E.G. Miles Parkway SR 196 / SR 119

Corridor Study

ATLAS
AE ENGINEERING, INC.
Civil Engineering • CEI • Construction Management
transport STUDIO

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Appendix F:
Intersection Analysis Memo
Deal Street at E.G. Miles Parkway

INTERSECTION ANALYSIS MEMO
DEAL STREET AT E.G. MILES PARKWAY
HINESVILLE, GA

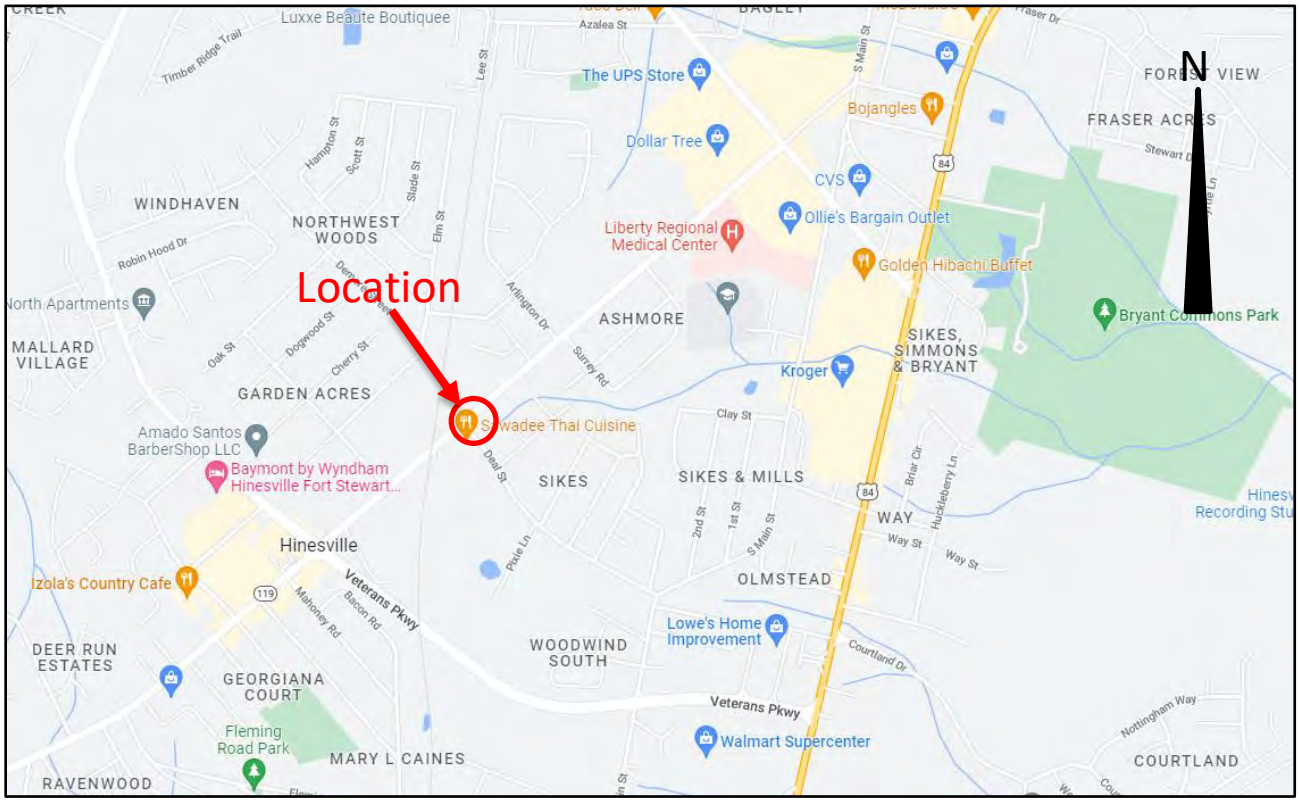
Location:

The location of the study the intersection of E.G. Miles Parkway and Deal Street in Hinesville, Georgia. The City of Hinesville Public Works facility has a driveway opposite Deal Street, which could be considered the fourth leg of this intersection.

E.G. Miles Parkway is a major arterial that serves as a state route (SR 196) and a major access for the City of Hinesville. The route serves as a major freight route as well. The entire E.G. Miles Parkway corridor is currently being studied on behalf of a request by the Hinesville Area Metropolitan Planning Organization (HAMPO). The roadway is a four-lane roadway with no median and has curb and gutter and sidewalks on both sides. The intersection with Deal Street is located 400 feet east of the CSX railroad crossing.

Deal Street is a major collector and connects E.G. Miles Parkway with South Main Street and ultimately over to US 84. Deal Street is a two-lane roadway with 11-foot lanes and a small ditch (swale) section on both sides. Topography is predominantly flat in the entire City. There are several utilities along Deal Street and E.G. Miles Parkway both overhead and underground.

Figure 1: Site Location



Previous Studies

In January of 2022 ATLAS conducted a traffic study to determine in the additional traffic generated by a proposed development would require any type of improvements for the intersection. The study concluded that

the impacts of the proposed apartment complex would not significantly impact congestion at the intersection of Deal Street and E.G. Miles Parkway. However, the level of service (LOS) of Deal Street and E.G. Miles Parkway would be improved by the proposed right turn lane that has been requested by the LCPC. Technically, the demand for the right turn lane is caused by background traffic on Deal Street and not necessarily the proposed development. The additional right turn lane will ultimately decrease the demand for a traffic signal at this location by reducing the existing delay.

Intersection Control Evaluation (ICE)

In August of 2022 as part of the HAMPO corridor study, ATLAS conducted an intersection control evaluation (ICE) study to determine which intersection design would be most beneficial at several locations along the E.G. Miles Parkway corridor. The intersection of E.G. Miles Parkway at Deal Street was one of these locations. The ICE study considered four potential alternatives for this intersection: A conventional two-way stop control, which is the existing condition; a two-way stop control with left turn lanes into the side-streets; a restricted crossing U-turn (RCUT); and a multilane roundabout. A signal warrant analysis was performed and the volumes did not meet warrants.

The ICE study considers factors such as crash history, AM and PM delays and LOS, cost, environmental impacts, among others, to assign a score that ranks the alternatives. The alternative with the highest score is the recommended alternative. The ICE analysis for this intersection determined that the recommended intersection design would be an RCUT, which allows left turns to be made into the side streets but restricts left turns out of the side streets. Motorists who need to turn left out of the side streets would need to turn right and then make a U-turn at the next median opening, which would be geometrically designed as to allow this maneuver. The following is a summary of the alternatives that were considered:

Conventional Minor Stop:

The conventional minor stop (stop signs on the side-streets) is the existing condition, and therefore the cost to implement would be zero. However, the intersection fails during the PM peak hour for the design year. With average delays of 71.9 seconds for vehicles exiting the side-streets. Since the geometric conditions for this alternative are unchanged with respect to the existing condition, the potential to reduce crashes and improve traffic safety is also zero. Other alternatives presented shorter delays, a better level-of-service, and a greater crash reduction factor, which is why this alternative was ranked as #4 and discarded.

