E.G. Miles Parkway SR 196 / SR 119

Corridor Study

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Introduction

Background and Purpose

This study's goal is to assess the SR 119/E.G. Miles Parkway corridor in Hinesville, Georgia, which runs between General Screven Way and SR 119/Airport Road. The main entrance to the Liberty Regional Medical Center, commercial shopping centers, residential communities, the city of Hinesville Public Works Department, and the headquarters of Liberty Transit are all located along this corridor, which is also about a mile from the main access gate to the Fort Stewart Military Installation. With multiple at-grade intersections, one railroad crossing, business driveways, and cross sections ranging from 4-lanes with a center two-way left turn lane to 4-lanes undivided without any existing center median infrastructure, the route handles 17,000 to 21,700 vehicles per day (vpd).

The corridor was also included in the Hinesville Area Metropolitan Organization (HAMPO) Freight Study as a freight route, linking to the Fort Stewart Freight Access on 15th Street. In October 2020, the 2045 HAMPO Metropolitan Transportation Plan (MTP) was established, and it identified this route as a high accident corridor and an area slated for significant land development. The local rezoning and engineering processes for two planned projects in this study region are presently underway, and it has been determined that specific conditions necessitate conducting traffic impact studies. The MTP suggested three operational enhancement projects for the Metropolitan Planning Organization (MPO) region that would increase capacity, safety, and freight support. Additionally, the Liberty County T-SPLOST vote that was successfully approved in 2020 recognized this.

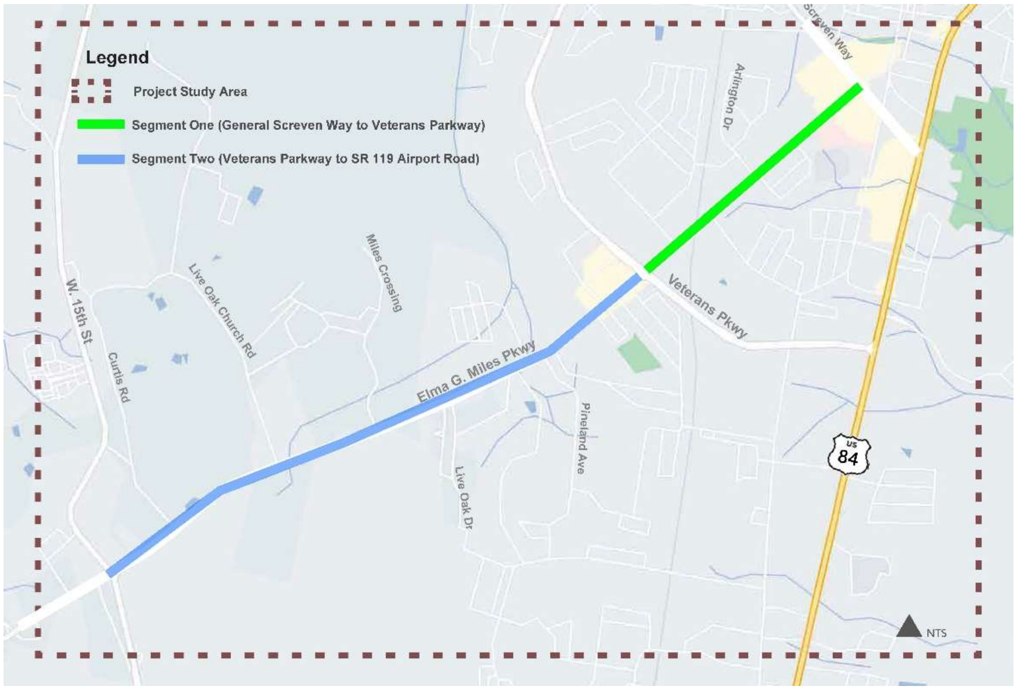
Since the MTP's implementation, GDOT District 5 found that operational changes are required to accommodate the current average annual daily traffic (AADT). In addition, GDOT suggested that a safety analysis be carried along the corridor. It was decided at a coordination meeting with local and state elected officials, GDOT partners, business leaders, and local HAMPO leadership that a thorough corridor analysis is required to comprehend current and future transportation issues and to determine the best way to use the various public and private transportation funds available for capital improvements for the corridor.

While the entire corridor was examined to ensure consistency for the improvements suggested by the mid- to long-range MTP, special attention was given to examining and creating recommendations that are ready for implementation for the segment that is currently under development pressure and has a high crash rate, relative to the statewide average for similar facilities. The study corridor has been divided into two segments as followed:

- Segment 1: General Screven Way to Veterans Parkway
- Segment 2: Veterans Parkway to W 15th St

Figure 1 highlights the study boundaries and the limits of the Segment 1 and Segment 2 roadway sections.

FIGURE 1: E.G. MILES CORRIDOR REFERENCE MAP



Review of Existing Plans and Documents

As part of the study, local regional and state initiatives were received for road safety to better understand local desires and recommendations that reflected local outcomes. This section cites considerations related to the SR 196/E.G. Miles Parkway Road Safety Audit (RSA) in addition to consideration of the observed traffic.

All plans and findings require the two sections of this corridor to be addressed. By and large, connectivity and access has not been a factor in the previous planning studies. This is not due to negligence rather the scopes of those plans and studies did not include items such as transit, commerce, or specifically addressing a particular mode of operation. The concepts that follow from this review outlined specific considerations as this project moved through public stakeholders and local official meetings towards recommending corridor improvement projects.

The existing plans were reviewed at the site level to understand how to achieve operational efficiency and implement safety across various while accommodating vehicular traffic and freight. More detailed information regarding improvement project recommendations is listed in the Conclusions and Recommendations section of this report. The list of plans and documents which were reviewed as part of this effort includes:

- GDOT Safety Audit Data and Recommendations
- GDOT Design policy manual
- GDOT Context Sensitive Design Manual
- Hinesville Municipal Code
- Liberty County Land Development Code (LDC)
- Permitting and Planning
- AASHTO Recommendations for Urban Context
- Walk, Thrive Bike Report, Atlanta Regional Commission
- Local Government and Law Enforcement Programs

- Traffic Data, collected and observed
- Demographic information
- Technical Memorandum of review of GDOT safety audit

Review of the GDOT Safety Audit with Suggestions

The review took an in-depth look at the safety audit performed by the state in 2017. This study will provide additional recommendations based on the initial conclusions of the 2017 safety audit. The 2017 study identified the various high collision points that are well-known to both the state and local officials. With most collisions at intersections and in commercial areas, an initial suggestion is to provide the opportunity for more modes of transportation to have safe access as well as treatments that provide for enhanced pedestrian safety.

Another observation for the study is that it does not take into context the emerging multifamily development nor the desire of the local community to improve access through transit and commercial development densification. While the data review still supports design updates including turning lanes and intersection improvements with raised medians, access management should be considered as part of the solution to better understand the potential impacts of changing one intersection with the effects to another intersection nearby.

Thus, this will also require consideration of context-based solutions to address approach design speed while entering commercial corridors from the rural highway corridor sections. Managing the corridor as a whole versus spot treatments at high collision intersections should assist in the overall reduction of collisions with vehicles, pedestrians and property. Access management can be a difficult concept at the local level and should be vetted with local stakeholders to understand impacts as well as find common ground to achieve a better comprehensive outcome.

Stakeholder Engagement

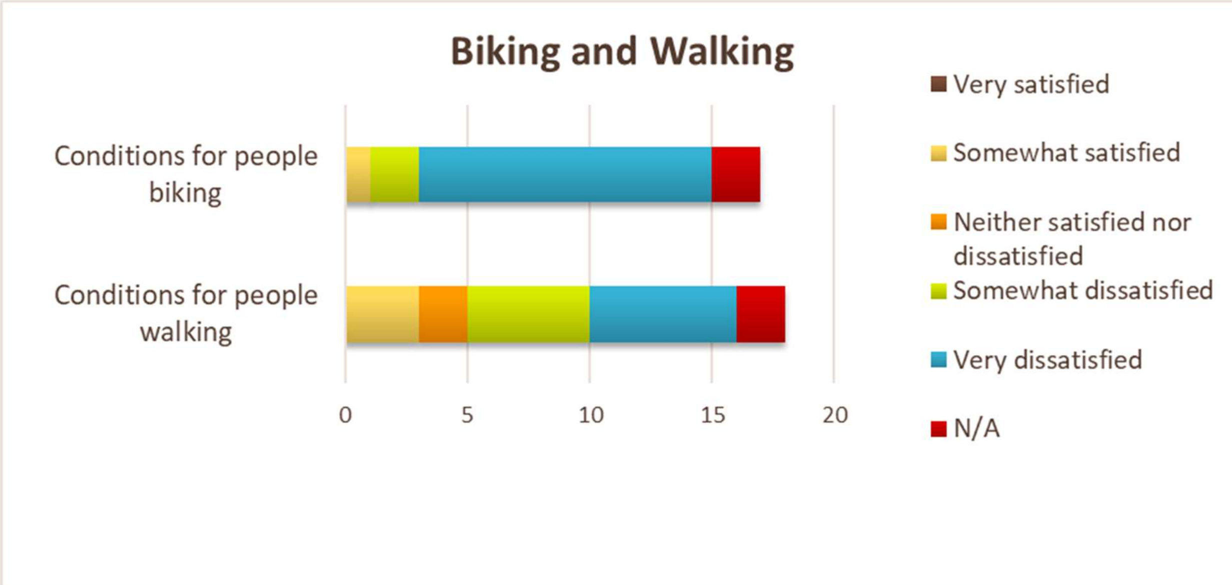
A central pillar of the E.G. Miles Corridor study was to gather appropriate and useable feedback from the general public, stakeholders, and other important participants using a variety of resources and tools to better understand the needs and constrains of the E.G. Miles Corridor and the greater study area roadway network. Thus, the stakeholder engagement and outreach strategy developed at the onset of the study was used to establish the means and methods of conveying information with, and encouraging and incorporating input from the general public, stakeholders, property owners, and elected officials. Both traditional in-person outreach in addition to web and online based outreach mechanisms were employed to engage the public through public meetings, outreach events, online surveys and questionnaires.

A focus group presentation and discussions regarding the E.G. Miles Parkway issues were carried out in March 2022 in addition to regular committee presentations. Two public meetings were conducted on April 14, 2022 and May 12, 2022 where concept layouts, factual summary sheets, and additional corridor study materials were presented as a way to inform stakeholders and provide a baseline for further discussion. Comprehensively, the stakeholder and public involvement included individuals from the following organizations:

- Various Business and Property Owners
- Chamber of Commerce
- Development Authority Representatives
- Sheriff's Office, Fire, EMS
- Police Departments
- Fort Stewart
- Liberty Transit
- Liberty Regional Medical Center
- GDOT and HAMPO Committee Members

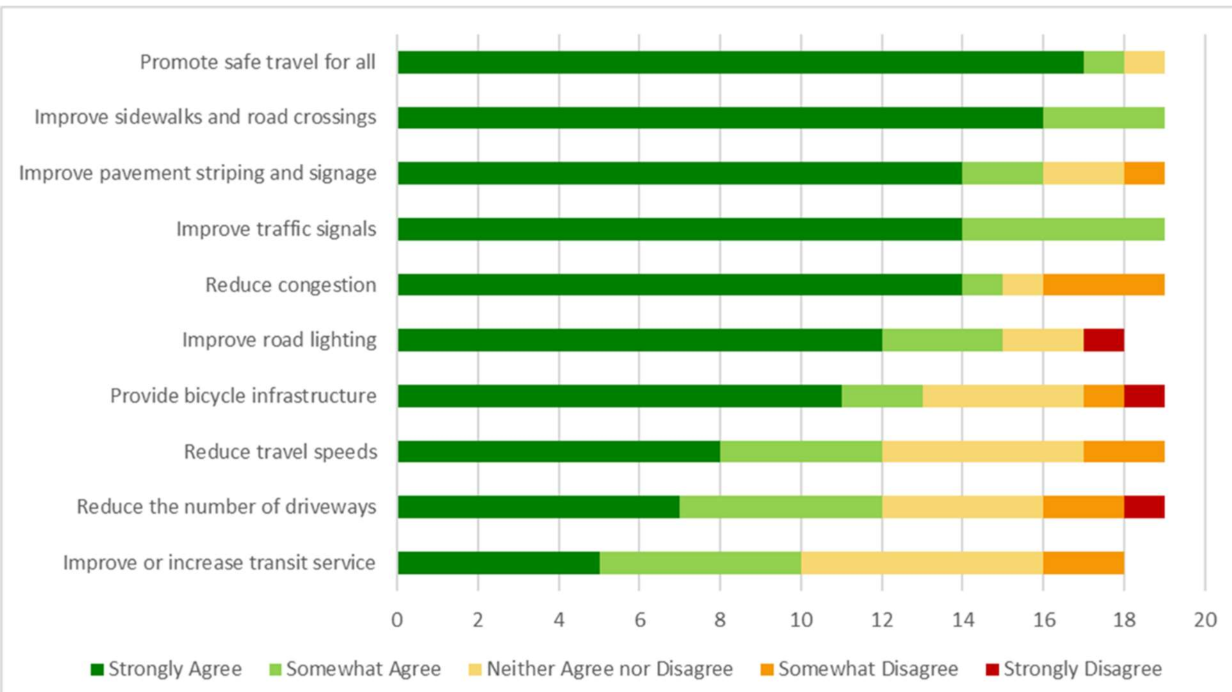
A summary of the stakeholder survey results is presented in the Figures 2 through 4.

Figure 2: Stakeholder Survey Feedback (Existing Bicycle and Walking Conditions)*



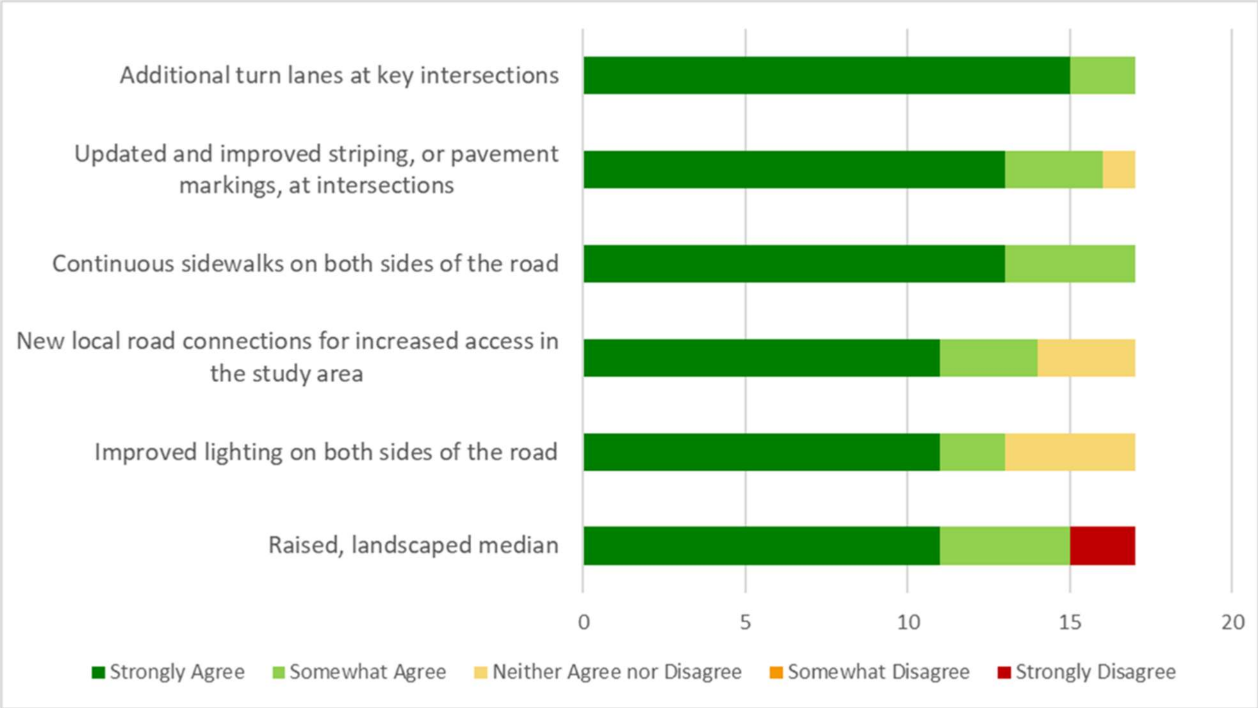
* Survey results shown in the figure above included 19 survey respondents.

