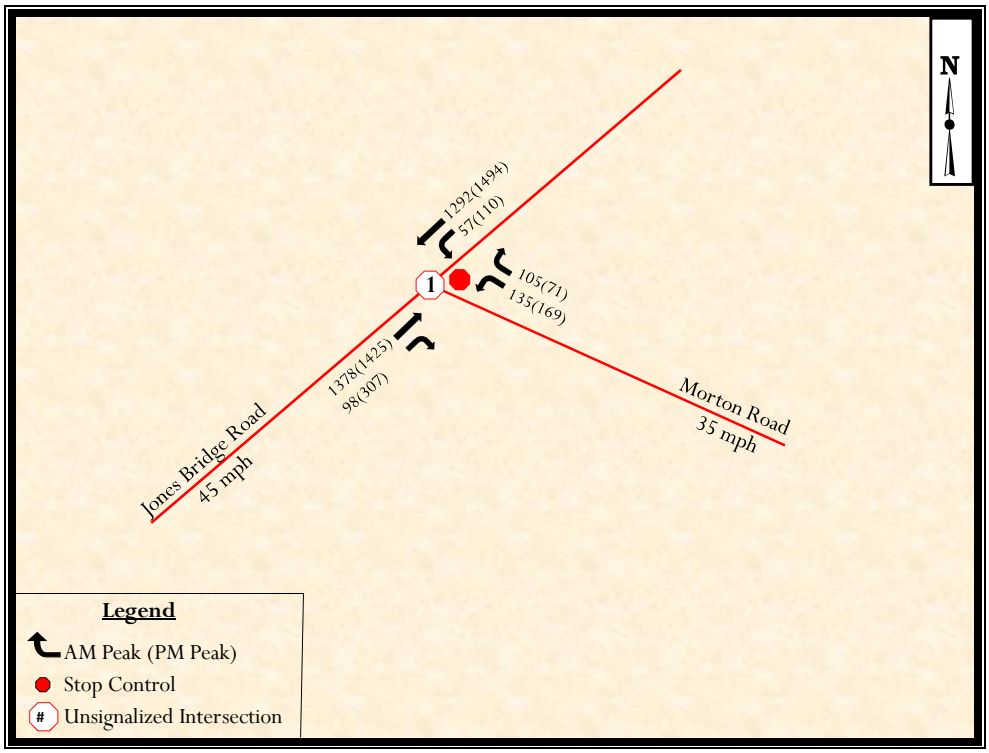


Figure 5 – Design Year (2031) Traffic Volumes



4. DATA ANALYSIS

JONES BRIDGE @ MORTON TRAFFIC ENGINEERING REPORT

Capacity

Capacity analysis was used to evaluate the projected volumes at the study intersection. This process was used to define geometry and traffic control needed to result in acceptable levels of service for the projected conditions.

The *Synchro Program* was used to conduct capacity analysis. *Synchro* implements the capacity methods of the *Highway Capacity Manual* (HCM) [1] for performing the industry standard evaluation of intersection performance. The delays used in the reports follow the procedure as recommended by the HCM.

The Highway Capacity Manual defines level of service (LOS) in terms of the amount of control delay. Control delay includes initial deceleration delay, queue move-up time, stopped delay and final acceleration delay.

The levels of service definitions for both stop controlled and signal controlled intersections are provided in Table 1.

Table 1 – Level of Service Criteria

LEVEL OF SERVICE	CONTROL DELAY PER VEHICLE (SEC)	
	WITH STOP-SIGN CONTROL	WITH SIGNAL CONTROL
A	≤ 10	≤ 10
B	> 10 and ≤ 15	> 10 and ≤ 20
C	> 15 and ≤ 25	> 20 and ≤ 35
D	> 25 and ≤ 35	> 35 and ≤ 55
E	> 35 and ≤ 50	> 55 and ≤ 80
F	> 50	> 80

Source: Highway Capacity Manual

The GDOT has ranges of acceptable Levels of Service based on the area. Rural, sparsely developed areas have a minimum LOS requirement of C. This is due to the expectancy of rural residents for relatively un-congested conditions and design flexibility related to lower right of way costs of impacts. The minimum LOS for urban areas is D. This reflects the greater acceptance of delay and congestion by urban residents. Additionally, the increased density of developments makes right of way costs much higher in urban areas. The project corridor is urban in nature and has a minimum LOS requirement of D.

Capacity Analysis Results

No Build

The study intersection was initially evaluated with a no build option. This analysis demonstrates what the level of service the intersection would operate at in the Years 2011 and 2031 if the existing facility were to remain unchanged. This establishes a baseline for comparing improvements.

Table 2 contains the results of capacity analysis of projected volumes for the intersection in the Build and Design Years. The values shown in parenthesis indicate the estimated delay in seconds per vehicle. Synchro printouts for the Build and Design Year no-build options are provided in Appendix E on the CD.