Add Left Turn Lanes:

This alternative proposes adding left-turn lanes on E.G. Miles Parkway in order to avoid interruption of traffic when a vehicle attempts to turn left into the side streets, in this case Deal Street and the Public Works facility's driveway. The total cost of implementing this alternative was calculated at $128,000 and the potential for crash reduction was of only 2% for both property damage only crashes and fatal/injury crashes. Since traffic flow would be improved on E.G. Miles Parkway thanks to the addition of left turn lanes, delays for the side-streets would increase, when compared to the existing condition. The analysis shows that the side-street would have failing levels of service for both AM and PM peak hours with average delays of 77.6 seconds and 107.1 seconds respectively. The excessive delays for the side-streets and the limited safety benefit led this alternative to be ranked #3 of the four options being evaluated.

Multilane Roundabout

This alternative consisted of a two-lane roundabout at the subject intersection. The total cost to implement this alternative was calculated at $685,000 which was the most expensive of the alternatives being evaluated. The total average delay for the intersection was acceptable under this alternative with 7.9 seconds during the AM and 8.7 seconds during the PM of the design year. However, the traffic volumes on E.G. Miles parkway represent more than 90% of the total volume that would be entering the roundabout. The Federal Highway

Administration's (FHWA) roundabout guidance states that roundabouts have no capacity benefits over a two-way stop-controlled intersection when mainline traffic is 90% or more. Nevertheless, this alternative presents the highest crash reduction factors with a potential to reduce property damage only crashes by 32% and fatal/injury crashes by 71%. This alternative, however, ranked #2 in the ICE analysis tool, and was thus discarded.

Stop-Controlled RCUT

This alternative consists in restricting left turns out of the side-streets while still allowing left turns in, from the main roadway. Motorists who would turn left out of the side street would have to turn right onto E. G. Miles Parkway and then make a U-turn at the next available median opening. The advantage of this alternative is that making a right turn from the side-street is usually much easier, and the U-turn only requires yielding to traffic on one direction of travel on the main-line and not both, as when making a left turn out of a side-street. The total cost of implementing this alternative was calculated at $578,000. Operationally it performs at acceptable levels of service with average delays of 15.4 seconds and 14.2 seconds during the AM and PM peak hours, respectively. The RCUT's potential to reduce crashes is estimated at a 31% reduction of property damage only crashes, and a 53% reduction in injury/fatal crashes. Taking all these factors under consideration, this alterative was ranked #1 and thus is the recommended control type for this intersection.

Conclusions and Recommendations:

A thorough analysis of the intersection of E.G. Miles Parkway at Deal Street and the Public Works facility driveway indicated that the more reasonable alternative, taking into account safety, cost, and performance, was a restricted crossing U-turn. The two-lane roundabout ranked at a close 2nd place, but due to the overwhelming volume being on E.G. Miles Parkway, the roundabout is not expected to perform much better than a stop-control alternative for the side-streets. Therefore, it is recommended that this intersection be re-designed as an RCUT. However, a multi-lane roundabout could be a viable option and should be considered based on local preference.

COMPLETED BY:
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REVIEWED BY:
Robinson Nicol, PE, PTOE

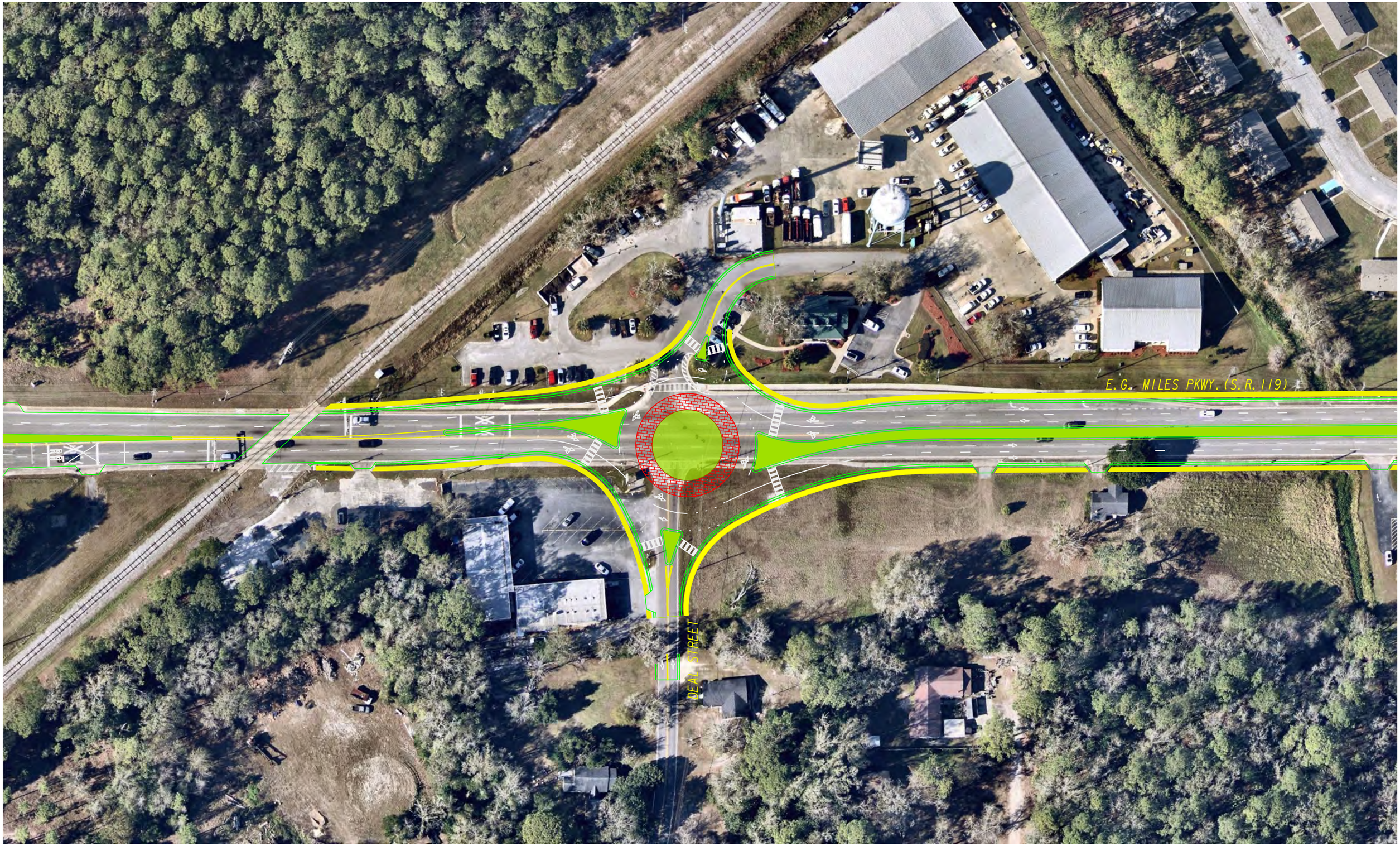
September 16, 2022

APPENDIX

Concept Layout
Traffic Counts
Crash History (2017-2021)
Signal Warrant
ICE tool printouts
GDOT roundabout analysis tool printouts