Figure 3: Stakeholder Survey Feedback (Corridor Improvement Needs)*



* Survey results shown in the figure above included 19 survey respondents.

FIGURE 4: STAKEHOLDER SURVEY FEEDBACK (CORRIDOR IMPROVEMENT NEEDS)*



* Survey results shown in the figure above included 19 survey respondents.

After the stakeholder feedback was collected and analyzed, a summary of priority stakeholder concerns specific to the E.G. Miles corridor and the greater study area road network was developed from online surveys and in-person feedback. Each issue was categorized based on its location of impact either along the E.G. Miles Parkway study corridor or within the greater study area. The summary of concerns and suggestions is as follows:

Concerns and Suggestions – E.G. Miles Parkway Corridor Needs

- Cut-through traffic in neighborhoods where there is limited access from EG Miles.
- Walking on this high-speed corridor will still not be comfortable. The distance between the sidewalk and the roadway is too narrow.
- Speeding will not be reduced despite improvements on corridor.
- Maintenance might still be an issue. Sidewalks will need to be maintained.
- The manhole covers are an ongoing issue because tires drop into the holes or drivers swerve at high speeds to miss the holes.

Concerns and Suggestions – Study Area Network Needs

- The corridor has no alternate routes. We need another route to Fort Stewart from the west to disperse traffic.
- Congestion on E.G. Miles will only increase as more homes are built in the area. We need more local roads for through traffic.

Existing Conditions

To evaluate the existing roadway conditions, traffic counts and subsequent analysis was conducted along E.G. Miles Parkway and at the major intersections that could be impacted by future design decisions. Since existing traffic data was somewhat limited to the E.G. Miles Parkway corridor, trip generation was conducted to estimate traffic coming in and out from major traffic generating establishments. Inventorying the existing roadway was done in addition to looking at crash history, speed data, and existing intersection traffic control.

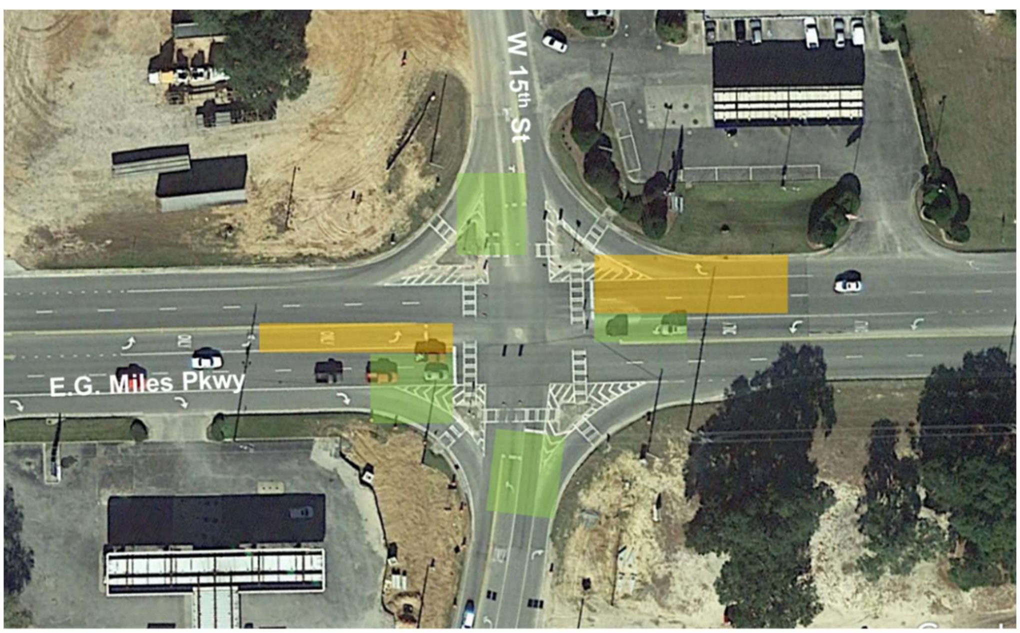
Site Visits and Field Observations

To obtain a better understanding of the existing roadway conditions, including operational and safety aspects, a site inventory along the E.G. Miles Corridor was conducted during the AM and PM peak hours on Tuesday February 9, 2022. The site visit focused on the existing corridor constraints and the approximate intersection vehicle queuing at the following three intersections:

- E.G. Miles Parkway at W 15th Street
- E.G. Miles Parkway at Veterans Parkway
- E.G. Miles Parkway at General Screven Way

The proceeding figures (Figures 5 through 10) show the approximate morning and evening peak traffic queuing at three intersection locations along the E.G. Miles Parkway study corridor. Each intersection approach was highlighted based on the observed amount of vehicle queueing. Green highlights minimal vehicle queuing (less than 10 cars), moderate queuing (approximately 10 to 20 vehicles) is shown in orange highlights, and extensive intersection queuing (more than 20 vehicles) is shown in red.

FIGURE 5: E.G. MILES PKWY AT W 15TH ST MORNING PEAK PERIOD INTERSECTION QUEUING



Minimal Intersection Queuing (approx. <10 cars*)
Moderate Intersection Queuing (approx. 10-20 cars*)
Extensive Intersection Queuing (approx. >20 cars*)
*Intersection queuing was measured by observing the average number of cars that line up per approach during the red light cycle phase.

FIGURE 6: E.G. MILES PKWY AT W 15TH ST EVENING PEAK PERIOD INTERSECTION QUEUING

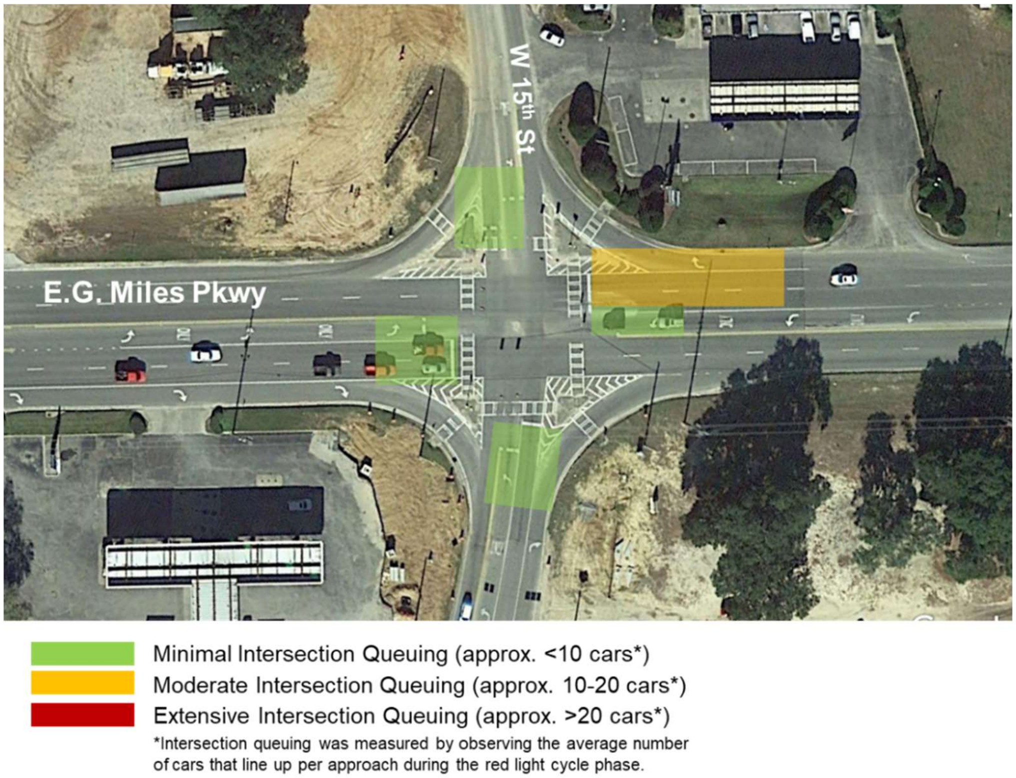


FIGURE 7: E.G. MILES PKWY AT VETERANS PKWY MORNING PEAK PERIOD INTERSECTION QUEUING

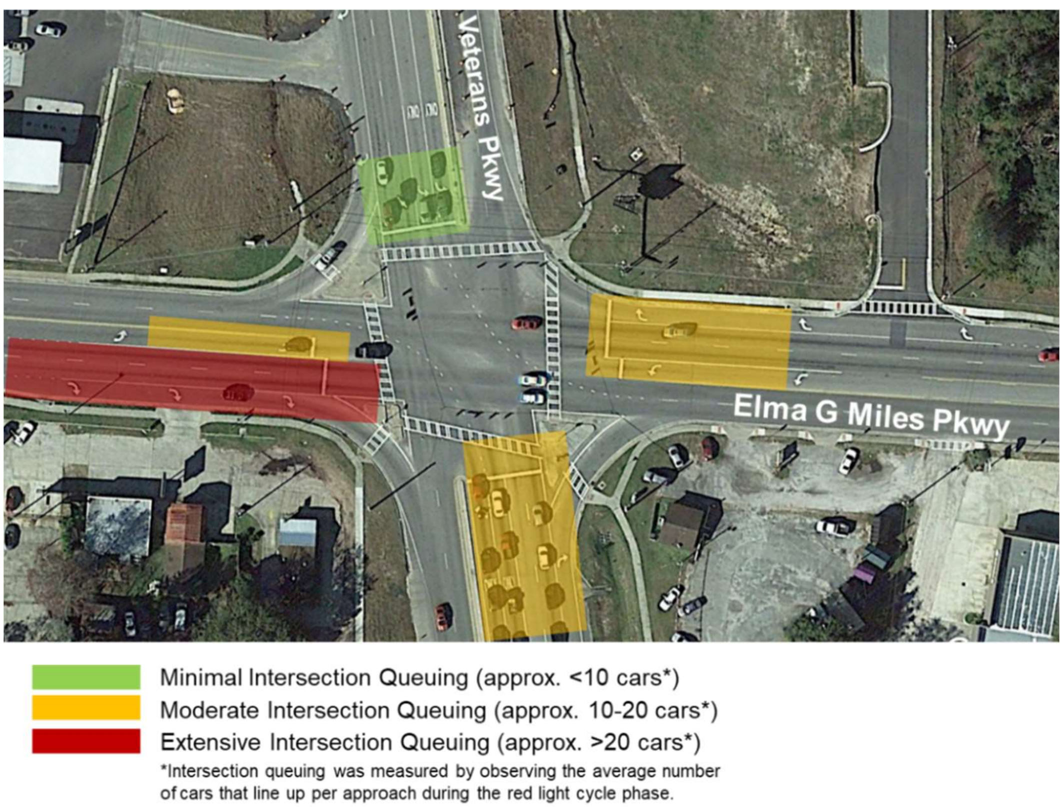
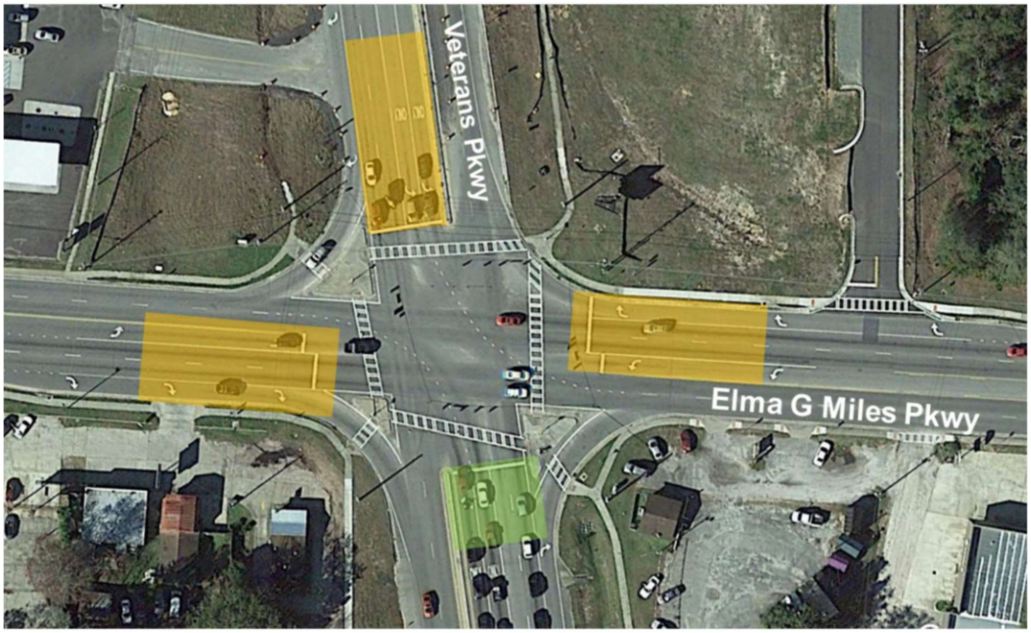


FIGURE 8: E.G. MILES PKWY AT VETERANS PKWY EVENING PEAK PERIOD INTERSECTION QUEUING

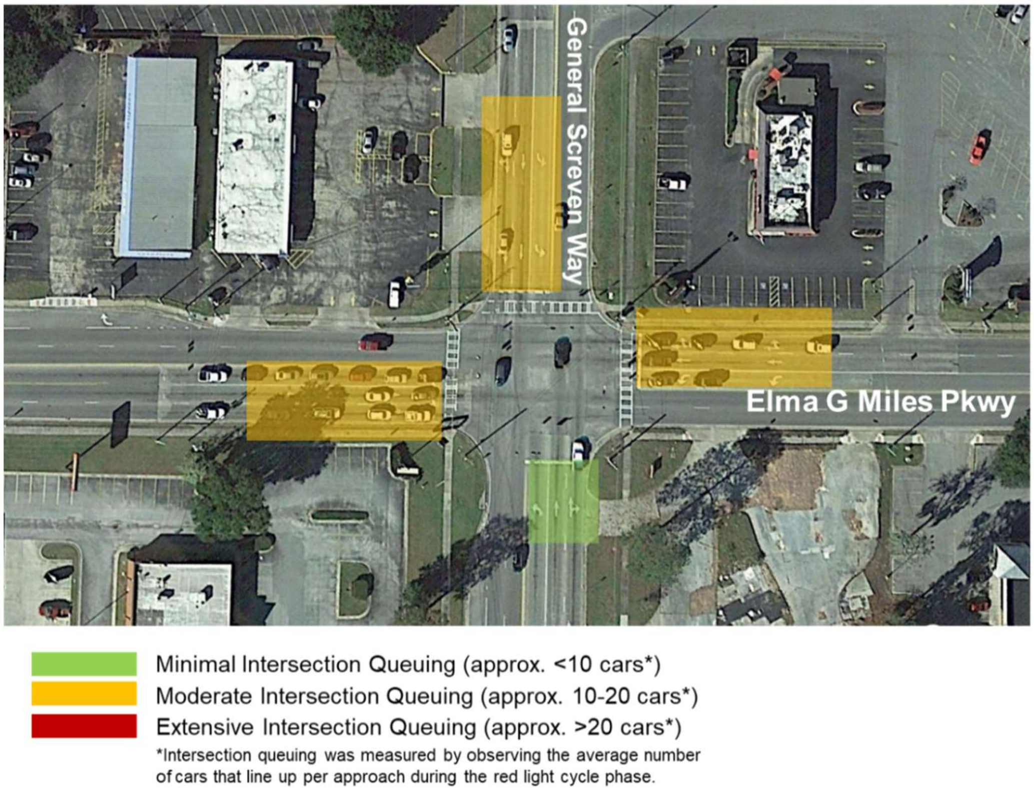


Minimal Intersection Queuing (approx. <10 cars*)
Moderate Intersection Queuing (approx. 10-20 cars*)
Extensive Intersection Queuing (approx. >20 cars*)
*Intersection queuing was measured by observing the average number of cars that line up per approach during the red light cycle phase.