Table 2 – Capacity Analysis Results, No-Build

Intersection	Movement	2011		2031	
		AM Peak	PM Peak	AM Peak	PM Peak
Jones Bridge Road @ Morton Road	NBT/R	A (0.0)	A (0.0)	A (0.0)	A (0.0)
	SBL/T	A (2.5)	A (7.5)	C (16.8)	F (252.8)
	WBL/R	F (764.4)	F (*)	F (*)	F (*)

* = Cannot be calculated due to excessive delay

As shown in the table above, the intersection operates un-acceptably in both the Build and Design Years during both AM and PM Peak hours.

Build

The No-Build model was mitigated to function acceptably in the Design Year 2031. These improvements required Jones Bridge Road to be constructed as a 4-lane section instead of the current 2-lane section. This improvement will need to be completed along the entire corridor of Jones Bridge Road and is well outside the scope of this intersection improvement study. This design is considered the Ultimate option. At the direction of the City of John's Creek, a fiscally constrained option was also analyzed and recommendations given. This Basic option mitigates the No-Build model with improvements that the currently appropriated funds for the project can improve the intersection. Table 3 shows the Build and Design Year LOS for the Basic option, along with the Basic option failure year, and the Ultimate option Design Year 2031 LOS. Synchro printouts for the Build and Design Year Basic and Ultimate options are provided in Appendix F on the CD.

Table 3 – Capacity Analysis Results, Build

Intersection	2011 Basic		Basic Failure Year*		2031 Basic		2031 Ultimate	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Jones Bridge Road @ Morton Road	B (13.5)	B (15.2)	2034	2030	D (43.7)	E (65.8)	B (12.0)	B (12.9)

* = Failure based on >LOS D

Table 3 shows the levels of service on the study intersection of Jones Bridge Road @ Morton Road are acceptable for the Basic option until 2030, and are acceptable in the Design Year 2031 for the Ultimate option. Table 4 shows the queue lengths for the No Build and Build conditions in the Build and Design Years.

Another option that the City of John's Creek requested that we analyze was a roundabout at the intersection. A single lane roundabout is to have an ADT no higher than 20,000 vpd in the Build Year and a circulating flow no higher than 1200 vph in the Peak Hour based on the GDOT Transportation Online Policy & Procedure System (TOPPS) report 4A-2[3]. The intersection in the Build Year has an ADT of 20,050 vpd and a peak hour circulating flow of 2430 vph. These volumes exceed the GDOT thresholds for a single lane roundabout. A two-lane roundabout was also analyzed. Two-lane roundabouts require large sections of right-of-way (ROW) so that the radius is large enough to allow weaving between lanes within the roundabout. ROW impacts in this area would have many impacts on the surrounding area. Also, two-lane roundabouts have circulatory flow restrictions found in Exhibit 4-4 of the FHWA Publication Roundabouts: An Informational Guide No. FHWA-RD-00-067[4]. Also, according to this publication, roundabouts should never be designed to operate at more than 85 percent of their estimated capacity. In the Design Year, the highest entering approach is 1732 vph. According to Exhibit 4-4, with a maximum approach entry flow of 1700 vph, the maximum circulating flow can be approximately no more than 2700 vph. 85 percent of that number is 2295 vph. The Design Year peak circulating flow at this intersection is 3576 vph. A single or two-lane roundabout was not recommended for this intersection because the volumes exceed the accepted thresholds for installing roundabouts.

Table 4 – Queue Lengths

Intersection	Condition	Option	Movement	2011		2031	
				AM Peak	PM Peak	AM Peak	PM Peak
Jones Bridge Road @ Morton Road	No Build		NBT/R	0	0	0	0
			SBL/T	7	17	17	59
			WBL/R	502	*	*	*
	Build	Basic	NB	753	813	1899	1998
			NBR	16	30	28	73
			SBL	13	34	54	141
			SB	391	605	1214	1996
			WBL	94	114	235	324
			WBR	16	16	19	20
		Ultimate	NB	NA	NA	430	440
			NBR	NA	NA	21	30
			SBL	NA	NA	21	59
			SB	NA	NA	239	280
			WBL	NA	NA	126	162
			WBR	NA	NA	15	16

* = Cannot be calculated due to excessive delay

NA = Not Analyzed

5. TRAFFIC SIGNAL WARRANT ANALYSIS

JONES BRIDGE @ MORTON TRAFFIC ENGINEERING REPORT

The intersection Jones Bridge Road @ Morton Road is currently unsignalized. To mitigate the traffic in the Build and Design Year, a signal will need to be installed. A traffic signal warrant analysis must be done to determine if the traffic at the intersection warrants a signal.