APPENDIX

Concept Layout


E.G. MILES PKWY. (S.R. 119)
DEAL STREET

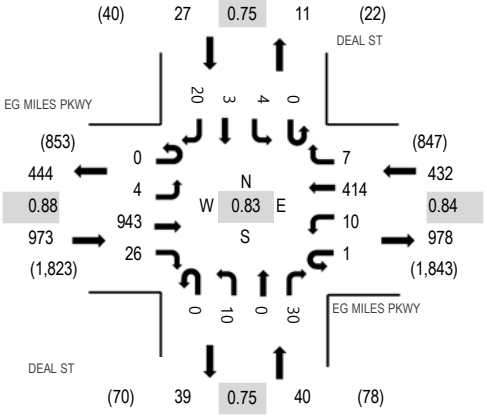
APPENDIX

Traffic Counts

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

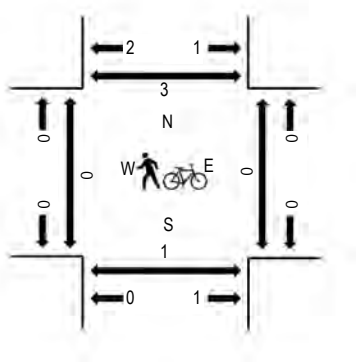
Location: #1 DEAL ST & EG MILES PKWY AM
Date: Tuesday, December 7, 2021
Peak Hour: 07:15 AM - 08:15 AM
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - Motorized Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	EG MILES PKWY Eastbound				EG MILES PKWY Westbound				DEAL ST Northbound				DEAL ST Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	2	165	3	0	1	80	0	0	1	0	5	0	2	0	0	259	1,393	0	0	0	0
7:15 AM	0	2	235	4	0	6	59	0	0	2	0	7	0	0	0	7	322	1,472	0	0	0	0
7:30 AM	0	1	245	6	0	3	99	1	0	2	0	3	0	1	2	4	367	1,472	0	0	0	1
7:45 AM	0	0	269	9	0	0	142	6	0	4	0	11	0	0	0	4	445	1,442	0	0	1	1
8:00 AM	0	1	194	7	1	1	114	0	0	2	0	9	0	3	1	5	338	1,395	0	0	0	1
8:15 AM	0	1	179	7	0	4	119	0	0	1	0	9	0	0	0	2	322		0	0	0	0
8:30 AM	0	2	212	2	0	6	103	1	0	0	0	9	0	0	0	2	337		0	0	0	0
8:45 AM	0	2	272	3	0	5	93	3	0	2	0	11	0	1	0	6	398		0	0	0	0

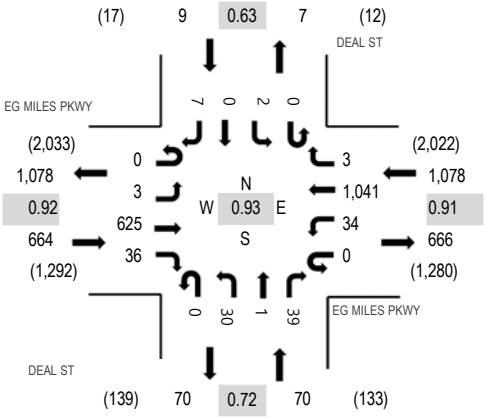
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Lights	0	4	925	25	1	10	401	7	0	8	0	29	0	4	2	17	1,433
Mediums	0	0	16	1	0	0	13	0	0	2	0	1	0	0	1	3	37
Total	0	4	943	26	1	10	414	7	0	10	0	30	0	4	3	20	1,472

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

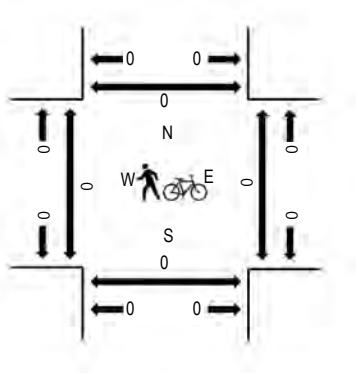
Location: #1 DEAL ST & EG MILES PKWY PM
Date: Tuesday, December 7, 2021
Peak Hour: 04:45 PM - 05:45 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - Motorized Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	EG MILES PKWY Eastbound				EG MILES PKWY Westbound				DEAL ST Northbound				DEAL ST Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	1	126	18	0	7	217	2	0	8	0	10	0	0	0	4	393	1,659	0	0	0	1
4:15 PM	0	1	144	6	0	6	237	1	0	6	0	9	0	0	0	1	411	1,757	0	0	0	0
4:30 PM	0	0	160	7	0	8	233	0	0	5	0	6	0	0	0	2	421	1,818	0	0	0	0
4:45 PM	0	2	148	10	0	10	241	0	0	9	0	12	0	0	0	2	434	1,821	0	0	0	0
5:00 PM	0	0	156	9	0	8	289	0	0	10	0	15	0	2	0	2	491	1,805	0	0	0	0
5:15 PM	0	0	148	9	0	9	287	2	0	9	0	6	0	0	0	2	472		0	0	0	0
5:30 PM	0	1	173	8	0	7	224	1	0	2	1	6	0	0	0	1	424		0	0	0	0
5:45 PM	0	0	155	10	0	7	226	0	0	15	0	4	0	0	0	1	418		0	0	0	1

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	3
Lights	0	2	619	36	0	34	1,029	3	0	30	1	39	0	2	0	6	1,801
Mediums	0	1	6	0	0	0	9	0	0	0	0	0	0	0	0	1	17
Total	0	3	625	36	0	34	1,041	3	0	30	1	39	0	2	0	7	1,821

APPENDIX

Crash History (2017-2021)

2017

Crash Data	Crash Severity					
	K	A	B	C	O	
Angle	0	0	0	0	2	22%
Head-on	0	0	0	0	0	0%
Rear End	0	0	0	4	1	56%
Sideswipe- Same	0	0	0	0	2	22%
Sideswipe- Opposite	0	0	0	0	0	0%
Not Collision w/ Motor Veh	0	0	0	0	0	0%
Totals	0	0	0	4	5	9

2018

Crash Data	Crash Severity					
	K	A	B	C	O	
Angle	0	0	0	0	3	21%
Head-on	0	0	1	0	0	7%
Rear End	0	0	1	2	2	36%
Sideswipe- Same	0	0	0	0	3	21%
Sideswipe- Opposite	0	0	1	0	1	14%
Not Collision w/ Motor Veh	0	0	0	0	0	0%
Totals	0	0	3	2	9	14

2019

Crash Data	Crash Severity					
	K	A	B	C	O	
Angle	0	0	3	0	2	50%
Head-on	0	0	0	0	0	0%
Rear End	0	0	0	1	3	40%
Sideswipe- Same	0	0	0	0	0	0%
Sideswipe- Opposite	0	0	0	0	0	0%
Not Collision w/ Motor Veh	0	0	0	0	1	10%
Totals	0	0	3	1	6	10