FIGURE 9: E.G. MILES PKWY AT GEN SCREVEN WAY MORNING PEAK PERIOD INTERSECTION QUEUING

Minimal Intersection Queuing (approx. <10 cars*)
Moderate Intersection Queuing (approx. 10-20 cars*)
Extensive Intersection Queuing (approx. >20 cars*)
*Intersection queuing was measured by observing the average number of cars that line up per approach during the red light cycle phase.

FIGURE 10: E.G. MILES PKWY AT GEN SCREVEN WAY EVENING PEAK PERIOD INTERSECTION QUEUING



Traffic Data

Traffic counts were collected on December 7, 2021 and December 8, 2021. Turning Movement Counts (TMCs) were conducted at the intersections of Airport Road/ W 15th Street and E.G. Miles Parkway, Veterans Parkway at E.G. Miles Parkway, and W General Screven Way at E.G. Miles Parkway during three peak hour periods:

- AM peak (7 AM to 9 AM)
- Noon peak (11 AM to 1 PM)
- PM peak (4 PM to 6 PM)

48-hour bi-directional counts were conducted at the following locations:

- Curtis Road
- Live Oak Church Road
- Miles Crossing
- Live Oak Drive
- Pineland Ave
- Arlington

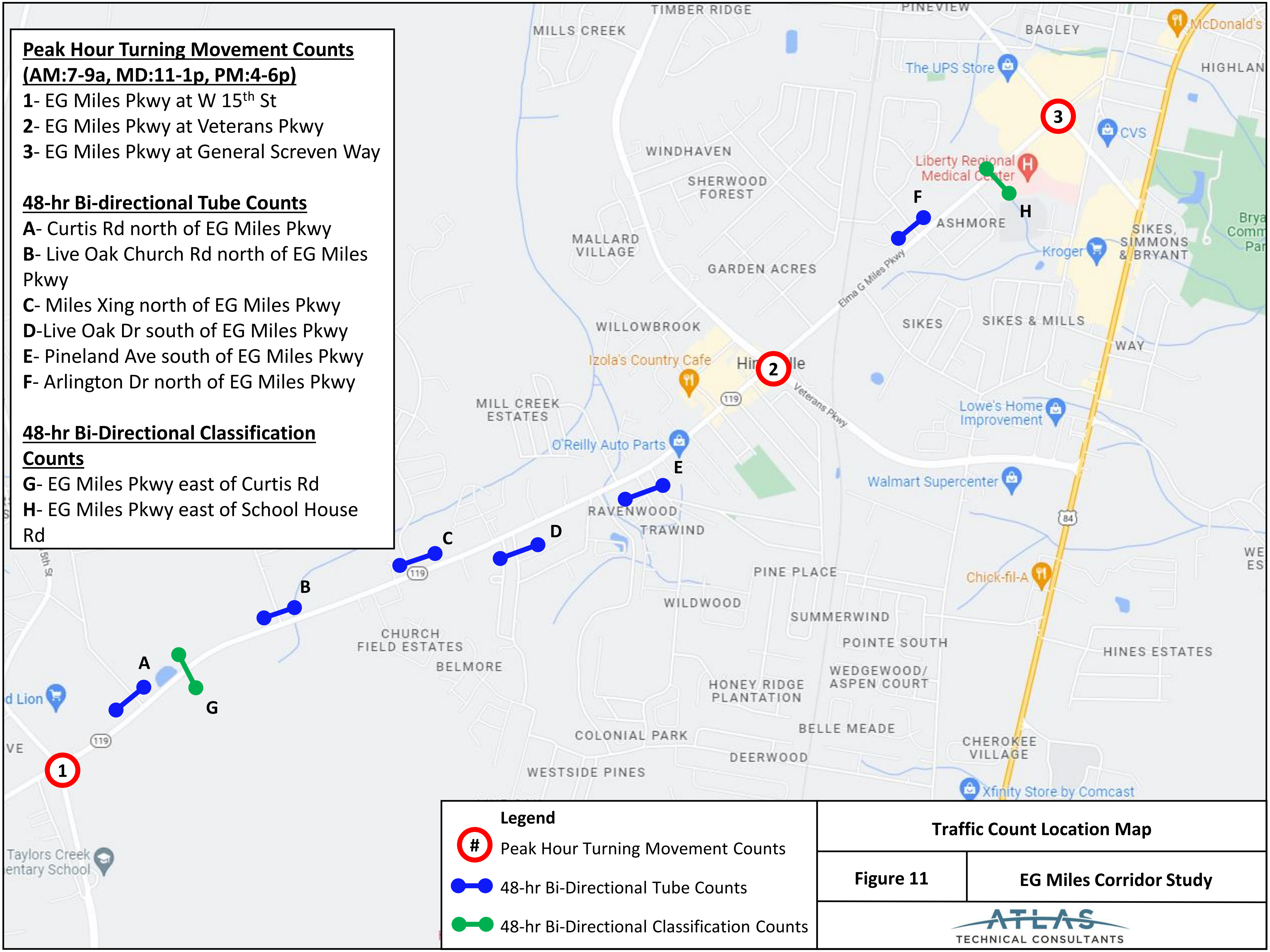
The two 48-hour bi-directional counts (G and H) that were collected on E.G. Miles Parkway also included vehicle classification counts, meaning both vehicle and truck specific data was collected. Previous data collection was conducted for a traffic impact study at the intersection of Deal Street and E.G. Miles Parkway which was taken into account. The figures (Figures 11 through 15) below show the locations of the traffic counts within the study area and the existing turning movement and ADT counts per direction at each collected location. It was found that busses and heavy vehicles are about 22% of vehicular traffic while cars and trailers make up 78% of vehicular traffic. Detailed counts can be found in the appendices of this report.

GDOT Count Stations

In addition to the collected data, there are existing GDOT count stations along the corridor. Count station 179-0121 is located on E.G. Miles Parkway west of Live Oak Church Road. Count station 179-0123 is located on E.G. Miles Parkway east of Palm Drive. Although the Traffic Analysis and Data Application (TADA) contains data for the last 10 years, not all data is field collected meaning some year's traffic data is estimated based on previous field data collection. Thus, actual counts were the main source of evaluation of this study. Table 1 shows the actual counts available for these stations.

TABLE 1: HISTORICAL GDOT COUNT STATION DATA

Year	E.G. Miles Parkway Pkwy GDOT TC 079-0121 AADT	E.G. Miles Parkway Pkwy GDOT TC 079-0123 AADT
2015	16,900	-
2017	-	19,900
2018	-	16,900
2019	21,700	-
2020	-	17,000



Peak Hour Turning Movement Counts (AM:7-9a, MD:11-1p, PM:4-6p)

1- EG Miles Pkwy at W 15th St
2- EG Miles Pkwy at Veterans Pkwy
3- EG Miles Pkwy at General Screven Way

48-hr Bi-directional Tube Counts

A- Curtis Rd north of EG Miles Pkwy
B- Live Oak Church Rd north of EG Miles Pkwy
C- Miles Xing north of EG Miles Pkwy
D-Live Oak Dr south of EG Miles Pkwy
E- Pineland Ave south of EG Miles Pkwy
F- Arlington Dr north of EG Miles Pkwy

48-hr Bi-Directional Classification Counts

G- EG Miles Pkwy east of Curtis Rd
H- EG Miles Pkwy east of School House Rd

Legend

\# Peak Hour Turning Movement Counts
48-hr Bi-Directional Tube Counts
48-hr Bi-Directional Classification Counts

Traffic Count Location Map

Figure 11 | **EG Miles Corridor Study**

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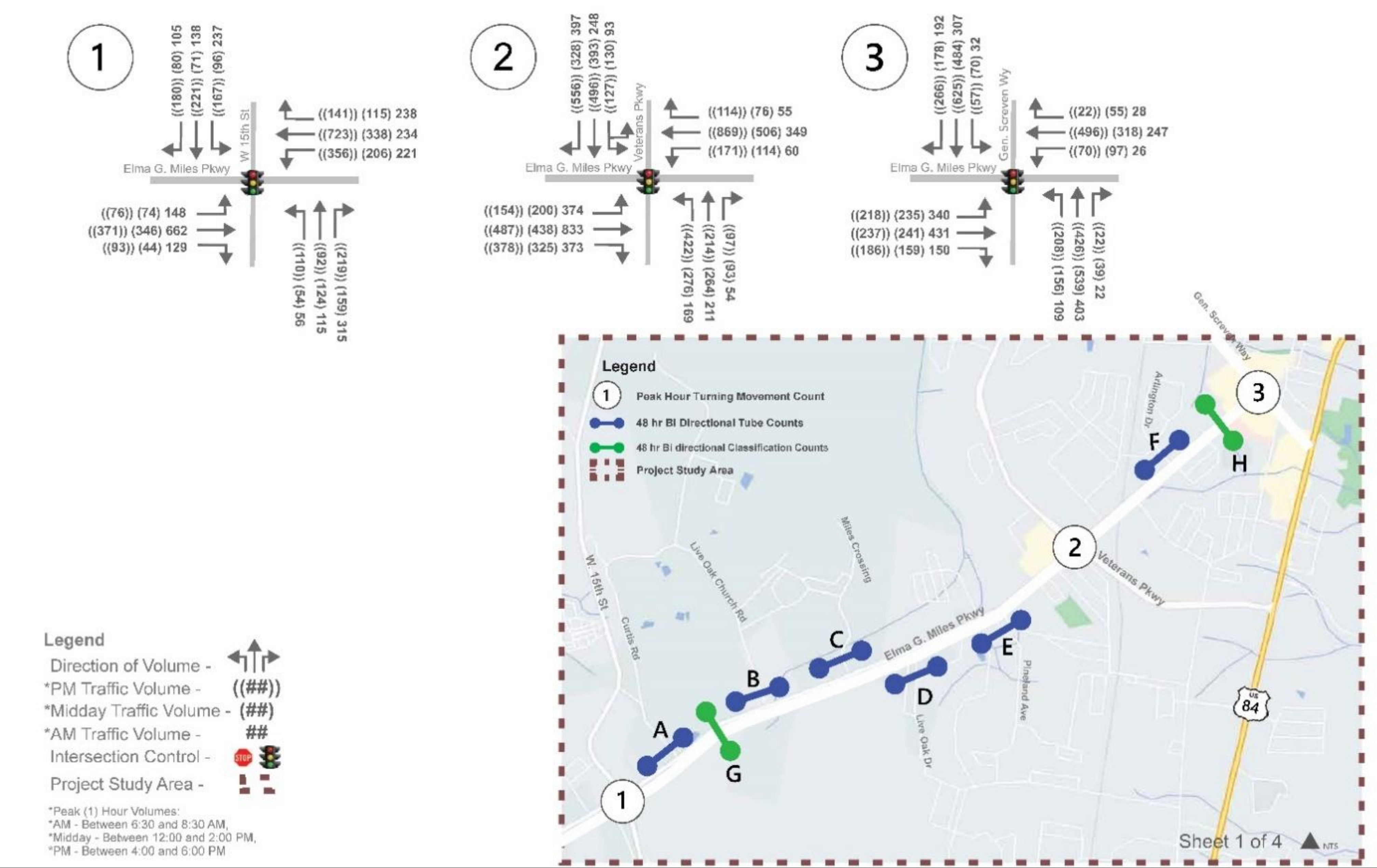

Existing Turning Movement Traffic Counts (2021)	
Figure 12	**EG Miles Corridor Study**

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Existing Bi-Directional Traffic Counts (2021)

Figure 13	**EG Miles Corridor Study**

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Existing Bi-Directional Traffic Counts (2021)

Figure 14	**EG Miles Corridor Study**

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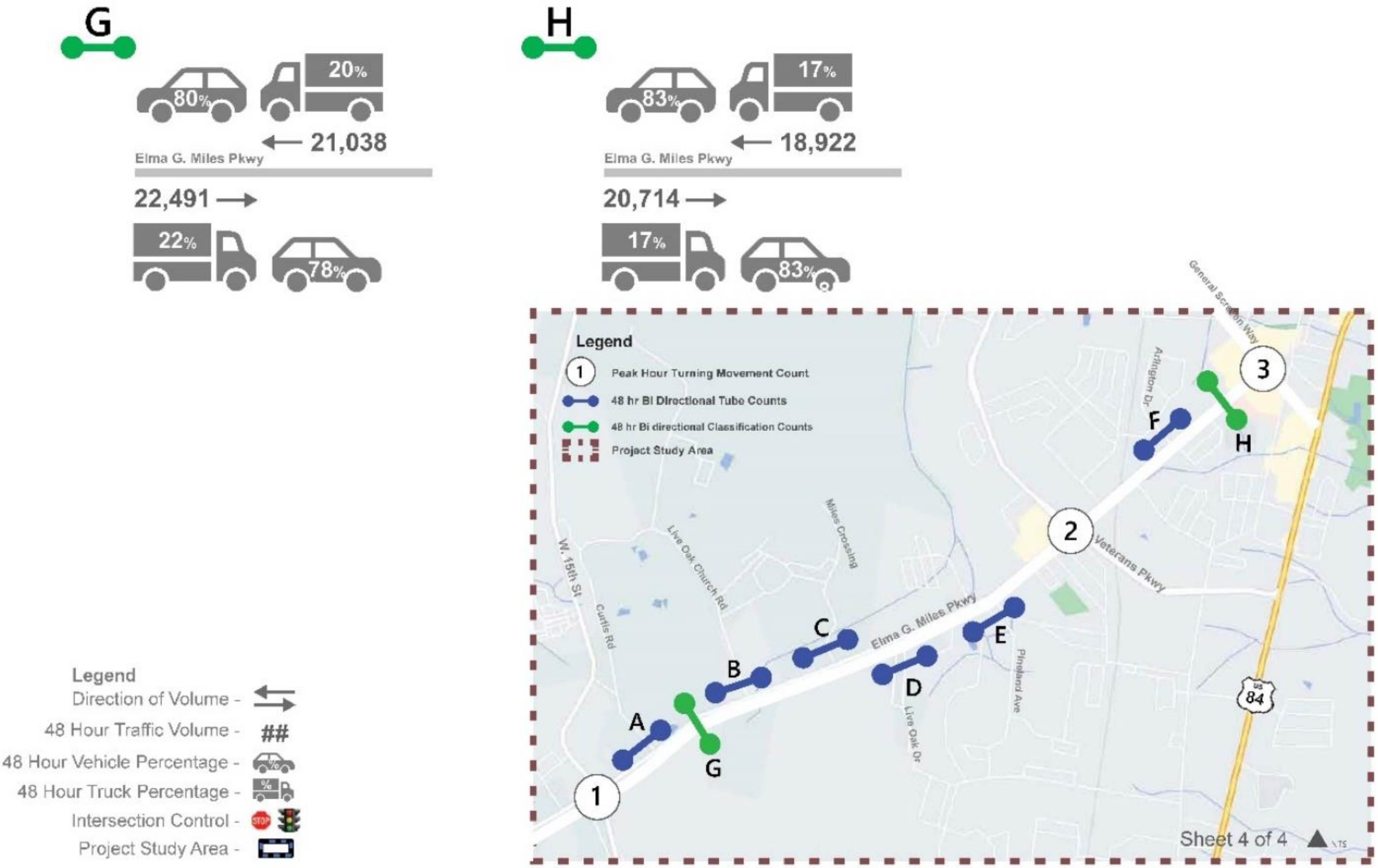

Existing Bi-Direction Classification Counts (2021)	
Figure 15	**EG Miles Corridor Study**

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Safety Analysis

Historical Crash Data

Crash history data was collected from the Georgia Electronic Accident Reporting System (GEARS). To see how the crash data stood in relation to statewide averages, it was compared to the statewide crash rates of similarly classed facilities in terms of crashes per 100 million vehicles miles (100Mvm). Throughout the entire corridor, the crash rate was observed to be higher than the state average. Crash history from 2016 to 2020 was used for the comparison timeframe. Tables 2 and 3 show the statewide crash data versus the E.G. Miles Parkway corridor.