The projected volumes of this intersection were evaluated using the guidelines given in the 2003 Edition of the *Manual on Uniform Traffic Control Devices (MUTCD* [5]. The MUTCD establishes the following Warrants:

- Warrant 1, Eight-Hour Vehicular Volume,
- Warrant 2, Four-Hour Vehicular Volume,
- Warrant 3, Peak Hour,
- Warrant 4, Pedestrian Volume,
- Warrant 5, School Crossing,
- Warrant 6, Coordinated Signal System,
- Warrant 7, Crash Experience,
- Warrant 8, Roadway Network.

Each of the applicable warrants will be addressed.

The MUTCD guidelines for warrant studies suggest that signals should not be installed unless one or more of the warrants are satisfied.

8th Highest Hour Volume

Signal warrant studies for existing intersections involves the collection of hourly traffic data using automated traffic recorders. However, this study is concerned with the analysis of projected conditions that will occur in the Design Year; therefore projections of the ADT Volumes were used. These volumes are contained in Appendix D on the CD.

Since the eight hour warrant is the most widely accepted of the signal warrants, it is necessary to estimate the eighth highest hour for use in the signal warrants analysis. If the eighth highest hour of the day meets the warrant then seven other hours will also meet the minimum volumes.

The *Manual of Traffic Signal Design* published by the Institute of Transportation Engineers, 1982, provides a section that discusses warrant analysis of new intersections. This same analysis can be used for existing intersections if major geometric changes will be occurring, as is the case in this corridor. This publication provides the assumption that the eighth highest hour volume is about 6.25 percent of the ADT.

The eighth highest hour volume for the intersection mentioned above was calculated using this assumption. These volumes for the Build Year (2011) and Design Year (2031) are shown in Table 5 and Table 6.

Table 5 – Year 2011 8th Highest Hour Volume

Major Street	Minor Street	2011 ADT		8th Highest Hour Volume	
		Major Street	Minor Street	Major Street	Minor Street
Jones Bridge Road	Morton Road	21600	2900	1350	181

Table 6 – Year 2031 8th Highest Hour Volume

Major Street	Minor Street	2031 ADT		8th Highest Hour Volume	
		Major Street	Minor Street	Major Street	Minor Street
Jones Bridge Road	Morton Road	31700	4200	1981	263

Based on the calculations provided in NCHRP Report 457, it was determined that a 0% reduction in right turn volumes is necessary at the intersection for both the Build and Design Years. Therefore, no right turn reduction will be accounted for in the traffic signal warrant. The NCHRP Report 457 for the right turn reduction in the Build and Design years can be found in Appendix G on the CD.

Warrant 1, Eight-Hour Vehicular Volume

The MUTCD gives minimum volumes required to meet the warrant. The traffic volume requirements of Warrant 1, Conditions A and B are hourly volumes that must be met for 8 hours of an average day. The required volume for the major street is the total approach volume (both directions). The required minor street volume is the heavier approach volume (one direction). If either Condition A or Condition B is met, then Warrant 1 is satisfied.

Table 7 provides a comparison of Build and Design Year projected volumes to the requirements of Warrant 1 for the intersection being analyzed for signal installation.

Table 7 – Warrant 1, Eight-Hour Vehicular Volume

2011	**8th Highest Hour Volume**		**Condition A - Met?**		**Condition B - Met?**	
Jones Bridge Road @	Major Street	Minor Street	Major Street (>350 vph)	Minor Street (>105 vph)	Major Street (>525 vph)	Minor Street (>53 vph)
Morton Road	1350	181	Yes	Yes	Yes	Yes

2031	**8th Highest Hour Volume**		**Condition A - Met?**		**Condition B - Met?**	
Jones Bridge Road @	Major Street	Minor Street	Major Street (>350 vph)	Minor Street (>105 vph)	Major Street (>525 vph)	Minor Street (>53 vph)
Morton Road	1981	263	Yes	Yes	Yes	Yes

Conditions A and B are met for the intersection in the Build and Design year. Therefore, **Warrant 1 is met for this intersection in the Build and Design Years**.