2020

Crash Data	Crash Severity					
	K	A	B	C	O	
Angle	0	0	0	3	3	60%
Head-on	0	0	0	0	0	0%
Rear End	0	0	1	1	1	30%
Sideswipe- Same	0	0	0	0	1	10%
Sideswipe- Opposite	0	0	0	0	0	0%
Not Collision w/ Motor Veh	0	0	0	0	0	0%
Totals	0	0	1	4	5	10

2021

Crash Data	Crash Severity					
	K	A	B	C	O	
Angle	0	0	0	2	4	38%
Head-on	0	0	0	0	0	0%
Rear End	0	0	1	0	6	44%
Sideswipe- Same	0	0	0	0	0	0%
Sideswipe- Opposite	0	0	0	0	1	6%
Not Collision w/ Motor Veh	0	0	1	0	1	13%
Totals	0	0	2	2	12	16

Totals

Crash Data	Crash Severity					
	K	A	B	C	O	
Angle	0	0	3	5	14	37%
Head-on	0	0	1	0	0	2%
Rear End	0	0	3	8	13	41%
Sideswipe- Same	0	0	0	0	6	10%
Sideswipe- Opposite	0	0	1	0	2	5%
Not Collision w/ Motor Veh	0	0	1	0	2	5%
Totals	0	0	9	13	37	59

1 – Killed	K	**Delayed Death** - A reported injury of any person that produced death within 30days after the date of the accident. Delayed deaths must be reported to the Department of Transportation.
2 – Serious	A	**Serious Injury** - Any injury that prevents the injured person from walking, driving, or normally continuing the activities that, that person was capable of performing prior to the accident.
3 – Visible	B	**Visible Injury** - Any injury that is evident to any person other than the injured at the scene of the accident.
4 – Complaint	C	**Complaint of Injury** - Possible injuries that are claimed or indicated by behavior but not by wounds.
0 – Not injured	O	

APPENDIX

Signal Warrant

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS

INTERSECTION NAME: EG Miles Pkwy at Deal St

COUNT DATE: Typical Weekday

INTERSECTION CONDITION:

MAJOR STREET: Main Street EG Miles Pkwy # OF APPROACH LANES: 2

MINOR STREET: Cross Street Deal St # OF APPROACH LANES: 1

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): N

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): Y

	MAJOR ST BOTH APPROACHES	MINOR ST HIGHEST APPROACH	WARRANT 1, Condition A			WARRANT 1, Condition B			WARRANT 1, Combination Warrant						WARRANT 2	WARRANT 3
									CONDITION A			CONDITION B				
			MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET		
THRESHOLD VALUES →			420	105		630	53		480	120		720	60			
06:00 AM TO 07:00 AM	696	7	Y			Y			Y							
07:00 AM TO 08:00 AM	885	11	Y			Y			Y			Y				
08:00 AM TO 09:00 AM	1,380	11	Y			Y			Y			Y				
09:00 AM TO 10:00 AM	1,355	16	Y			Y			Y			Y				
10:00 AM TO 11:00 AM	797	19	Y			Y			Y			Y				
11:00 AM TO 12:00 PM	969	20	Y			Y			Y			Y				
12:00 PM TO 01:00 PM	1,289	24	Y			Y			Y			Y				
01:00 PM TO 02:00 PM	1,316	25	Y			Y			Y			Y				
02:00 PM TO 03:00 PM	1,395	22	Y			Y			Y			Y				
03:00 PM TO 04:00 PM	1,439	26	Y			Y			Y			Y				
04:00 PM TO 05:00 PM	1,537	41	Y			Y			Y			Y				
05:00 PM TO 06:00 PM	1,566	34	Y			Y			Y			Y				
06:00 PM TO 07:00 PM	1,416	34	Y			Y			Y			Y				
07:00 PM TO 08:00 PM	1,044	15	Y			Y			Y			Y				
08:00 PM TO 09:00 PM	680	13	Y			Y			Y							
09:00 PM TO 10:00 PM	558	7	Y						Y							
	18,322	325			**0**			**0**			**0**			**0**	**0**	**0**
			8 HOURS NEEDED **NOT SATISFIED**			8 HOURS NEEDED **NOT SATISFIED**			8 HOURS OF BOTH COND. A AND COND. B NEEDED **NOT SATISFIED**						4 HRS NEEDED **NOT SATISFIED**	1 HR NEEDED **NOT SATISFIED**

APPENDIX

ICE tool printouts

GDOT INTERSECTION CONTROL EVALUATION (ICE) TOOL

ICE Version 2.21 | Revised 2/4/2022

GDOT PI#: | Request By:

County: Liberty | GDOT District: 5 - Jesup

Major Road: EG Miles Pkwy | Road Class: Minor Arterial | Speed Limit: 35 mph

Crossing Road: Deal St | Road Class: Minor Arterial | Speed Limit: 40 mph

Major Rd Direction: East/West | Area Type: Suburb/Transition

Intersection Control: Conventional (Minor Stop) | Project ID:

Prepared By: Atlas Technical Consultants | Date:

Project Purpose:

Existing Data Year:	2022
Project Opening Year:	2022
Project Design Year:	2022
Annual Growth Rate:	1.0%
K Factor*:	10%

* K Factor = Proportion of average annual daily traffic occurring in the highest one hour of the day

APPROACH SPLITS:

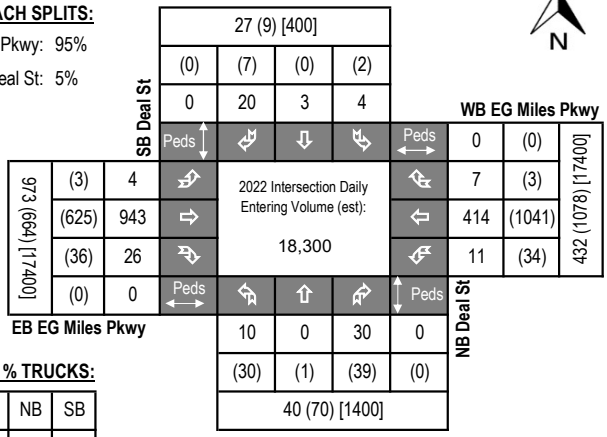
EG Miles Pkwy: 95%

Deal St: 5%

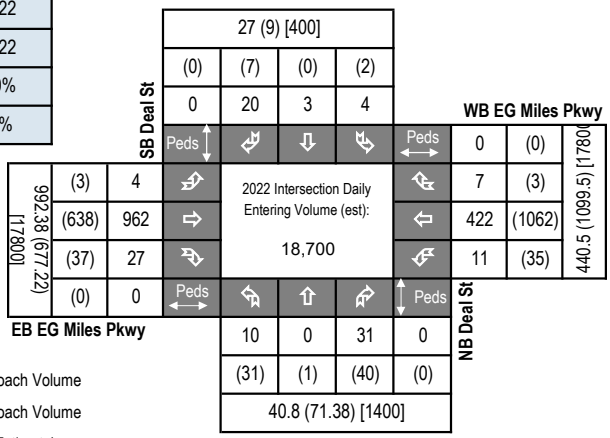
PEAK HR % TRUCKS:

EB	WB	NB	SB
2%	2%	0%	0%

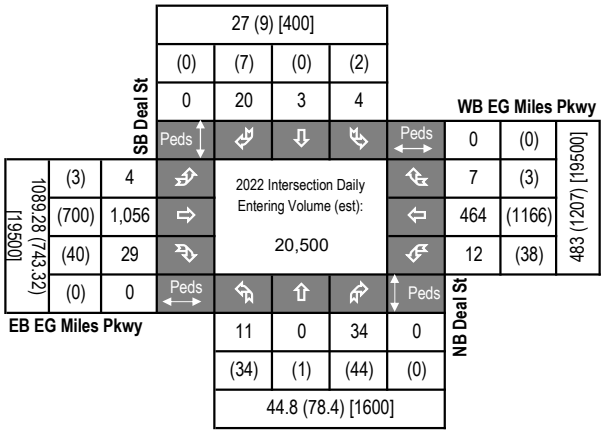
2022 EXISTING YEAR VOLUMES



2022 OPENING YEAR VOLUMES



2022 DESIGN YEAR VOLUMES



LEGEND:

000 = AM Peak Approach Volume

(000) = PM Peak Approach Volume

[000] = ADT Volume (Estimate)

Introduction: In 2005, SAFETEA-LU established the Highway Safety Improvement Program (HSIP) and mandated that each state prepare a Strategic Highway Safety Plan (SHSP) to prioritize safety funding investments. Intersections quickly became a common component of most states' SHSP emphasis areas and HSIP project lists, including Georgia's SHSP. Intersection Control Evaluation (ICE) policies and procedures represent a traceable and transparent procedure to streamline the evaluation of intersection control alternatives, and further leverage safety advancements for intersection improvements beyond just the safety program. Approximately one-third of all traffic fatalities and roughly seventy five percent of all traffic crashes in Georgia occur at or adjacent to intersections. Accordingly, the Georgia SHSP includes an emphasis on enhancing intersection safety to advance the *Toward Zero Deaths* vision embraced by the Georgia Governor's Office of Highway Safety (GOHS). This ICE tool was developed to support the ICE policy, developed and adopted to help ensure that intersection investments across the entire Georgia highway system are selected, prioritized and implemented with defensible benefits for safety towards those ends.

Tool Goal: The goal of this ICE tool is to provide a simplified and consistent way of importing traffic, safety, cost, environmental impact and stakeholder posture data to assess and quantify intersection control improvement benefits. The tool supports the ICE policy and procedures to provide traceability, transparency, consistency and accountability when identifying and selecting an intersection control solution that both meets project purpose and reflects overall best value in terms of specific performance-based criteria.

Requirements: An ICE is required for any intersection improvement (e.g. new or modified intersection, widening/reconstruction or corridor project, or work accomplished through a driveway or encroachment permit that affects an intersection) where: **1)** the intersection includes at least one roadway designated as a State Route (State Highway System) or as part of the National Highway System; or **2)** the intersection will be designed or constructed using State or Federal funding. In certain circumstances where an ICE would otherwise be required, the requirement may be waived based on appropriate evidence presented with a written request. (See the "**Waiver**" tab to review criteria that may make a project waiver eligible and for instructions to submit a waiver request to the Department). An ICE is not required when the proposed work does not include any changes to the intersection design, involves only routine traffic signal timing and equipment maintenance, or for driveway permits where the driveway is not a new leg to an already existing intersection on either 1) a divided, multi-lane highway with a closed median and only right-in/right-out access or 2) an undivided roadway where the development is not required to construct left and/or right turn lanes (as per the Driveway Manual and District Traffic Engineer).

Two-Stage Process: A complete ICE process consists of two (2) distinct stages, and it is expected that the respective level of effort for completing both stages of ICE will correspond to the magnitude and complexity of the intersection. Prior to starting an ICE, the District Traffic Engineer and/or State Traffic Engineer should be consulted for advice on an appropriate level of effort. The Stage 1 and Stage 2 ICE forms are designed minimize required data inputs using drop-down menu choices and limiting text entry. All fields shaded grey include drop down menu choices and all fields shaded blue require data entry. All other cells in the worksheet are locked.

Stage 1: Screening Decision Record Stage 1 should be conducted early in the project development process and is intended to inform which alternatives are worthy of further evaluation in Stage 2. Stage 1 serves as a screening effort meant to *eliminate* non-competitive options and identify which alternatives merit further considerations based on their practical feasibility. Users should use good engineering judgement in responding to the seven policy questions by selecting "Yes" or "No" in the drop-down boxes. Alternatives should not be summarily eliminated without due consideration, and reasons for eliminating or advancing an alternative should be documented in the "Screening Decision Justification" column.

Stage 2: Alternative Selection Decision Record Stage 2 involves a more detailed and familiar evaluation of the alternatives identified in Stage 1 in order to support the selection of a preferred alternative that may be advanced to detailed design. Stage 2 data entry may require the use of external analysis tools to determine costs, operations and/or safety data that, combined with environmental and stakeholder posture data, form the basis of the ICE evaluation. A separate "CostEst" worksheet tab helps users develop pre-planning-level cost estimates for each Stage 2 alternative evaluated, and a separate Users Guide has been prepared to give guidance on Stage 1 and Stage 2 data entry. Once all data is entered, each alternative is scored and ranked, with the results reported at the bottom of the Stage 2 worksheet to inform on the best of the intersection controls evaluated for project recommendation.

Documentation: A complete ICE document consists of the combination of the outputs from either a completed and signed waiver form or both Stage 1 and Stage 2 worksheets (along with supporting costing and/or environmental documentation), to be included in the approved project Concept Report (or equivalent) or as a stand-alone document.

GDOT ICE STAGE 1: SCREENING DECISION RECORD

ICE Version 2.21 | Revised 2/4/2022

GDOT PI #	
Project Location:	EG Miles Pkwy @ Deal St
Existing Control:	Conventional (Minor Stop)
Prepared by:	Atlas Technical Consultants
Date:	

Answer "Yes" or "No" to each policy question for each control type to identify which alternatives should be evaluated in the Stage 2 Decision Record; enter justification in the rightmost column

Note: Up to 5 alternatives may be selected and evaluated; Use this ICE Stage 1 to screen 5 or fewer alternatives to evaluate in Stage 2