TABLE 2: E.G. MILES PARKWAY SEGMENT 1: CORRIDOR VS STATE CRASH DATA

Year	AADT	Overall Crash Rate (per 100Mvm)	Statewide Average Overall Crash Rate	Injury Only Crash Rate (per 100Mvm)	Fatal Crash Rate
2016	17000	1413.7	655	452.4	0.0
2017	17000	1102.7	623	410.0	0.0
2018	16900	1223.0	540	312.9	0.0
2019	19900	1171.4	480	350.2	0.0
2020	19700	878.4	n/a	219.6	12.2

TABLE 3: E.G. MILES PARKWAY SEGMENT 2: CORRIDOR VS STATE CRASH DATA

Year	AADT	Overall Crash Rate (per 100Mvm)	Statewide Average Overall Crash Rate	Injury Crash Rate (per 100Mvm)	Fatal Crash Rate
2016	19600	830.8	655	241.4	5.6
2017	21700	978.6	623	304.2	5.1
2018	17400	980.1	540	328.8	0.0
2019	17500	1200.9	480	326.9	0.0
2020	17400	986.5	n/a	297.2	6.3

In addition to the data above, the historical intersection crash data from the 5 latest years was inventoried. The crash data from the previous 5 years was compiled and separated into 6 separate crash types: angle, head-on, rear end, sideswipe-same direction of travel, sideswipe opposite direction of travel. Additionally, the crashes were separated by crash severity: no apparent injury (O), possible injury or complaint (C), suspected minor or visible injury (B), suspected serious injury (A), fatal injury (K). Tables 4 through 15 show the crash data from the previous 5 years for each intersection.

TABLE 4: AIRPORT DR/W 15TH ST AND E.G. MILES PARKWAY CRASH DATA

Crash Type	Crash Severity					% Of Total
	K	A	B	C	O	
Angle	0	0	9	17	48	32%
Head-on	1	0	3	6	2	5%
Rear End	0	0	1	25	84	47%
Sideswipe- Same	0	0	0	0	17	7%
Sideswipe- Opposite	0	0	0	0	8	3%
Not Collision w/ Motor Veh	0	0	1	1	11	6%
Totals	1	0	14	49	170	234

TABLE 5: CURTIS RD AND E.G. MILES PARKWAY CRASH DATA

Crash Type	Crash Severity					% Of Total
	K	A	B	C	O	
Angle	0	0	0	2	0	14%
Head-on	0	0	0	0	0	0%
Rear End	0	0	0	0	1	7%
Sideswipe- Same	0	0	0	0	4	29%
Sideswipe- Opposite	0	0	0	0	1	7%
Not Collision w/ Motor Veh	0	0	0	0	6	43%
Totals	0	0	0	2	12	14

TABLE 6: LIVE OAK CHURCH RD AND E.G. MILES PARKWAY CRASH DATA

Crash Type	Crash Severity					% of Total
	K	A	B	C	O	
Angle	0	0	0	0	4	15%
Head-on	0	0	0	0	0	0%
Rear End	0	0	2	4	4	37%
Sideswipe- Same	0	0	0	0	6	22%
Sideswipe- Opposite	0	0	0	0	1	4%
Not Collision w/ Motor Veh	0	0	0	2	4	22%
Totals	0	0	2	6	19	27

TABLE 7: MILES XING AND E.G. MILES PARKWAY CRASH DATA

Crash Type	Crash Severity					% of Total
	K	A	B	C	O	
Angle	0	1	0	3	4	42%
Head-on	0	0	0	0	2	11%
Rear End	0	0	0	1	4	26%
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	4	21%
Totals	0	1	0	4	14	19

TABLE 8:LIVE OAK DR AND E.G. MILES PARKWAY CRASH DATA

Crash Type	Crash Severity					% of Total
	K	A	B	C	O	
Angle	**0**	**0**	**1**	**5**	**13**	**40%**
Head-on	0	0	0	2	2	8%
Rear End	0	1	0	2	8	23%
Sideswipe- Same	0	0	0	0	9	19%
Sideswipe- Opposite	0	0	0	1	2	6%
Not Collision w/ Motor Veh	0	0	0	0	2	4%
Totals	0	1	1	10	36	48

TABLE 9: PINELAND AVE AND E.G. MILES PARKWAY CRASH DATA

Crash Type	Crash Severity					% of Total
	K	A	B	C	O	
Angle	0	0	2	11	29	59%
Head-on	0	0	0	0	1	1%
Rear End	0	0	1	5	11	24%
Sideswipe- Same	0	0	0	0	6	8%
Sideswipe- Opposite	0	0	0	0	1	1%
Not Collision w/ Motor Veh	0	0	0	0	4	6%
Totals	0	0	3	16	52	71

TABLE 10: WILLOWBROOK DR/ SHARON ST AND E.G. MILES PARKWAY CRASH DATA

Crash Type	Crash Severity					% of Total
	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

TABLE 11: VETERANS PKWY AND E.G. MILES PARKWAY CRASH DATA

Crash Type	Crash Severity					% of Total
	K	A	B	C	O	
Angle	0	0	8	12	36	25%
Head-on	0	0	2	1	2	2%
Rear End	0	0	4	26	103	59%
Sideswipe- Same	0	0	0	1	21	10%
Sideswipe- Opposite	0	0	0	1	0	0%
Not Collision w/ Motor Veh	0	0	0	1	7	4%
Totals	0	0	14	42	169	225

TABLE 12: DEAL ST AND E.G. MILES PARKWAY CRASH DATA

Crash Type	Crash Severity					% of Total
	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

TABLE 13: ARLINGTON DR/ SURREY RD AND E.G. MILES PARKWAY CRASH DATA

Crash Type	Crash Severity					% of Total
	K	A	B	C	O	
Angle	0	1	0	4	5	26%
Head-on	0	0	0	1	0	3%
Rear End	0	0	0	4	19	61%
Sideswipe- Same	0	0	0	2	1	8%
Sideswipe- Opposite	0	0	0	0	0	0%
Not Collision w/ Motor Veh	0	0	0	0	1	3%
Totals	0	1	0	11	26	38

TABLE 14: LIBERTY REGIONAL MEDICAL CENTER AND E.G. MILES PARKWAY CRASH DATA

Crash Type	Crash Severity					% of Total
	K	A	B	C	O	
Angle	0	0	0	2	3	26%
Head-on	0	0	0	0	0	0%
Rear End	0	0	0	3	5	42%
Sideswipe- Same	0	0	0	0	2	11%
Sideswipe- Opposite	0	0	0	0	1	5%
Not Collision w/ Motor Veh	1	0	0	0	2	16%
Totals	1	0	0	5	13	19

TABLE 15: W GENERAL SCREVEN WAY AND E.G. MILES PARKWAY CRASH DATA

Crash Type	Crash Severity					% of Total
	K	A	B	C	O	
Angle	0	0	4	12	52	42%
Head-on	0	1	0	1	2	2%
Rear End	0	0	1	10	66	48%
Sideswipe- Same	0	0	0	1	8	6%
Sideswipe- Opposite	0	0	0	0	2	1%
Not Collision w/ Motor Veh	0	0	0	0	1	1%
Totals	0	1	5	24	131	161

Pedestrian Corridor Conditions

Along the E.G. Miles Parkway corridor improvements have been made to implement sidewalks along both sides of E.G. Miles Parkway, especially along Segment 2 (Veterans Parkway to W 15th St) where new sidewalks have been constructed to provide connected pedestrian access. While the pedestrian sidewalk links have improved in recent years, there are still some areas which lack safe pedestrian crossing conditions at both mid-block locations and at specific intersection approaches. For example, as shown in Figure 16 the northbound approach on General Screven way at E.G. Miles Parkway is missing crosswalk striping. This is an important safety element as it provides a visible crossing path for pedestrians and drivers. Also, GDOT Signal Design Guidelines require a crosswalk on all approaches.

Speed Data

Speed data was collected from GDOT's Traffic Analysis and Data Application (TADA) database. Speed data was collected from two count station locations along E.G. Miles Parkway. One location (179-0121) is located between W 15th Street and Veterans Parkway the other station (179-0123) is located between Veterans Parkway and General Screven Way. Speed data is only available for a couple of days at each count station (179-0121: August 3, 2021 to August 5, 2021 and 179-0123: November 8,2021 to November 10, 2021). At station location (179-121), the average speed of travel was above the posted speed limit (45 MPH and 40 MPH respectively). Figures 17 and 18 shows the GDOT speed information.

FIGURE 16: EXISTING MISSING PEDESTRIAN CROSSWALK AT E.G. MILES PARKWAY AND GENERAL SCREVEN WAY

FIGURE 17: WEEKLY SPEED PROFILE FOR COUNT STATION 179-0121

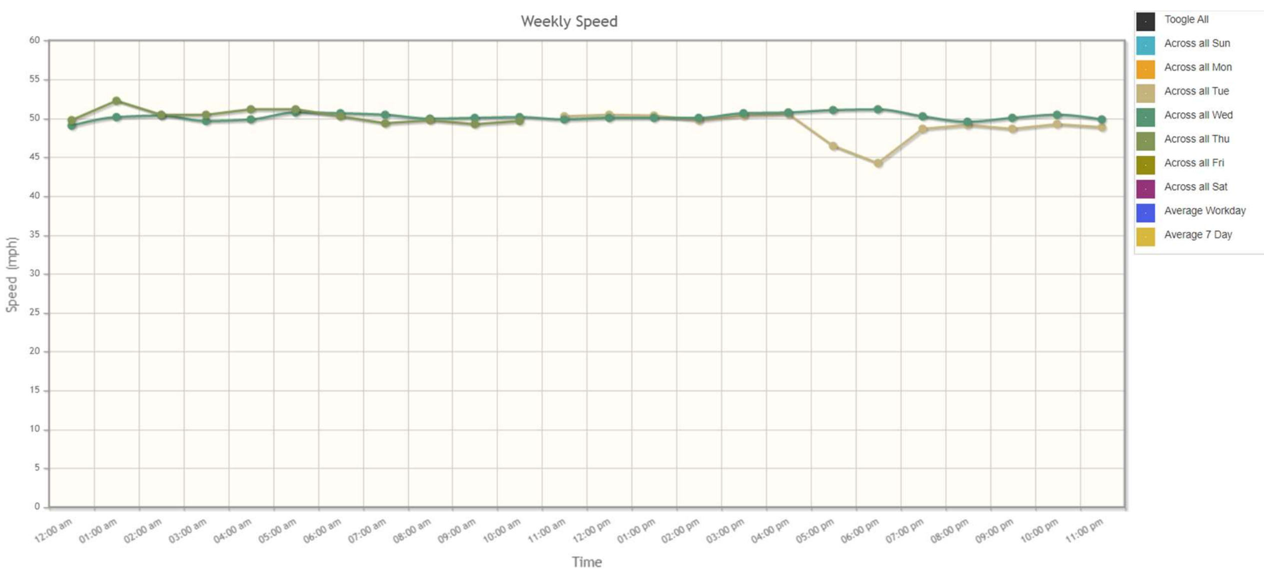
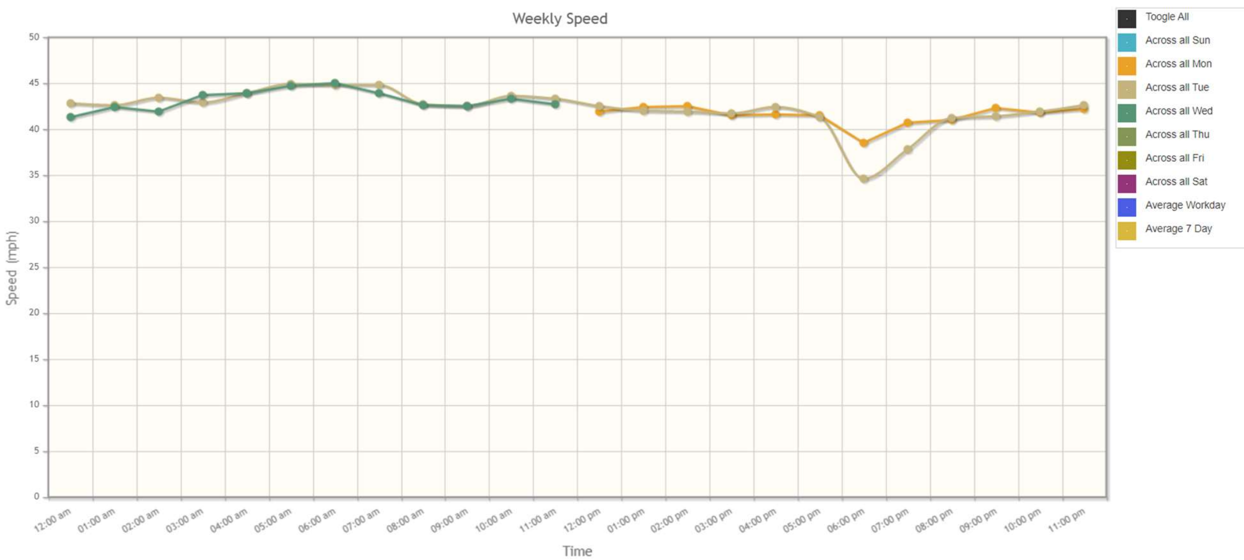


FIGURE 18: WEEKLY SPEED PROFILE FOR COUNT STATION 179-0123



Zoning and Land Use

The existing land use pattern within the E.G. Miles Parkway study area can be characterized by its mature residential mixed housing stock with commercial, office, and light industrial parcels located mainly along major roadway corridors such as E.G. Miles Parkway and US 84. The figure below shows the existing zoning per "district" within the study area, and several key locations located along the E.G. Miles Parkway corridor which are the Hinesville Public Works Department, and the Liberty Regional Medical Center.

The individual land uses per each zoning type is shown in the Tables 16 and 17 for Liberty County and the City of Hinesville. Figure 19 shows the existing zoning.