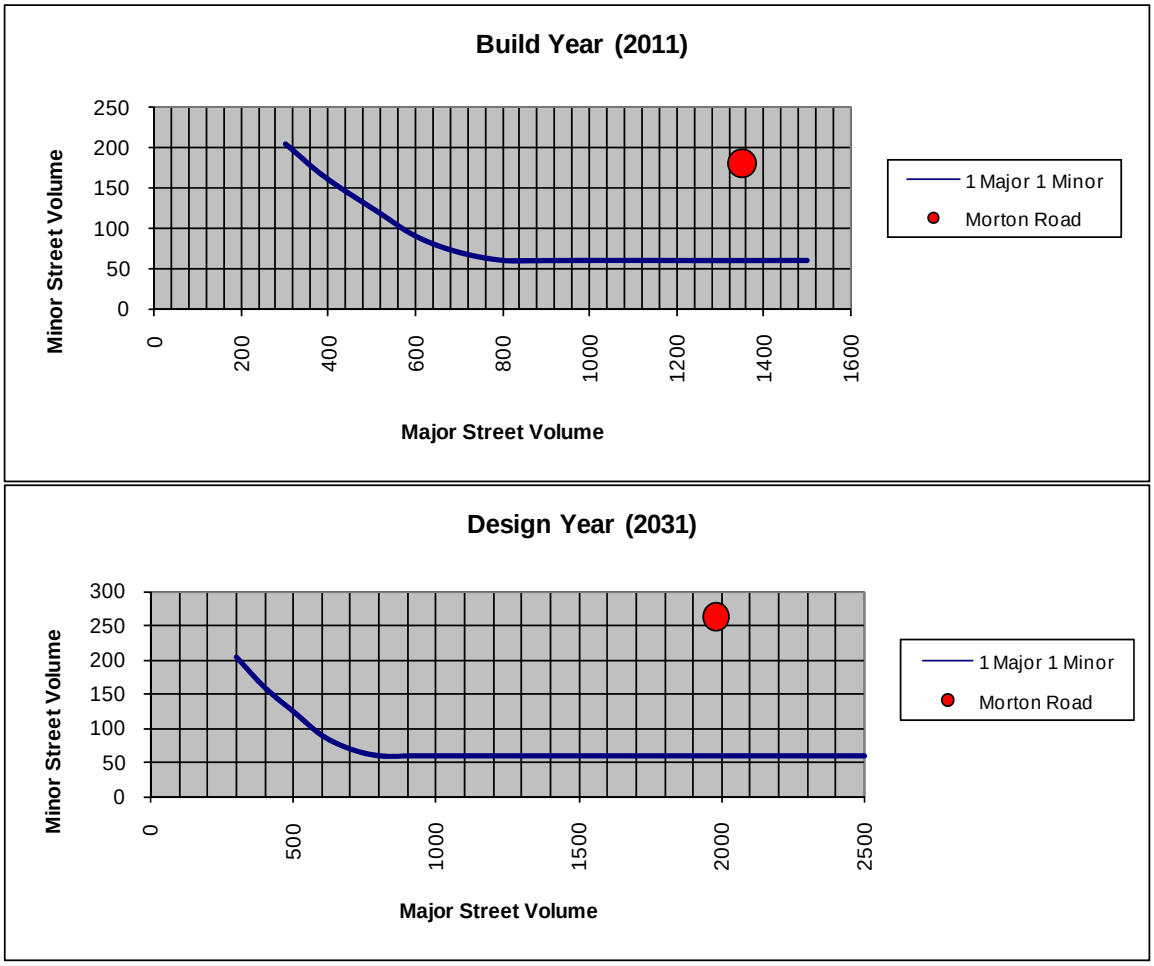
Using the same reasoning to analyze Warrant 1, Warrant 2 can be examined.

Warrant 2, Four-Hour Vehicular Volume

The MUTCD states: "Support: The Four-Hour Vehicular Volume signal warrant conditions are intended to be applied where the volume of intersecting traffic is the principal reason to consider installing a traffic control signal.

Standard: The need for a traffic control signal shall be considered if an engineering study finds that, for each of any 4 hours of an average day, the plotted points representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher-volume minor-street approach (one direction only) all fall above the applicable curve in Figure 4C-1 for the existing combination of approach lanes. On the minor street, the higher volume shall not be required to be on the same approach during each of these 4 hours."

Figure 6 – Warrant 2, Four-Hour Vehicular Volume



As shown in Figure 6, the volumes on Jones Bridge Road @ Morton Road are above the traffic signal warrant thresholds. Therefore, **Warrant 2 is met for this intersection in the Build and Design Years**.

Warrant 3, Peak Hour

There are no major generators that release traffic at certain times of the day (shift changes, etc.) in the area of this intersection. Therefore, **Warrant 3 is not applicable** to this intersection.

Warrant 4, Pedestrian Volumes

There are no sidewalks or other pedestrian facilities located near the intersection. Therefore, **Warrant 4 is not applicable** to this intersection. However, current GCDOT policy specifies crosswalks and pedestrian facilities for new traffic signal design. Pedestrian facilities will be addressed during design.

Warrant 5, School Crossing

There are no direct crossings to nearby schools; therefore, **Warrant 5 is not applicable**.