	Intersection Alternative (see "Intersections" tab for detailed description of intersection/interchange type)	1. Does alternative address the project need in a balanced manner and in scale with the project?	2. Does alternative improve safety performance in terms of reducing severe crashes?	3. Does alternative incorporate safety, convenience and accessibility for pedestrians and/or bicyclists?	4. Does alternative improve (or preserve) traffic operations (congestion, delay, reliability, etc.)?	5. Does alternative appear feasible given the site characteristics, constrains & location context?	6. Does alternative appear feasible with respect to other project factors?	7. Overall feasible alternative (select alternative for further evaluation in Stage 2)?	**Screening Decision Justification:**
Unsignalized Intersections	Conventional (Minor Stop)	**No**	**No**	**No**	**No**	**No**	**No**	**Yes**	
	Conventional (All-Way Stop)	No	No	No	No	No	No	No	
	Mini Roundabout	No	No	No	No	No	No	No	
	Single Lane Roundabout	No	No	No	No	No	No	No	
	Multilane Roundabout	**No**	**No**	**No**	**No**	**No**	**No**	**Yes**	
	RCUT (stop control)	**No**	**No**	**No**	**No**	**No**	**No**	**Yes**	
	RIRO w/down stream U-Turn	No	No	No	No	No	No	No	
	High-T (unsignalized)	No	No	No	No	No	No	No	
	Offset-T Intersections	No	No	No	No	No	No	No	
	Diamond Interch (Stop Control)	No	No	No	No	No	No	No	
	Diamond Interch (RAB Control)	No	No	No	No	No	No	No	
	Add LT Lanes on Deal St No RT Lane Improvements	**No**	**No**	**No**	**No**	**No**	**No**	**Yes**	
	Other unsignalized (provide description):	No	No	No	No	No	No	No	
Signalized Intersections	Traffic Signal	No	No	No	No	No	No	No	
	Median U-Turn (Indirect Left)	No	No	No	No	No	No	No	
	RCUT (signalized)	No	No	No	No	No	No	No	
	Displaced Left Turn (CFI)	No	No	No	No	No	No	No	
	Continuous Green-T	No	No	No	No	No	No	No	
	Jughandle	No	No	No	No	No	No	No	
	Quadrant Roadway	No	No	No	No	No	No	No	
	Diamond Interch (Signal Control)	No	No	No	No	No	No	No	
	Diverging Diamond	No	No	No	No	No	No	No	
	Single Point Interchange	No	No	No	No	No	No	No	
	No LT Lane Improvements No RT Lane Improvements	No	No	No	No	No	No	No	
	Other Signalized (provide description):	No	No	No	No	No	No	No	

▭ = Intersection type selected for more detailed analysis in Stage 2 Alternative Selection Decision Record

GDOT ICE STAGE 2: ALTERNATIVE SELECTION DECISION RECORD

ICE Version 2.21 | Revised 2/4/2022

Project Location: EG Miles Pkwy @ Deal St
Existing Intersection Control: Conventional (Minor Stop)
Type of Analysis: Safety Funded Project

District: 5 - Jesup
County: Liberty
Area: Suburb/Transitic

GDOT PI #:
Prepared by: Atlas Technical Cons
Date:

Opening / Design Year Traffic Operations

Intersection meets signal/AWS warrants?	None	
Traffic Analysis Measure of Effectiveness	Intersection Delay	
Traffic Analysis Software Used	Synchro	
Analysis Time Period	AM Peak Hr	PM Peak Hr
2022 Opening Yr No-Build Peak Hr Intersection Delay	27.9 sec	43.3 sec
2022 Opening Yr No-Build Peak Hr Intersection V/C	0.26	0.53
2022 Design Yr No-Build Peak Hr Intersection Delay	36.1 sec	71.9 sec
2022 Design Yr No-Build Peak Hr Intersection V/C	0.34	0.71

Complete Streets Warrants Met?
- ☐ PEDESTRIANS
- ☐ BICYCLES
- ☐ TRANSIT

Crash Data: Enter most recent 5 years of crash data	Crash Severity K*	A*	B*	C*	O	Years: 5
Angle	0	0	3	5	14	37%
Head-On	0	0	1	0	0	2%
Rear End	0	0	3	8	13	41%
Sideswipe - same	0	0	0	0	6	10%
Sideswipe - opposite	0	0	1	0	2	5%
Not Collision w/Motor Veh	0	0	1	0	2	5%
TOTALS:	0	0	9	13	37	59

Crash Type

* Number of crashes resulting in injuries / fatalities, not number of persons

Alternatives Analysis:

	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Proposed Control Type/Improvement:	Conventional (Minor Stop)	Multilane Roundabout	RCUT (stop control)	Add Left Turn Lanes	N/A
Project Cost: (From CostEst Worksheet)	*Additional description here*	*Additional description here*	*Additional description here*	*Additional description here*	
Construction Cost	$0	$1,569,000	$642,000	$127,000	
ROW Cost	$0	$468,000	$506,000	$0	
Environmental Cost	$0	$0	$0	$0	
Reimbursable Utility Cost	$0	$18,000	$8,000	$1,000	
Design & Contingency Cost	$0	$0	$0	$0	
Cost Adjustment (justification req'd)	0%	+200%	+100%	0%	
Total Cost	$0	$2,055,000	$1,156,000	$128,000	
Traffic Operations:		*User Cost Override*	*User Cost Override*		
Traffic Analysis Software Used	Synchro	GDOT RAB Tool	Synchro	Synchro	
Analysis Period	AM Peak Hr / PM Peak Hr	AM Peak Hr / PM Peak Hr	AM Peak Hr / PM Peak Hr	AM Peak Hr / PM Peak Hr	
2022 Design Yr Build Intersection Delay	36.1 sec / 71.9 sec	7.9 sec / 8.7 sec	15.4 sec / 14.2 sec	77.6 sec / ########	
2022 Design Yr Build Intersection V/C	0.34 / 0.71	0.57 / 0.59	0.15 / 0.18	0.23 / 0.62	
Safety Analysis:					
Predefined CRF: PDO	0%	32%	31%	2%	
Predefined CRF: Fatal/Inj	0%	71%	53%	2%	
Predefined CRF Source:	CRF unavailable; provide user defined CRF below	FHWA Clearinghouse #s 236 / 237	NC/MO Table 4-7	FHWA Clearinghouse #s 270 / 274	
User Defined CRF: PDO					
User Defined CRF: Fatal/Inj					
User Defined CRF Source (write in if applicable):					
Environmental Impacts:[1]					
Historic District/Property	None	None	None	None	
Archaeology Resources	None	None	None	None	
Graveyard	None	None	None	None	
Stream	None	None	None	None	
Underground Tank/Hazmat	None	None	None	None	
Park Land	None	None	None	None	
EJ Community	None	None	None	None	
Wooded Area	None	None	None	None	
Wetland	None	None	None	None	

*Note: If environmental impact is significant (**RED**), provide justification impact won't jeopardize project delivery using "Env" worksheet*
[1] *Environmental impacts are only preliminary estimates; detailed environmental impact documentation will be included with project concept*

Stakeholder Posture:					
Local Community Support	Unknown	Supportive	Unknown	Unknown	
GDOT Support	Unknown	Unknown	Unknown	Unknown	
Final ICE Stage 2 Score:	4.0	6.6	7.2	4.2	
Rank of Control Type Alternatives:	4	2	1	3	
Final Intersection Control Selection:	1 - RCUT (stop control)				

Note: Stage 2 score is not given (shown as "-") if signal or AWS is selected as control type but respective warrants are not met

Provide additional comments and/or explain any unique analysis inputs, or results (as necessary):