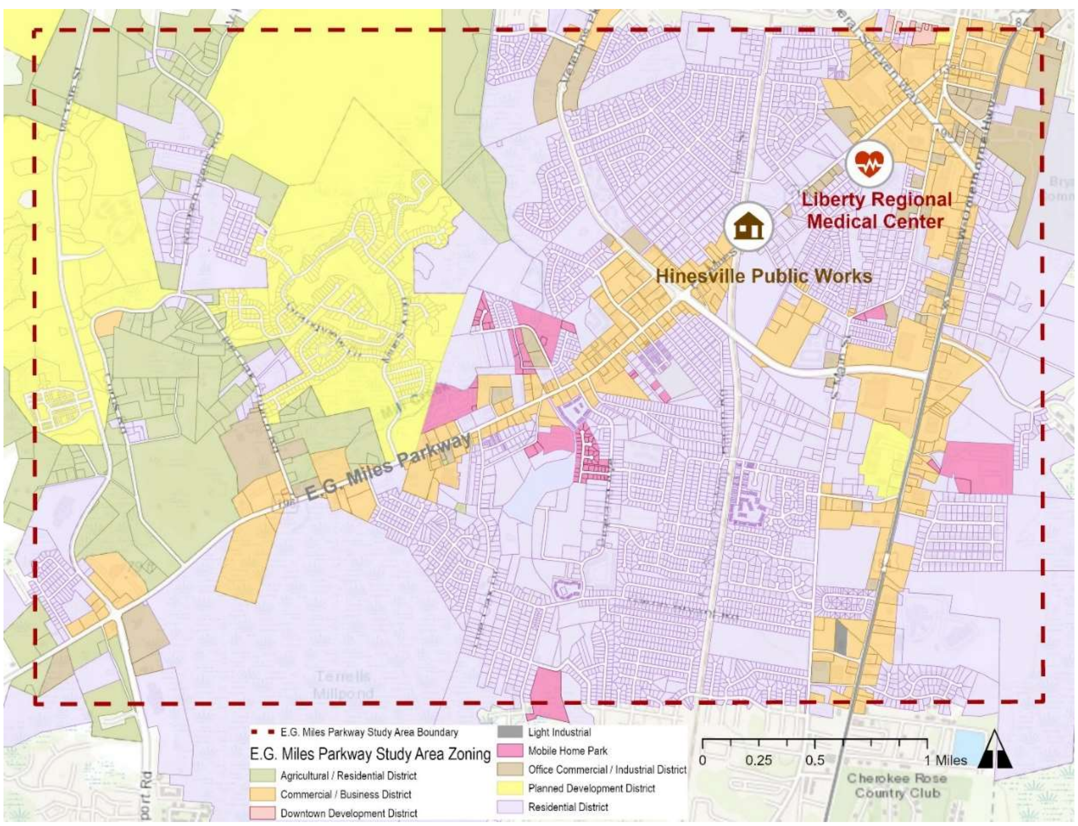
TABLE 16: LIBERTY COUNTY SPECIFIC ZONING DISTRICTS

Zoning Code	Zoning District
"A-1"	Agricultural districts
"AR-1"	Agricultural Residential districts
"R-1"	Single-Family Residential districts
"R-2"	Two-Family Residential districts
"R-2A"	One- and Two-Family Residential districts
"R-3"	Multifamily Residential districts
"R-4"	Mobile Home Park Residential districts
"B-1"	Neighborhood Commercial districts
"B-2"	General Commercial districts
"I-1"	Industrial districts
"PUD"	Planned Unit Development districts
"DM-1"	Dunes and Marshland districts

TABLE 17: CITY OF HINESVILLE SPECIFIC ZONING DISTRICTS

Zoning Code	Zoning District
R-1	Single-Family Dwelling District
R-2	Single-Family Dwelling District
R-3	Single-Family Dwelling District
R-4	Single-Family Dwelling District
R-A-1	Multifamily Dwelling District
R-TH	Townhouse Dwelling District
MH	Manufactured Home Park Dwelling District
MH-2	Single-Family Manufactured Home Dwelling District
PUD	Planned Unit Development District
O-I	Office—Institutional District
O-C	Office—Commercial District
C-1	Central Business District
C-2	General Commercial District
C-3	Highway Commercial District
D-D	Downtown Development District
L-I	Light Industrial District
	Special Districts
FH	Flood Hazard District
MR	Military Reservation District

FIGURE 19: E.G. MILES PARKWAY STUDY AREA EXISTING ZONING



Transportation Network and Operations

SR 119/196/Elma G Miles Parkway (E.G. Miles Parkway) is a 4-lane minor arterial road in Hinesville, Georgia. The roadway has a posted speed limit of 45 MPH and 40 MPH, depending on the location. The surrounding area is primarily residential with some commercial and some retail, depending on the area. The corridor also provides access to Fort Stewart and as previously stated, E.G. Miles Parkway is considered a freight corridor.

A two-way left-turn lane exists along the southern section of the corridor. Right-turn bays exist along some of the intersections with minor streets. All minor streets only have 1 approach lane. In addition to the minor streets, E.G. Miles Parkway has 3 major intersections: E.G. Miles Parkway at W 15th Street/ Airport Road, E.G. Miles Parkway at SR Veterans Parkway, and E.G. Miles Parkway at W General Screven Way. E.G. Miles Parkway is characterized with flat. The following figures (Figures 20 and 21) depict the existing intersection control with current lane geometry along the E.G. Miles Parkway study corridor.

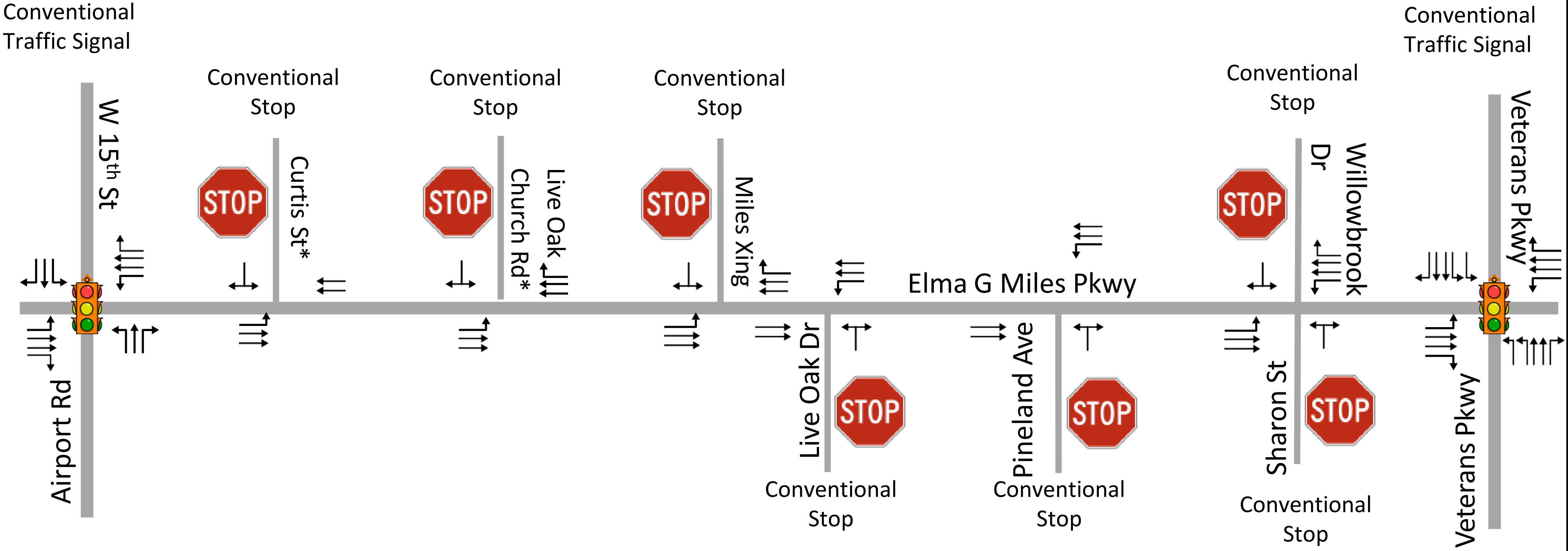
Traffic Capacity Analysis

Capacity is defined as the maximum number of vehicles that can pass over a particular road segment or through a particular intersection within a set time duration. Level-of-service (LOS) is used to describe the operating characteristics of a road segment or intersection in relation to its capacity. LOS is defined as a qualitative measure that describes operational conditions and motorists' perceptions within a traffic stream. The *Highway Capacity Manual* (HCM) defines six levels of service, LOS A through LOS F, with A being the best and F the worst. Capacity analysis on a conventional stop intersection by only considering LOS on main street left turns and the minor street approach(es). The signalized capacity analysis looks at overall intersection LOS and delay. The existing traffic conditions were analyses based on the tube count and Turning Movement Counts (TMCs).

Capacity analyses were conducted on the intersections that were deemed to include a median opening. The analyses were conducted for the AM, Noon, and PM Peak hours. At intersections where no field data was collected, trip generation rates published in the *Institute of Transportation Engineers (ITE) Trip Generation Manual; Tenth Edition* were used to determine the existing traffic. Each peak was determined on a per intersection basis to grasp the worse traffic conditions at each intersection. The HCM 2010 Unsignalized Intersection Analysis methodology was used for all unsignalized intersections, while Synchro 11 traffic analysis software was used to analyze the three signalized intersections.

Because TMC were not conducted at every intersection, and capacity analyses require TMCs, the following assumptions were made: the hourly distribution of the 48-hour counts of E.G. Miles Parkway were used to distribute the traffic coming from side streets, and the hourly distribution for each direction would determine how many vehicles were turning into the side street. The 48-hour counts on the minor streets were used to determine the total traffic entering and exiting the minor streets. This distribution was done at each of the peaks. Because only two 48-hour counts were conducted on E.G. Miles Parkway, the southern intersections (south of Veterans Parkway) were analyzed with the 48-hour count conducted on E.G. Miles Parkway north of Curtis Road and the northern intersections (north of veterans Parkway) were analyzed with the 48-hour count conducted on E.G. Miles Parkway north of Deal Street.

For the purposes of the traffic analysis, E.G. Miles Parkway is said to run East/West and the side street to run North/South. The traffic analyses concluded that given the existing volumes, most unsignalized intersections suffer unreasonable delays on the side streets. All three signalized intersections were deemed to be operationally fit with the existing conditions. The following figures (Figures 22 through 24) summarize the LOS and delays for all the intersections analysis under existing conditions.



Section 1 (W 15th St to Veterans Pkwy) Existing Intersection Control with Lane Geometry	
Figure 20	**EG Miles Corridor Study**

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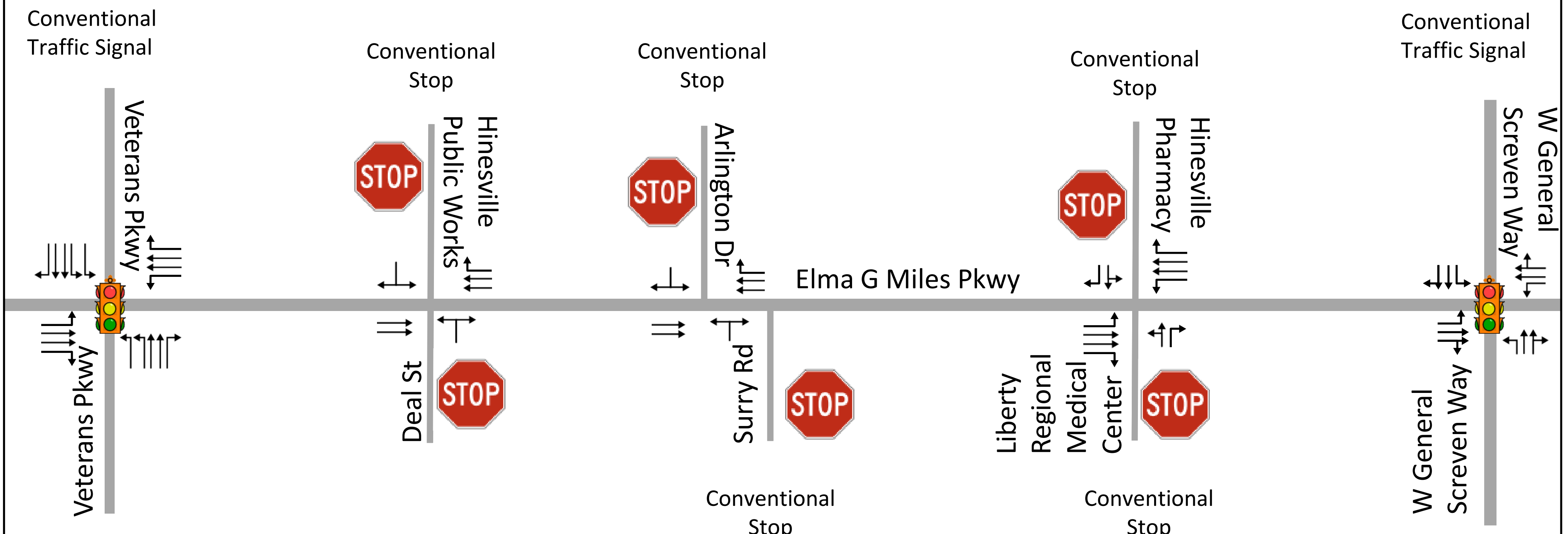
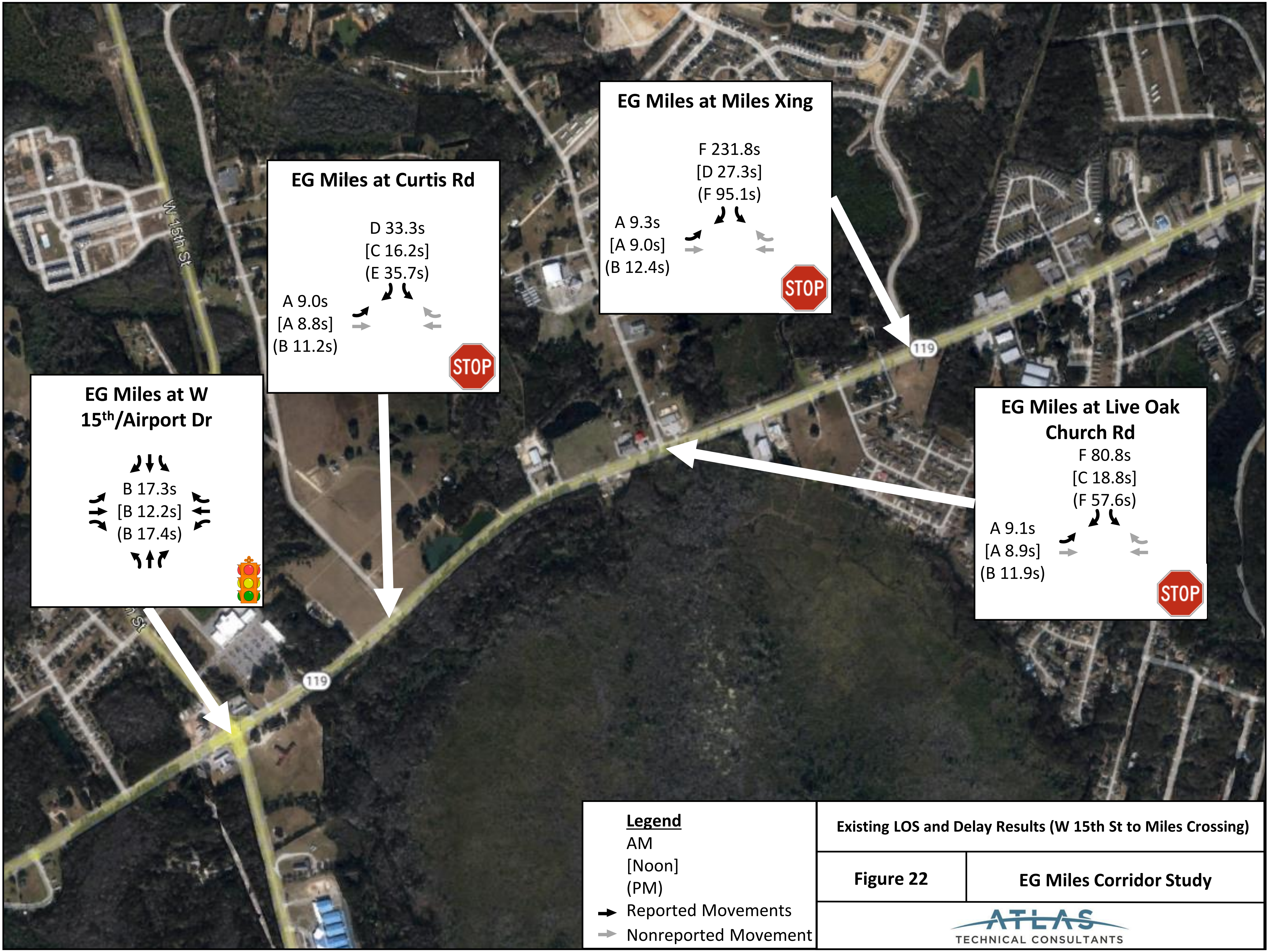


Section 1 (Veterans Pkwy W Gen Screven Way) Existing Intersection Control With Lane Geometry