Warrant 6, Coordinated Signal System

A traffic signal is not needed to maintain proper platooning of vehicles. Therefore, **Warrant 6 is not applicable.**

Warrant 7, Crash Experience

The crash experience warrant is provided to consider a traffic signal at intersections with a high number of crashes where the crashes could have been prevented if a traffic signal was in place. The warrant provides a threshold of five or more crashes to occur at an intersection, correctable by a traffic signal, within a 12 month period in order to be considered for a traffic signal. In addition, a minimum volume threshold provided in the 80 percent columns of conditions A and B should be met for any 8 hours of the day to fully comply with the warrant.

However, accident data was not provided for us to analyze. Therefore, **Warrant 7 is not applicable.**

Warrant 8, Roadway Network

This intersection is not part of a principal roadway network. Therefore, **Warrant 8 is not applicable.**

Summary of Warrant Analysis

Table 8 summarizes the signal warrant analysis for the intersection of Jones Bridge Road @ Morton Road and indicates that a **traffic signal is warranted**.

Table 8 – Summary of Warrant Analysis

WARRANT	Jones Bridge Road @ Morton Road
1. Eight-Hour Vehicular Volume	**Satisfied**
2. Four-Hour Vehicular Volume	**Satisfied**
3. Peak Hour	Not Applicable
4. Pedestrian Volume	Not Applicable
5. School Crossing	Not Applicable
6. Coordinated Signal System	Not Applicable
7. Crash Experience	Not Applicable
8. Roadway Network	Not Applicable

6. RECOMMENDATIONS

JONES BRIDGE @ MORTON TRAFFIC ENGINEERING REPORT

Based on the analysis documented in this report, Wolverton and Associates, Inc. make the following conclusions and recommendations:

Basic Option:

1. Install a traffic signal
2. Construct a northbound right turn lane 200' in length
3. Construct a southbound left turn lane 250' in length
4. Construct an westbound right turn lane 150' in length

Ultimate Option:

1. Install a traffic signal
2. Construct an additional northbound and southbound thru lane
3. Construct a northbound right turn lane 200' in length
4. Construct a southbound left turn lane 250' in length
5. Construct a westbound right turn lane 150' in length

Table 9 summarizes the recommended storage bay lengths for the intersection in the Basic and Ultimate options. Figures 8 and 9 represent the recommended geometry for the intersection in the Basic and Ultimate conditions, respectively.

Table 9 – Recommended Storage Lengths

Jones Bridge Road @ Morton Road			
Movement	Existing Turn Bay Length	Max Queue	Recommended Turn Bay Length (ft.)
NBR	N/A	73	**200**
SBL	N/A	141	**250**
WBR	N/A	20	**150**

(Turn Bays for Basic and Ultimate Option are the same)

Figure 7 – Recommended Geometry (Basic Option)