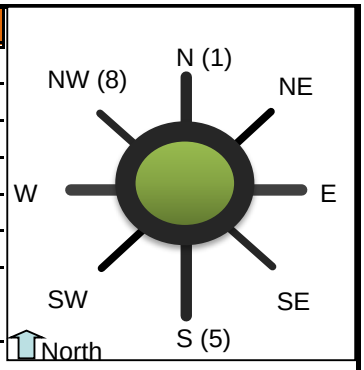
APPENDIX

GDOT roundabout analysis tool printouts

General & Site Information

v 4.2

Analyst:	
Agency/Co:	Atlas Technical Consultants
Date:	8/2/2022
Project or PI#:	EG Miles Corridor Study
Year, Peak Hour:	2045 AM
County/District:	Liberty County
Intersection:	Deal St @ EG Miles Pkwy



Volumes

Entry Legs (FROM)	N1 (1)	N2 (1)	NE1 (2)	NE2 (2)	E1 (3)	E2 (3)	SE1 (4)	SE2 (4)
Lane Designation	Lf-Th-Rt	No Lane	No Lane	No Lane	Left-Thru	Right-Thru	No Lane	No Lane
N (1), vph						9		
Exit NE (2), vph								
Legs E (3), vph	5							
(TO) SE (4), vph								
S (5), vph	4				13			
SW (6), vph								
W (7), vph	27				257	295		
NW (8), vph								
Entry Volume, vph	36	0	0	0	270	304	0	0

	S1 (5)	S2 (5)	SW1 (6)	SW2 (6)	W1 (7)	W2 (7)	NW1 (8)	NW2 (8)
Lane Designation	Lf-Th-Rt	No Lane	No Lane	No Lane	Left-Thru	Right-Thru	No Lane	No Lane
N (1), vph	0				5			
NE (2), vph								
E (3), vph	45				577	623		
SE (4), vph								
S (5), vph						33		
SW (6), vph								
W (7), vph	15							
NW (8), vph								
Entry Volume, vph	60	0	0	0	582	656	0	0

	N	NE	E	SE	S	SW	W	NW
# of Entry Flow Lanes	1	0	2	0	1	0	2	0
# of Conflict Flow Lanes	2	2	2	2	2	2	2	2

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	50.0%	100.0%	95.0%	100.0%	95.0%	100.0%	95.0%	100.0%
% Heavy Vehicles	50.0%	0.0%	5.0%	0.0%	5.0%	0.0%	5.0%	0.0%
% Bicycles	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
# of Pedestrians **(ped/hr)**	0	0	0	0	0	0	0	0
PHF	*0.75*	*0.95*	*0.84*	*0.95*	*0.75*	*0.95*	*0.88*	*0.95*
F_{hv}	0.667	1.000	0.952	1.000	0.952	1.000	0.952	1.000
F_{ped}	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Entry/Conflicting Flows		N	NE	E	SE	S	SW	W	NW
Flow to	N (1), pcu/h	0	0	11	0	0	0	6	0
Leg #	NE (2), pcu/h	0	0	0	0	0	0	0	0
	E (3), pcu/h	10	0	0	0	63	0	1432	0
	SE (4), pcu/h	0	0	0	0	0	0	0	0
	S (5), pcu/h	8	0	16	0	0	0	39	0
	SW (6), pcu/h	0	0	0	0	0	0	0	0
	W (7), pcu/h	54	0	690	0	21	0	0	0
	NW (8), pcu/h	0	0	0	0	0	0	0	0
	Entry flow, pcu/h	72	0	718	0	84	0	1477	0
	Entry flow Lane 1, pcu/h	72	0	338	0	84	0	694	0
	Entry flow Lane 2, pcu/h	0	0	380	0	0	0	783	0
	Conflicting flow, pcu/h	727	0	27	0	1448	0	34	0

Results: Approach Measures of Effectiveness

HCM 6th Edition	N		E		S		W	
Lane Designations	*Lf-Th-Rt*	*No Lane*	*Left-Thru*	*Right-Thru*	*Lf-Th-Rt*	*No Lane*	*Left-Thru*	*Right-Thru*
Entry Capacity, veh/h	510	NA	1254	1322	395	NA	1246	1314
Entry Flow Rates, veh/h	48	0	321	362	80	0	661	745
V/C ratio	**0.09**	0.00	**0.26**	**0.27**	**0.20**	0.00	**0.53**	**0.57**
Control Delay, s/veh	**8.3**	0.0	**5.1**	**5.1**	**12.4**	0.0	**8.8**	**9.1**
LOS	A	#N/A	A	A	B	#N/A	A	A
Average Queue (ft)	3	0	11	13	7	0	40	47
95th % Queue (ft)	**12**	#VALUE!	**27**	**29**	**20**	#VALUE!	**85**	**98**
Approach Delay, LOS	8.3 sec, LOS A		5.1 sec, LOS A		12.4 sec, LOS B		8.9 sec, LOS A	

	NE		SE		SW		NW	
Lane Designations	*No Lane*	*No Lane*	*No Lane*	*No Lane*	*No Lane*	*No Lane*	*No Lane*	*No Lane*
Entry Capacity, veh/h	NA	NA	NA	NA	NA	NA	NA	NA
Entry Flow Rates, veh/h	0	0	0	0	0	0	0	0
V/C ratio			0.00	0.00			0.00	0.00
Control Delay, sec/pcu			0.0	0.0			0.0	0.0
LOS			#N/A	#N/A			#N/A	#N/A
Average Queue (ft)			0	0			0	0
95th % Queue (ft)			#VALUE!	#VALUE!			#VALUE!	#VALUE!
Approach Delay, LOS			#DIV/0!				#DIV/0!	

Overall Intersection Measures of Effectiveness

Int Control Delay (sec)	7.9	Int LOS	A	Max Approach V/C	0.57

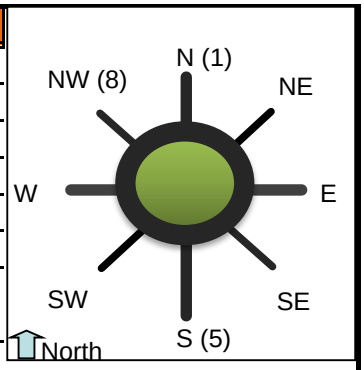
Notes: v 4.2

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)						
Select Exit Leg for Bypass (TO)						
Does the bypass have a dedicated receiving lane?						
# of Conflicting Exit Flow Lanes	**2**	**2**	**2**	**2**	**2**	**2**
Volumes						
Entry Leg: Insert Right Turn Volume						
Exit Leg: ***(Select Input Method)***						
*Lane Flow in Exit Leg****						
Sum of inner circulatory flow lane to exit leg (leg bypass merges into)	N/A	N/A	N/A	N/A	N/A	N/A
Sum of outer circulatory flow lane to exit leg (leg bypass merges into)	N/A	N/A	N/A	N/A	N/A	N/A
*Critical Lane Flow (Manual) in Exit Leg****						
Volume Characteristics						
PHF (Entry Leg)						
F_{HV} (Entry Leg)						
F_{ped}						
PHF (Exit Leg)***	N/A	N/A	N/A	N/A	N/A	N/A
F_{HV} (Exit Leg)***	N/A	N/A	N/A	N/A	N/A	N/A
Volume Characteristics are already taken into account for Default method ONLY. Insert Values above if Manual method.						
Entry/Conflicting Flows						
Entry Flow						
Conflicting Critical Flow						
Bypass Lane Results						
Entry Capacity of Bypass, veh/h						
Flow Rates of Exiting Traffic, veh/h						
V/C ratio						
Control Delay, sec/pcu						
LOS						
95th Percentile Queue (veh)						
95th % Queue (ft)						