Figure 21	**EG Miles Corridor Study**

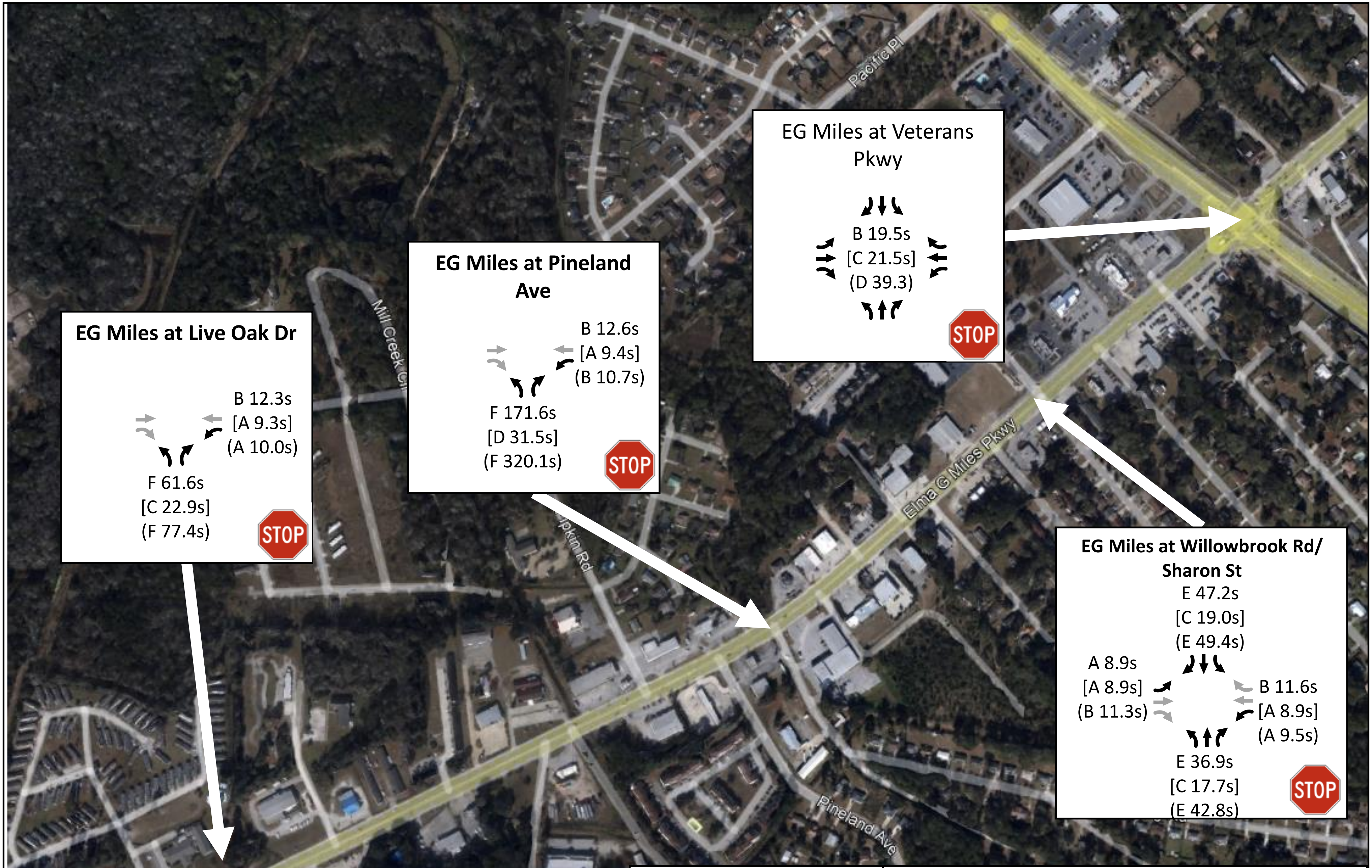
ATLAS TECHNICAL CONSULTANTS



Existing LOS and Delay Results (W 15th St to Miles Crossing)

Figure 22

EG Miles Corridor Study



Legend

AM

[Noon]

(PM)

Reported Movements

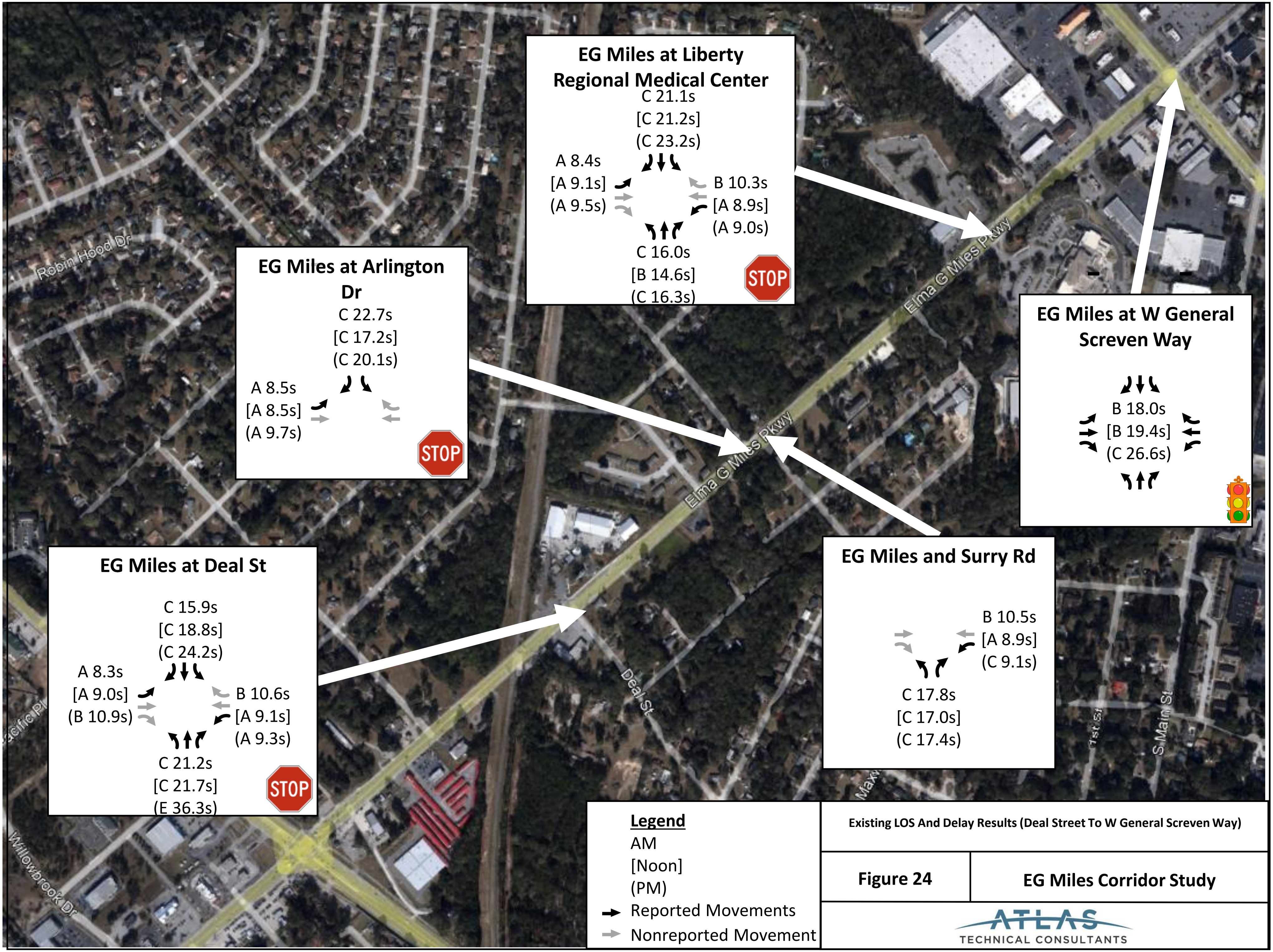
Nonreported Movement

Existing LOS And Delay Results (Live Oak Drive To Veterans Parkway)

Figure 23

EG Miles Corridor Study

ATLAS TECHNICAL CONSULTANTS



Existing LOS And Delay Results (Deal Street To W General Screven Way)

Figure 24

EG Miles Corridor Study

Future Conditions

Transportation and Development Projects

Within the E.G. Miles Parkway study area there are several planned transportation and development projects with some already under construction. Within the study area boundary there are three GDOT transportation improvement projects with two already under construction and one project planned to be constructed in the long range (>10 years). Additionally, there are multiple commercial and residential development projects within the study area. There are 11 commercial developments within the study area with two already under construction and 8 planned residential developments with all 8 residential developments designated as single family. The transportation and development projects are shown by location in Figures 25 and 26.

FIGURE 25: GDOT PROJECTS WITHIN THE STUDY AREA

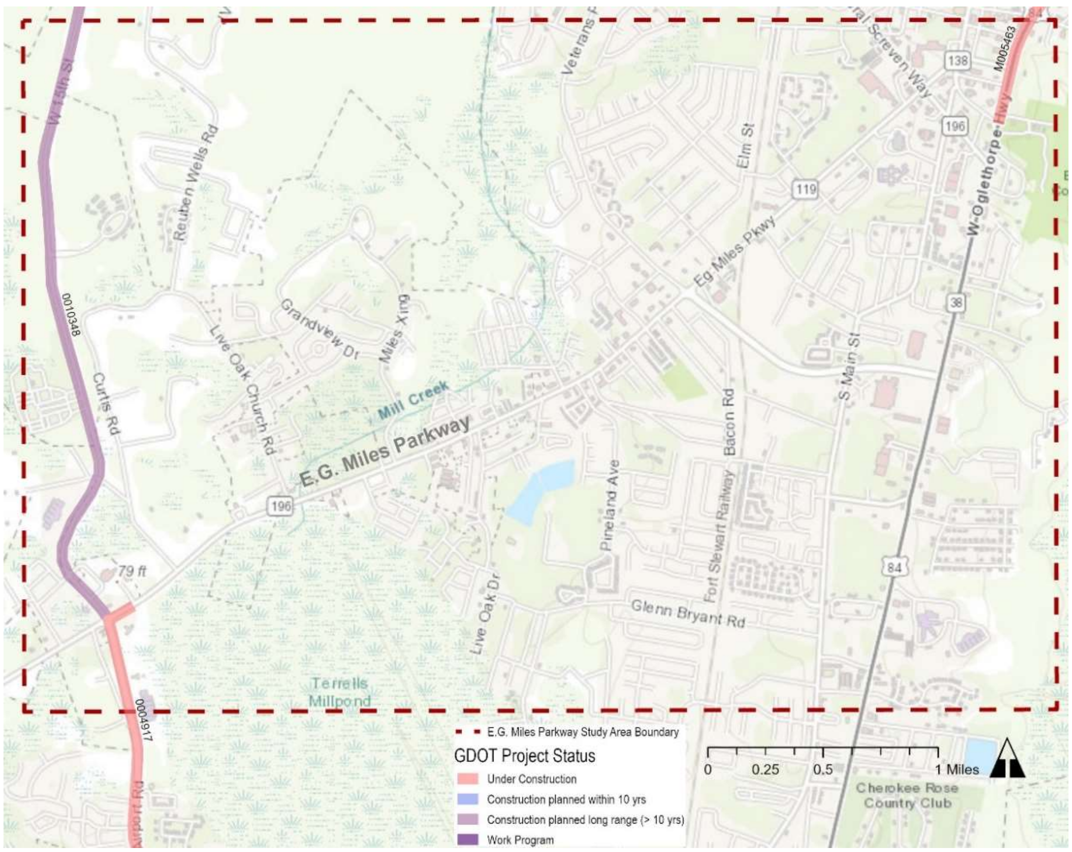
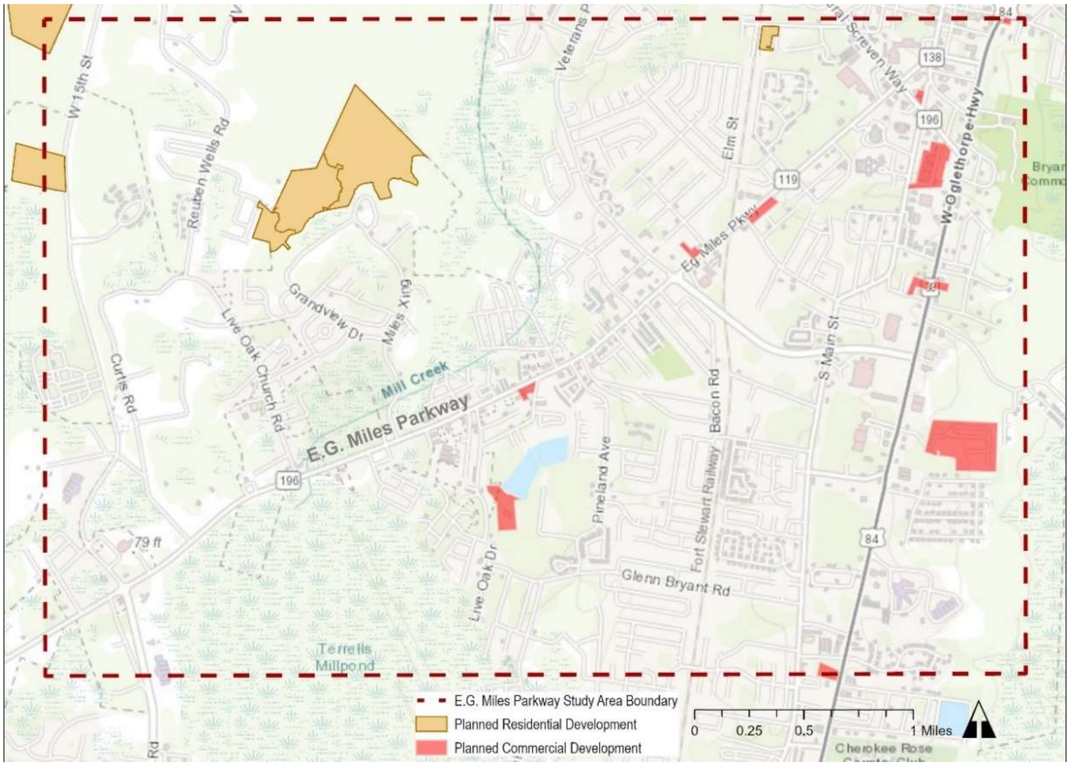


FIGURE 26: GDOT PROJECTS WITHIN THE STUDY AREA



Future Traffic Projections Methodology

Future traffic conditions were assessed and analyzed in relation with the existing traffic analysis. For the purposes of this study, 2025 was designated to be the opening year and 2045 was chosen to be the design year. To better analyze the future traffic, the existing baseline traffic volumes were grown by an appropriate growth rate and then used as the future volumes for various future traffic analyses. Synchro 11 software was the main tool used for the future traffic analysis for signalized intersections and HCM 2010 Unsignalized Analysis was used for the future analysis at unsignalized intersections.

After the 2025 and 2045 scenarios for the build and no build scenarios were analyzed, each unsignalized median opening location went through an extensive Signal Warrant Analysis and Intersection Control Evaluation (ICE) assessment. This was done to determine the future recommendations per location along the study corridor.

Intersection improvements were first assessed and analyzed as stand-alone improvements per intersection location. Since the ICE analysis does not factor in adjacent intersections when analyzing an individual intersection, a second iteration of ICE was conducted to make sure the alternatives from the first iteration still stand as the preferred alternatives through the study corridor. The second iteration considers trips that would be rerouted on a corridor-wide level.

Growth Rate

Future traffic conditions were based on the existing and the projected growth rate for each studied roadway. The growth rate for the area was determined using information from the following GDOT count stations:

- 179-0125 (on E.G. Miles Parkway/W Hendry St)
- 179-0092 (on W General Screven Way south of E.G. Miles Parkway)

- 179-0094 (on W General Screven north of E.G. Miles Parkway)
- 179-0123 (on E.G. Miles Parkway north of Veterans Parkway)
- 179-0121 (on E.G. Miles Parkway North of Curtis Road)
- 179-0221 (on Veterans Parkway north of E.G. Miles Parkway)

Only actual count data from the GDOT count stations were used to determine the growth rate. The developed growth rate also takes into consideration US Census data and subsequent projections. US Census data shows that Hinesville has a growth rate of less than 0.5% per year. Then this growth rate was only applied to the through-movement volumes along E.G. Miles Parkway, Veterans Parkway, 15th Street/ Airport Road, and General Screven Way.