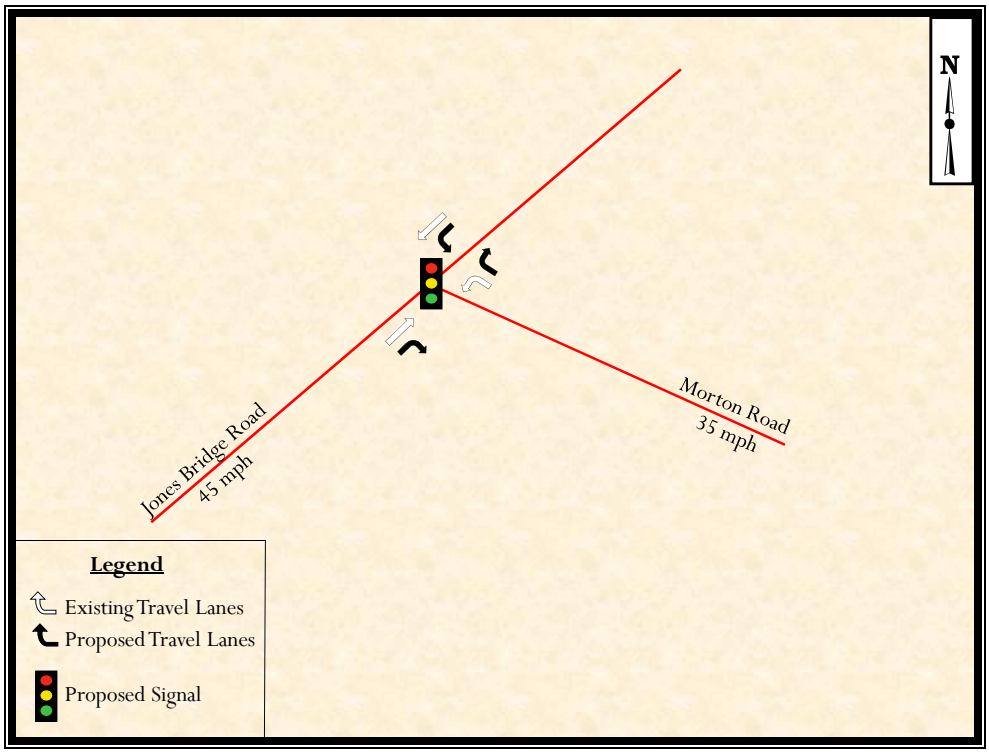
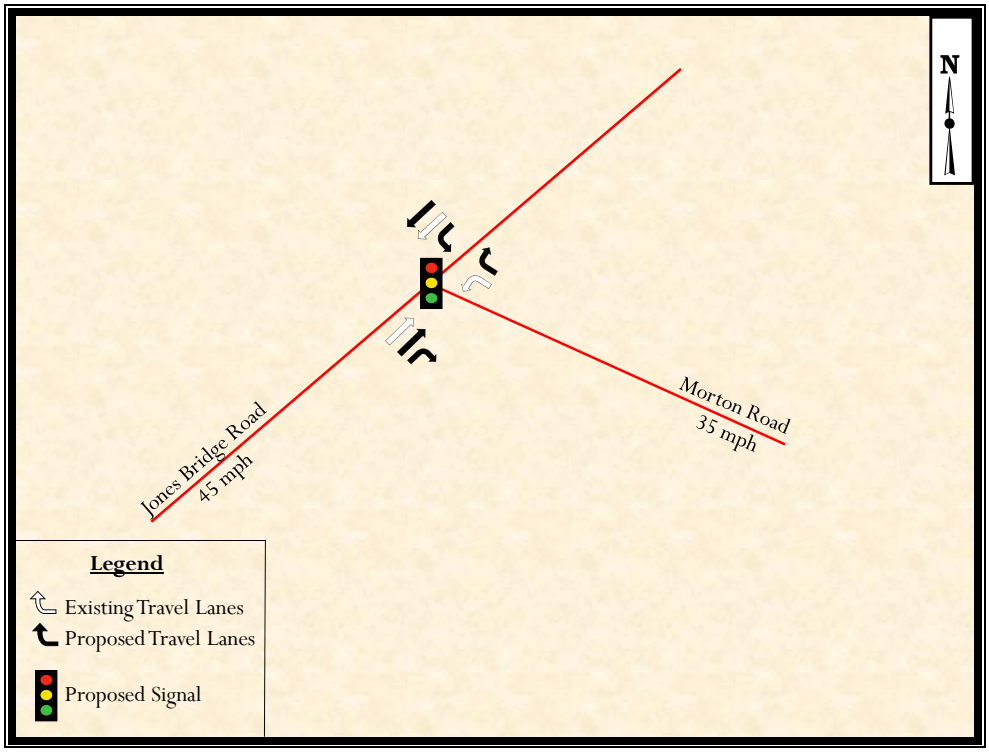


Figure 8 – Recommended Geometry (Ultimate Option)



REFERENCES

JONES BRIDGE @ MORTON TRAFFIC ENGINEERING REPORT

1. Highway Capacity Manual, HCM 2000, Transportation Research Board, Washington, DC, 2000.

2. Regulations for Driveway and Encroachment Control, GDOT, March 8, 2004.

3. GDOT TOPPS Article 4A-2, Georgia Department of Transportation, Atlanta, GA.

4. FHWA Publication No. FHWA-RD-00-067 Roundabouts: An Informational Guide, FHWA, McLean, VA, 2000.

5. Manual on Uniform Traffic Control Devices, 2003 Edition, Federal Highway Administration, Washington, DC, 2003.

CITY OF JOHNS CREEK
DEPARTMENT OF PUBLIC WORKS

ALTERNATIVE 2 - ENHANCED BASIC OPTION

JONES BRIDGE ROAD (45 MPH)
AT MORTON ROAD (35 MPH)
FULTON COUNTY
P.I. # 0006907
PROJECT # CSSTP-0006-00(907)

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6745 Sugarloaf Parkway ✦ Suite 100
Duluth, Georgia 30097

Wolverton & Associates

MEETING MINUTES

LOCATION: City of Johns Creek
MEETING DATE: Wednesday, May 28, 2008, 2:00 PM

RE: JONES BRIDGE ROAD AT BUICE ROAD, MORTON ROAD AND WATERS ROAD INITIAL CONCEPT TEAM MEETING

ATTENDEES:
Joe Macrina – Wolverton &Associates, Inc.
Chris Haggard – Wolverton & Associates, Inc.
Mario Macrina – Wolverton & Associates, Inc.
Todd Devos – Wolverton & Associates, Inc.
Mac Cranford – GDOT District 7
Melvin Waldrop – GDOT District 7
Cindy Jenkins – City of Johns Creek
Ken Hildebrandt – City of Johns Creek
Tom Udell – City of Johns Creek

The meeting started with a welcome from Cindy Jenkins, and meeting attendees introduced themselves.