General & Site Information

v 4.2

Analyst:	
Agency/Co:	Atlas Technical Consultants
Date:	8/2/2022
Project or PI#:	EG Miles Corridor Study
Year, Peak Hour:	2045 PM
County/District:	Liberty County
Intersection:	Deal St @ EG Miles Pkwy



Volumes	Entry Legs (FROM)							
	N1 (1)	N2 (1)	NE1 (2)	NE2 (2)	E1 (3)	E2 (3)	SE1 (4)	SE2 (4)
Lane Designation	Lf-Th-Rt	No Lane	No Lane	No Lane	Left-Thru	Right-Thru	No Lane	No Lane
N (1), vph						3		
Exit NE (2), vph								
Legs E (3), vph	3							
(TO) SE (4), vph								
S (5), vph					41			
SW (6), vph								
W (7), vph	11				569	685		
NW (8), vph								
Entry Volume, vph	14	0	0	0	610	688	0	0

	S1 (5)	S2 (5)	SW1 (6)	SW2 (6)	W1 (7)	W2 (7)	NW1 (8)	NW2 (8)
Lane Designation	Lf-Th-Rt	No Lane	No Lane	No Lane	Left-Thru	Right-Thru	No Lane	No Lane
N (1), vph	1				3			
NE (2), vph								
E (3), vph	61				377	384		
SE (4), vph								
S (5), vph						44		
SW (6), vph								
W (7), vph	47							
NW (8), vph								
Entry Volume, vph	109	0	0	0	380	428	0	0

	N	NE	E	SE	S	SW	W	NW
# of Entry Flow Lanes	1	0	2	0	1	0	2	0
# of Conflict Flow Lanes	2	2	2	2	2	2	2	2

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	50.0%	100.0%	95.0%	100.0%	95.0%	100.0%	95.0%	100.0%
% Heavy Vehicles	50.0%	0.0%	5.0%	0.0%	5.0%	0.0%	5.0%	0.0%
% Bicycles	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
# of Pedestrians **(ped/hr)**	0	0	0	0	0	0	0	0
PHF	*0.63*	*0.95*	*0.91*	*0.95*	*0.92*	*0.95*	*0.72*	*0.95*
F_{hv}	0.667	1.000	0.952	1.000	0.952	1.000	0.952	1.000
F_{ped}	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Entry/Conflicting Flows		N	NE	E	SE	S	SW	W	NW
Flow to	N (1), pcu/h	0	0	3	0	1	0	4	0
Leg #	NE (2), pcu/h	0	0	0	0	0	0	0	0
	E (3), pcu/h	7	0	0	0	70	0	1110	0
	SE (4), pcu/h	0	0	0	0	0	0	0	0
	S (5), pcu/h	0	0	47	0	0	0	64	0
	SW (6), pcu/h	0	0	0	0	0	0	0	0
	W (7), pcu/h	26	0	1447	0	54	0	0	0
	NW (8), pcu/h	0	0	0	0	0	0	0	0
	Entry flow, pcu/h	33	0	1498	0	124	0	1178	0
	Entry flow Lane 1, pcu/h	33	0	704	0	124	0	554	0
	Entry flow Lane 2, pcu/h	0	0	794	0	0	0	624	0
	Conflicting flow, pcu/h	1548	0	59	0	1121	0	54	0

Results: Approach Measures of Effectiveness

HCM 6th Edition	N		E		S		W	
Lane Designations	*Lf-Th-Rt*	*No Lane*	*Left-Thru*	*Right-Thru*	*Lf-Th-Rt*	*No Lane*	*Left-Thru*	*Right-Thru*
Entry Capacity, veh/h	254	NA	1218	1286	521	NA	1223	1291
Entry Flow Rates, veh/h	22	0	670	756	118	0	528	594
V/C ratio	**0.09**	0.00	**0.55**	**0.59**	**0.23**	0.00	**0.43**	**0.46**
Control Delay, s/veh	**16.0**	0.0	**9.3**	**9.6**	**10.1**	0.0	**7.3**	**7.4**
LOS	C	#N/A	A	A	B	#N/A	A	A
Average Queue (ft)	2	0	43	51	8	0	27	31
95th % Queue (ft)	**11**	#VALUE!	**92**	**106**	**23**	#VALUE!	**58**	**65**
Approach Delay, LOS	16 sec, LOS C		9.5 sec, LOS A		10.1 sec, LOS B		7.4 sec, LOS A	

	NE		SE		SW		NW	
Lane Designations	*No Lane*	*No Lane*	*No Lane*	*No Lane*	*No Lane*	*No Lane*	*No Lane*	*No Lane*
Entry Capacity, veh/h	NA	NA	NA	NA	NA	NA	NA	NA
Entry Flow Rates, veh/h	0	0	0	0	0	0	0	0
V/C ratio			0.00	0.00			0.00	0.00
Control Delay, sec/pcu			0.0	0.0			0.0	0.0
LOS			#N/A	#N/A			#N/A	#N/A
Average Queue (ft)			0	0			0	0
95th % Queue (ft)			#VALUE!	#VALUE!			#VALUE!	#VALUE!
Approach Delay, LOS			#DIV/0!				#DIV/0!	

Overall Intersection Measures of Effectiveness

Int Control Delay (sec)	8.7	Int LOS	A	Max Approach V/C	0.59

Notes: v 4.2

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)						
Select Exit Leg for Bypass (TO)						
Does the bypass have a dedicated receiving lane?						
# of Conflicting Exit Flow Lanes	**2**	**2**	**2**	**2**	**2**	**2**
Volumes						
Entry Leg: Insert Right Turn Volume						
Exit Leg: ***(Select Input Method)***						
*Lane Flow in Exit Leg****						
Sum of inner circulatory flow lane to exit leg (leg bypass merges into)	N/A	N/A	N/A	N/A	N/A	N/A
Sum of outer circulatory flow lane to exit leg (leg bypass merges into)	N/A	N/A	N/A	N/A	N/A	N/A
*Critical Lane Flow (Manual) in Exit Leg****						
Volume Characteristics						
PHF (Entry Leg)						
F_{HV} (Entry Leg)						
F_{ped}						
PHF (Exit Leg)***	N/A	N/A	N/A	N/A	N/A	N/A
F_{HV} (Exit Leg)***	N/A	N/A	N/A	N/A	N/A	N/A
Volume Characteristics are already taken into account for Default method ONLY. Insert Values above if Manual method.						
Entry/Conflicting Flows						
Entry Flow						
Conflicting Critical Flow						
Bypass Lane Results						
Entry Capacity of Bypass, veh/h						
Flow Rates of Exiting Traffic, veh/h						
V/C ratio						
Control Delay, sec/pcu						
LOS						
95th Percentile Queue (veh)						
95th % Queue (ft)						