The growth rate was not applied to the minor streets since it is assumed that local traffic will not significantly change unless a new development is proposed in close proximity to the minor study streets. For the purposes of this traffic analysis, based on actual GDOT count station data and US Census data, the growth rate was assumed to be 0.5%. Table 18 summarizes the growth rate at each GDOT count station.

TABLE 18: GDOT COUNT STATION GROWTH RATE

Station ID	179-0125	179-0092	179-0094	179-0123	179-0121	179-0221
Growth Rate	0.32%	0.27%	-2.00%	-2.00%	-1.20%	2.63%

Trip Generation for U-Turns

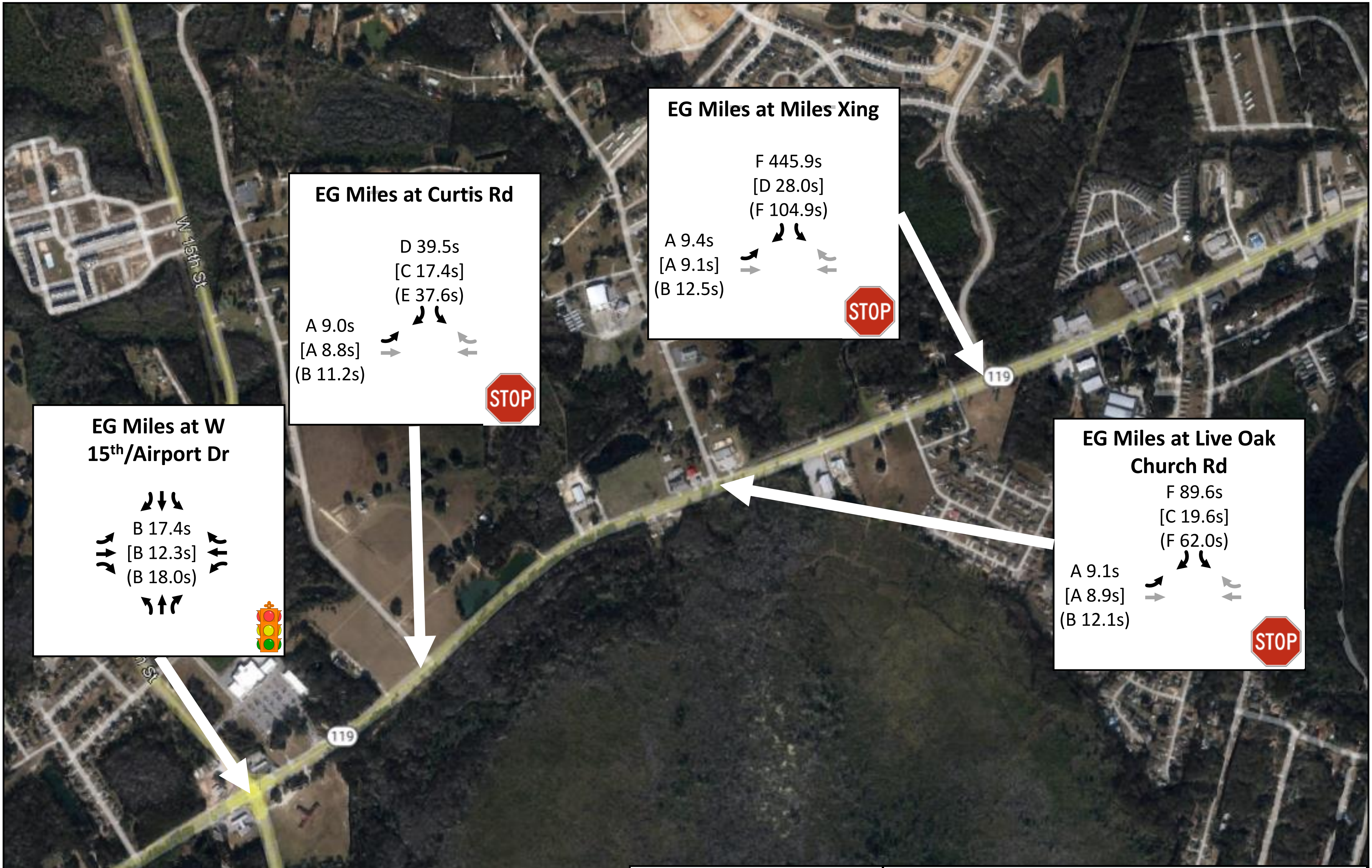
Since data collection was not conducted for all driveways, trip generation calculations were used to determine the estimate number of trips that would be rerouted due to the proposed center roadway median along E.G. Miles Parkway. The generated trips resulting in U-Turns would then be implemented into the build scenarios.

The *Institute of Transportation Engineers (ITE) Trip Generation Manual; Tenth Edition* trip generation rates were used to estimate the traffic generated by the major traffic generators. Trip generation was only conducted for the southern portion of the study corridor since it was determined that establishments in the northern section would not have a major operational impact on U-turn movements.

The generated trips were group into major 7 major sections between median openings. Each section was categorized and allocated to either the northern or southern sections. With the hourly directional distribution determined on E.G. Miles Parkway, the trips that are intended to take a left turn can be determined. These trips would be rerouted as U-turns at the next median opening.

Future No-Build Scenario

The future no-build scenario considered only a change in volumes determined by the proposed growth rate. This scenario did not consider any intersection improvements and it does not consider any potential developments or land use changes on or near the corridor. This scenario was analyzed in the 2025 opening year and 2045 design year. The traffic analysis level of service (LOS) and subsequent delay results can be found in the following figures (Figures 27 through 32) for the 2025 and 2045 scenarios.



2025 No Build LOS And Delay Results (W 15th St To Miles Crossing)

Figure 27

EG Miles Corridor Study

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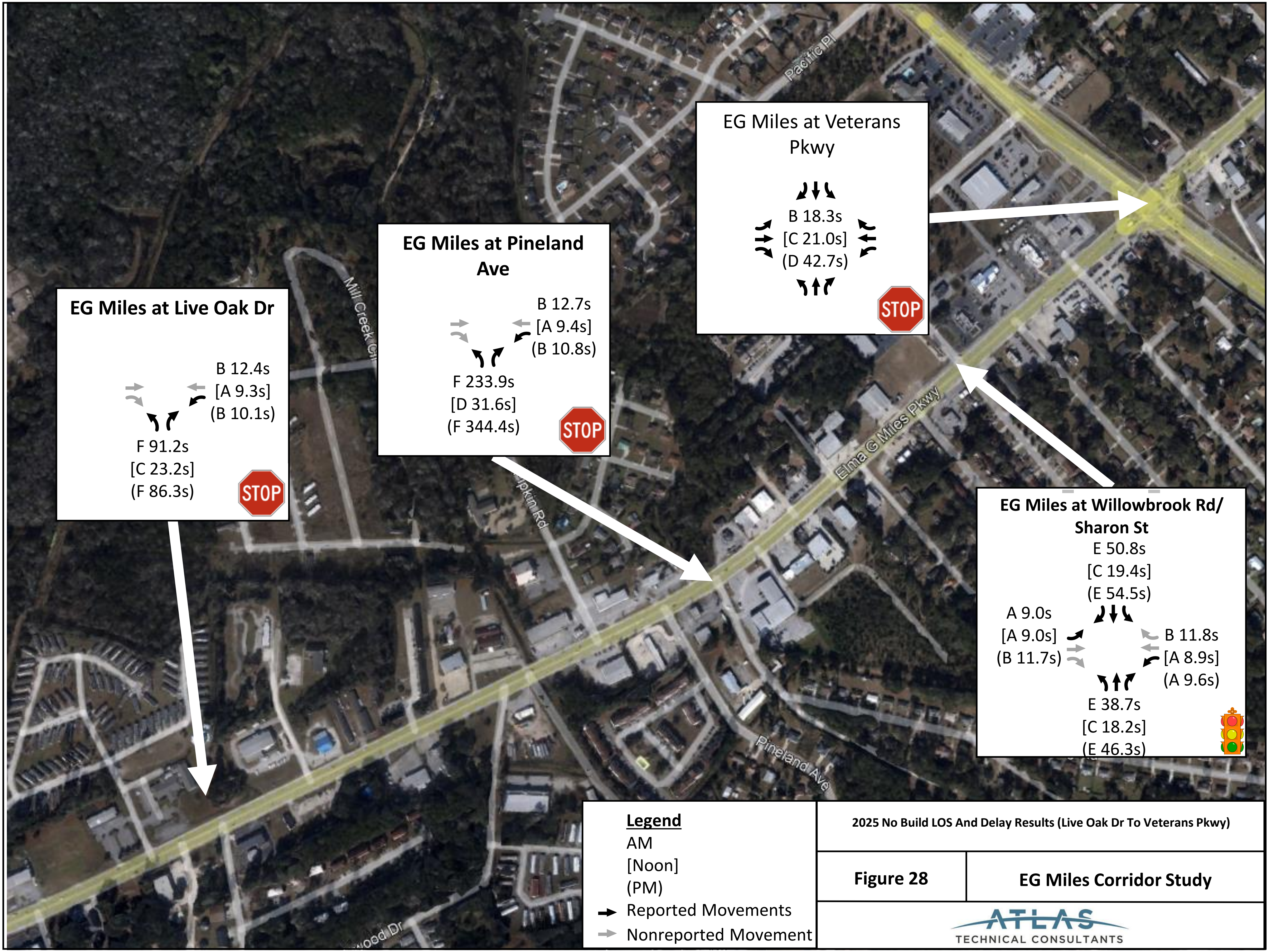
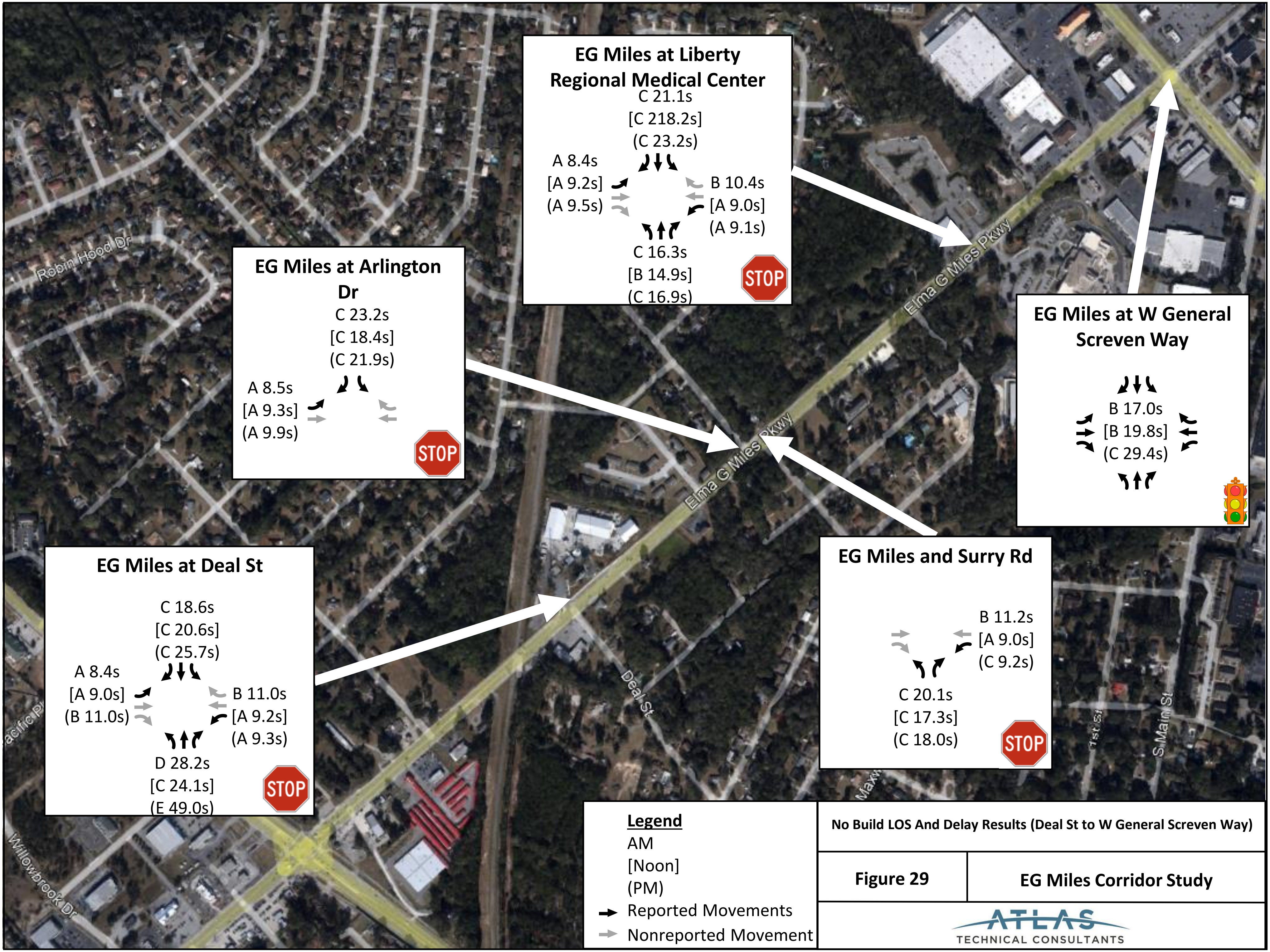
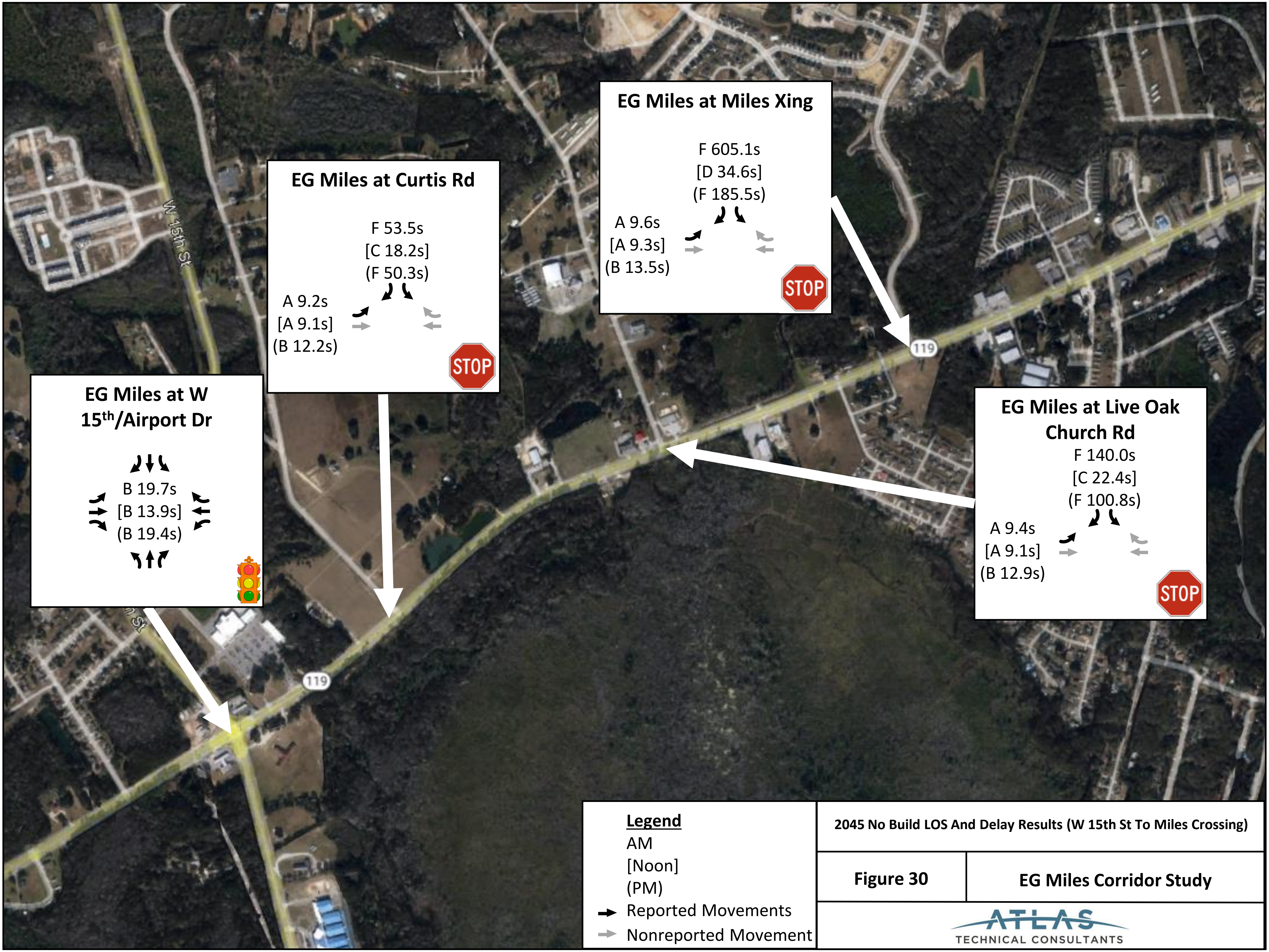