- Wolverton & Associates (W&A) started by giving an overview of each intersection.
- Mario Macrina explained that W&A investigated three different alternatives for each intersection; a fiscally constrained option, a non-fiscally constrained option, and a roundabout option.
- There was a brief discussion about the roundabout option and it was decided that the traffic volumes were too high to warrant any further consideration for a roundabout.
- W&A then presented the concept layout alternatives with cost estimates for each intersection and there were discussions about which alternative would be preferred.
- The City of Johns Creek asked for W&A to look at an additional alternative for Waters Road with a combination of alternatives 1 & 2. This new alternative would increase the substandard 65 degree skew angle to 90 degrees, add a right turn lane on Jones Bridge Road and add a free flow right turn lane off of Waters Road.
- The City also asked W&A to prepare a handout that would include the pros and cons, the levels of service/delays and the construction cost of each alternative for each intersection so they could present the information at the July 14th City Council work session.

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Wolverton & Associates

MEETING MINUTES

LOCATION: GDOT District 7 Conference Room
MEETING DATE: Wednesday, September 24, 2008, 10:00 AM

RE: JONES BRIDGE ROAD AT BUICE ROAD, MORTON ROAD AND WATERS ROAD CONCEPT TEAM MEETING

ATTENDEES:
Chris Haggard – Wolverton & Associates, Inc.
Mario Macrina – Wolverton & Associates, Inc.
Dennis Riles – Wolverton & Associates, Inc.
Howard Anderson – Wolverton & Associates, Inc.
Ellie Cargin – Wolverton & Associates, Inc.
Mike Lobdell – GDOT District 7
Mac Cranford – GDOT District 7
Andre Netterville – GDOT District 7
Scott Lee – GDOT District 7
Alex Laffey – GDOT District 7
Pam Black – GDOT District 7
Cindy Jenkins – City of Johns Creek
Ken Hildebrandt – City of Johns Creek
Kevin Dye – City of Johns Creek

The meeting started with a welcome from Mac Cranford, and meeting attendees introduced themselves.

General:

- Mario Macrina explained that Wolverton & Associates investigated three different alternatives for each intersection; a fiscally constrained option, a non-fiscally constrained option, and a roundabout option. He then explained that the City of Johns Creek had chosen one alternative for each intersection.
- Chris Haggard, Dennis Riles and Howard Anderson then gave an overview of each intersection, highlighting potential issues to be discussed during the meeting.
- GDOT then began to comment on the concept displays and reports.
- Mac Cranford commented that the location maps needed to be revised because they were not up to date and hard to read.
- Scott asked for more information to be included in the need and purpose section. He would like to see more background on the projects and why these intersections were chosen. He would also like to see crash data.
- Mac asked for the description to include more detail about the limits of the projects
- Scott asked to explain why multi-use trails were used. Cindy Jenkins stated the multi-use trails were added as per the City's Multi-Use Trail Plan.
- Scott questioned why the ADT's for all 3 projects were the same. Mario said that Wolverton would verify the ADT values.
- Mac said the ARC TIP numbers needed to be revised to FN-196 for Morton, FN-197 for Waters, and FN-223 for Buice.
- Scott asked that the City verify the classifications of all the sideroads.

- Mac made comments about being consistent with the use of feet vs. the symbol (‘). He also commented that the bullets should be consistent and filled in.
- Scott commented that the shoulder widths should be added to the existing typical section description.
- Scott commented that the grass strip should be 2’ everywhere with the exception of the multi-use trail which requires a 2.5’ strip in order to maintain the 5’ offset from the edge of pavement.
- Scott asked that a B/C Ratio be added to the attachments along with minutes of all coordination meetings.
- Scott stated the right of way schedule should be revised to 4 months.
- Kevin Dye also stated that all fence quantities will be included in the right of way cost estimates and should be removed from the construction cost estimates.
- Mac stated the mast arm poles should be separated for each signal cost estimate.
- Mac said the allowable funds for these projects are higher than the current cost estimates. Cindy said she had different numbers than GDOT and would need to verify the allocated funds are accurate.
- Mike Lobdell suggested that these projects be moved to fiscal year 2011 in order to ensure the funds will be there when needed.
- It was decided that these three projects will remain on the same schedule throughout the design process and it is anticipated that they will be let together.
- Pam Black commented that the right of way costs seemed high. Kevin stated that he used GDOT’s costs, but would revise the numbers and submit a revised cost for approval.
- Kevin also stated that he will submit the utility cost for approval.

<u>Buice Road:</u>

- Scott Lee asked that the sidewalk on Buice Road be extended on the south side of Jones Bridge Road to the end of the project in order to provide pedestrian access across the front of the elementary school.
- Scott asked that a wall detail be added to the Buice Road typical section. Mario stated that this wall would be a gravity wall which is shown on GDOT standard 9031L, so a detail is not required.

<u>Morton Road:</u>

- Scott asked why Morton Road was not extended to add a left turn lane into Wynbridge Drive to utilize the existing pavement on Jones Bridge Road. He suggested eliminating the right turn lane onto Indian Village Drive to offset the additional costs. Wolverton and the City of Johns Creek will discuss and determine whether or not to make this revision.
- Mac asked for additional information about the proposed signal at Morton Road and to include the improvements at Indian Village Drive.
- Scott questioned the amount of drainage pipe shown for the Morton Road estimate.

<u>Waters Road:</u>

- Scott asked why Waters Road had an additional through lane. Chris explained that Waters Road would have a free flow right turn lane and the additional lane was a receiving lane for this right turn and would become a trap right turn lane into Jones Ferry Lane.
- Mac asked to explain why Waters Road had a free flow right turn lane.
- Scott commented that the Waters cost estimate needed to have curb and gutter added to it.

Action Items:

- City of Johns Creek to verify total project funding
- City of Johns Creek to complete right of way and utility cost estimates
- Wolverton & Associates to revise concept reports and resubmit.

Benefit Cost Analysis Work Sheet
CONGESTION Projects

AM Peak

City of Johns Creek

Jones Bridge Road at Morton Road

Congestion Benefit = Tb + CMb + Fb

Person Time Savings Benefit (Tb)

*Db (hrs)	0.0159059
ADT	29,475.00
Tb ($s)	$16,115,876.84

Commercial or Truck Time Savings Benefit (CMb)

Db (hrs)	0.0159059
% Truck Traffic	0.02
ADT	29,475
CMb	$1,703,008.66

Fuel Savings Benefit (Fb)

ADT	29,475
Fb ($s)	$2,369,981.89

Total Congestion Benefit	**$20,188,867.38**
Total Project Cost	**$1,669,869.00**
B/C Ratio	**12.09**

*Reduction in delay or **Delay Benefit (D_b)** can be defined as the difference between the peak hour travel time through the corridor without the proposed improvement and the peak hour travel time through the corridor with the proposed improvement (both directions).

Factors Used

Car Rate	13.75	
Truck Rate	86.4	
Gas Rate	2.75	
Applicaple Days/Year	250	(# work days)
Time Period Analyzed (yrs)	20	(Design year - build year)
avg. speed	27	
fuel efficiency	18.36	
Total Project Cost - E+C+I (mil)	22.685	(C+ROW+Util.)

Travel Time Savings		AM Peak Volumes		Delay		
		NB	1598	0	0	1100
No Build (Delay - Sec)	100.9611	SB	1480	16.8	24864	740
Improvement (Delay- Sec)	43.7	WB	318	1000	318000	1865
Difference (Sec)	57.26113	Total	3396		342864	1335
Difference (Hr)	0.015906	Avg Delay/Veh			100.9611	

1292
57
105
135
1378
98
3065

Benefit Cost Analysis Work Sheet
CONGESTION Projects

PM Peak

City of Johns Creek
Jones Bridge Road at Morton Road

Congestion Benefit = Tb + CMb + Fb

Person Time Savings Benefit (Tb)	
*Db (hrs)	0.0343923
ADT	29,475.00
Tb ($s)	$34,846,384.92

Commercial or Truck Time Savings Benefit (CMb)	
Db (hrs)	0.034392299
% Truck Traffic	0.02
ADT	29,475.00
CMb	$3,682,312.53

Fuel Savings Benefit (Fb)	
ADT	29,475.00
Fb ($s)	$2,884,885.90

Total Congestion Benefit	**$41,413,583.34**
Total Project Cost	**$1,669,869.00**
B/C Ratio	**24.80**

*Reduction in delay or **Delay Benefit (D_b)** can be defined as the difference between the peak hour travel time through the corridor without the proposed improvement and the peak hour travel time through the corridor with the proposed improvement (both directions).

Factors Used

Car Rate	13.75	
Truck Rate	86.4	
Gas Rate	2.75	
Applicaple Days/Year	250	(# work days)
Time Period Analyzed (yrs)	20	(Design year - build year)
Avg corridor speed	15.2	
fuel efficiency	18.36	
Total Project Cost - E+C+I (mil)	22.685	(C+ROW+Util.)

Travel Time Savings	
No Build (Delay - Sec)	189.6123
Improvement (Delay- Sec)	65.8
Difference (Sec)	123.8123
Difference (Hr)	0.034392

PM Peak Volumes		Delay	
NB	1898	0	0
SB	1771	252.8	447708.8
WB	306	1000	306000
Total	3975		753708.8
Avg Delay/Veh			189.6123

169
71
1425
307
110
1494
3576