Figure 28 — 2025 No Build LOS And Delay Results (Live Oak Dr To Veterans Pkwy)

EG Miles Corridor Study



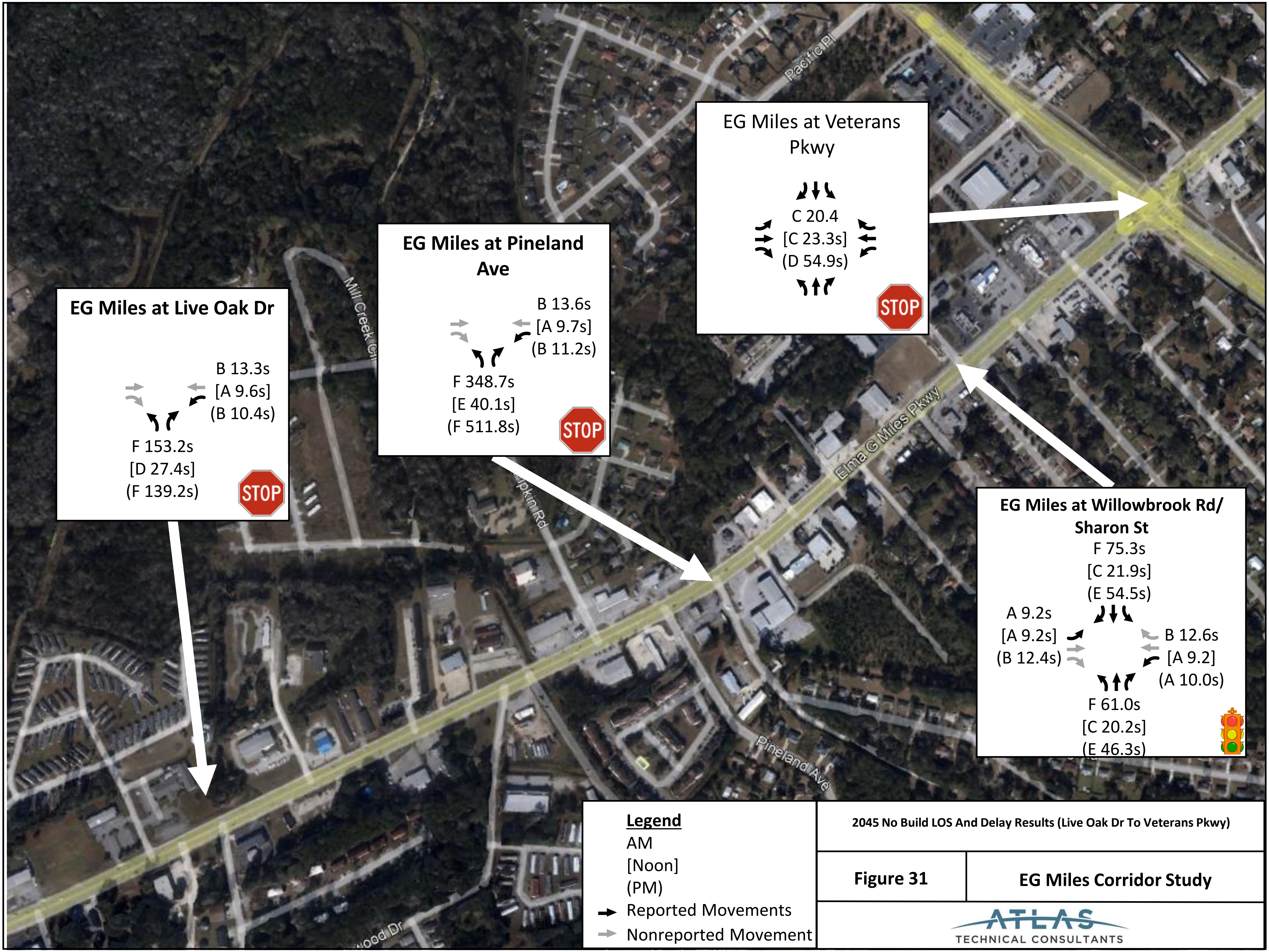
EG Miles at Liberty Regional Medical Center
C 21.1s
[C 218.2s]
(C 23.2s)
A 8.4s
[A 9.2s]
(A 9.5s)
B 10.4s
[A 9.0s]
(A 9.1s)
C 16.3s
[B 14.9s]
(C 16.9s)
STOP
EG Miles at Arlington Dr
C 23.2s
[C 18.4s]
(C 21.9s)
A 8.5s
[A 9.3s]
(A 9.9s)
STOP
EG Miles at W General Screven Way
B 17.0s
[B 19.8s]
(C 29.4s)
EG Miles at Deal St
C 18.6s
[C 20.6s]
(C 25.7s)
A 8.4s
[A 9.0s]
(B 11.0s)
B 11.0s
[A 9.2s]
(A 9.3s)
D 28.2s
[C 24.1s]
(E 49.0s)
STOP
EG Miles and Surry Rd
B 11.2s
[A 9.0s]
(C 9.2s)
C 20.1s
[C 17.3s]
(C 18.0s)
STOP
Robin Hood Dr
Elma G Miles Pkwy
Deal St
1st St
S Main St
Willowbrook Dr
Legend
AM
[Noon]
(PM)
Reported Movements
Nonreported Movement
No Build LOS And Delay Results (Deal St to W General Screven Way)
Figure 29
EG Miles Corridor Study
ATLAS
TECHNICAL CONSULTANTS

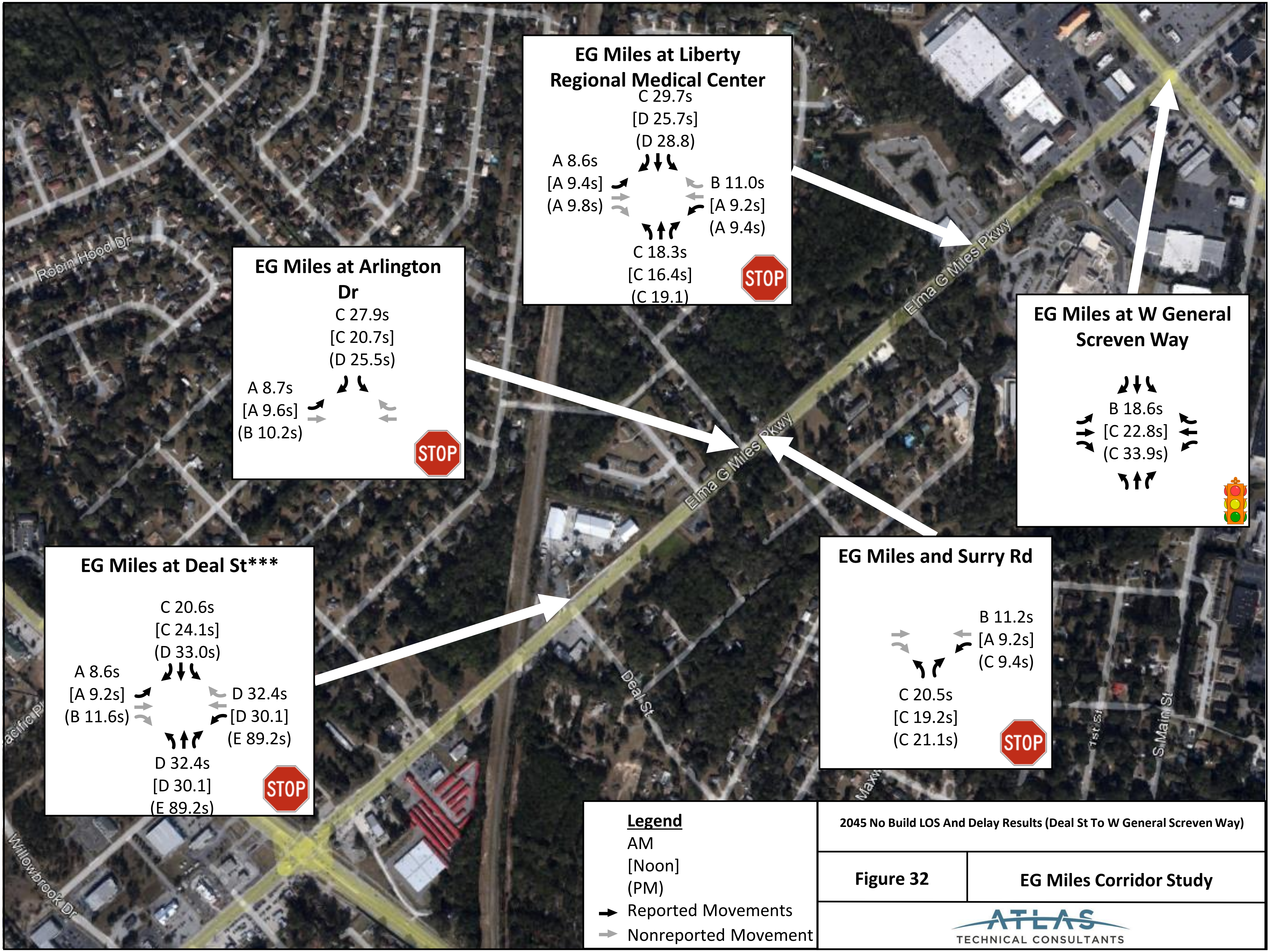


2045 No Build LOS And Delay Results (W 15th St To Miles Crossing)

Figure 30

EG Miles Corridor Study


EG Miles at Veterans Pkwy
C 20.4
[C 23.3s]
(D 54.9s)
STOP
EG Miles at Pineland Ave
B 13.6s
[A 9.7s]
(B 11.2s)
F 348.7s
[E 40.1s]
(F 511.8s)
STOP
EG Miles at Live Oak Dr
B 13.3s
[A 9.6s]
(B 10.4s)
F 153.2s
[D 27.4s]
(F 139.2s)
STOP
EG Miles at Willowbrook Rd/ Sharon St
F 75.3s
[C 21.9s]
(E 54.5s)
A 9.2s
[A 9.2s]
(B 12.4s)
B 12.6s
[A 9.2]
(A 10.0s)
F 61.0s
[C 20.2s]
(E 46.3s)
Pacific Pl
Mill Creek Cir
Elma G Miles Pkwy
Pineland Ave
Legend
AM
[Noon]
(PM)
Reported Movements
Nonreported Movement
2045 No Build LOS And Delay Results (Live Oak Dr To Veterans Pkwy)
Figure 31
EG Miles Corridor Study
ATLAS
TECHNICAL CONSULTANTS



EG Miles at Liberty Regional Medical Center
C 29.7s
[D 25.7s]
(D 28.8)
A 8.6s
[A 9.4s]
(A 9.8s)
B 11.0s
[A 9.2s]
(A 9.4s)
C 18.3s
[C 16.4s]
(C 19.1)
STOP
EG Miles at Arlington Dr
C 27.9s
[C 20.7s]
(D 25.5s)
A 8.7s
[A 9.6s]
(B 10.2s)
STOP
EG Miles at W General Screven Way
B 18.6s
[C 22.8s]
(C 33.9s)
EG Miles at Deal St***
C 20.6s
[C 24.1s]
(D 33.0s)
A 8.6s
[A 9.2s]
(B 11.6s)
D 32.4s
[D 30.1]
(E 89.2s)
D 32.4s
[D 30.1]
(E 89.2s)
STOP
EG Miles and Surry Rd
B 11.2s
[A 9.2s]
(C 9.4s)
C 20.5s
[C 19.2s]
(C 21.1s)
STOP
Robin Hood Dr
Elma G Miles Pkwy
Elma G Miles Pkwy
Deal St
1st St
S Main St
Willowbrook Dr
Legend
AM
[Noon]
(PM)
Reported Movements
Nonreported Movement
2045 No Build LOS And Delay Results (Deal St To W General Screven Way)
Figure 32
EG Miles Corridor Study
ATLAS
TECHNICAL CONSULTANTS

Observations

With the future no-build scenarios, it was observed that traffic operations worsen for the most part. Several intersections such as Miles Crossing, had a significant impact on delay, while other intersections such as Curtis Road, had an only a slight increase in delay time. All the signalized intersections had only a nominal impact on delay, only increasing by less than 5 seconds.

E.G. Miles Parkway at Veterans Parkway had heavy westbound left turn traffic in the AM peak hour and heavy southbound right turn traffic in the PM peak hour. This reflects the travel patterns to and from Fort Stewart. Because of the heavy traffic and existing lane geometry, these movements are experiencing excessive delay. To combat these delays, signal timing operations were conducted, as an additional simulation tool however this was not sufficient to improve overall delay. Since the signal optimizations were not comprehensive enough, lane geometry at the intersection would have to be improved. A second left turn, and right turn lane were added since GDOT considers a second left turn lane when left turning volume exceeds 300 VPH in the peak hours. For safety concerns, the phasing of the left turn was changed to protected only.

Future Build Scenario

The future build scenario was done in two phases. The first phase looked at the addition of the U-Turns generated by the proposed center median along E.G. Miles Parkway. This would give a baseline for the improvement that could be made and would allow for ICE to be conducted appropriately. The second part involved looking at the AM and PM peak hour of the design year to determine if certain intersection improvement would make a justified difference in safety and congestion measures. The following figures (Figures 33 through 41) show the LOS and vehicle results per study intersection for the 2025 and 2045 build scenarios and the additional 2045 full build scenario. Figures 42 through 44 show the intersections that were determined to be median openings.

The intersections where median openings would be considered were determined by the presence of higher volumes, compared with other cross streets, and taking GDOT policy into account. GDOT Policy states that the minimum spacing between 2 median opens is 1000 feet. All median openings meet this minimum. Below shows the preferred design concept of the of median opening locations along E.G. Miles Parkway.

To determine the type of improvements that should be made to the E.G. Miles Parkway corridor, the GDOT Intersection Control Evaluation (ICE) and Signal Warrant tools, along with HCM 2010 and Synchro Analysis were conducted. Signal warrant screening will give guidance on whether or a not a signal is justified. The results from the signal warrant analysis are not the sole justification for a signal. The ICE procedure will look at a variety of feasible alternatives and given operational and safety data, will provide guidance on a recommendation. ICE was used in conjunction with Signal Warrant screening to determine whether signals should be installed. Capacity analysis is used to evaluate the operation of the different alternatives.

Signal Warrant Summary

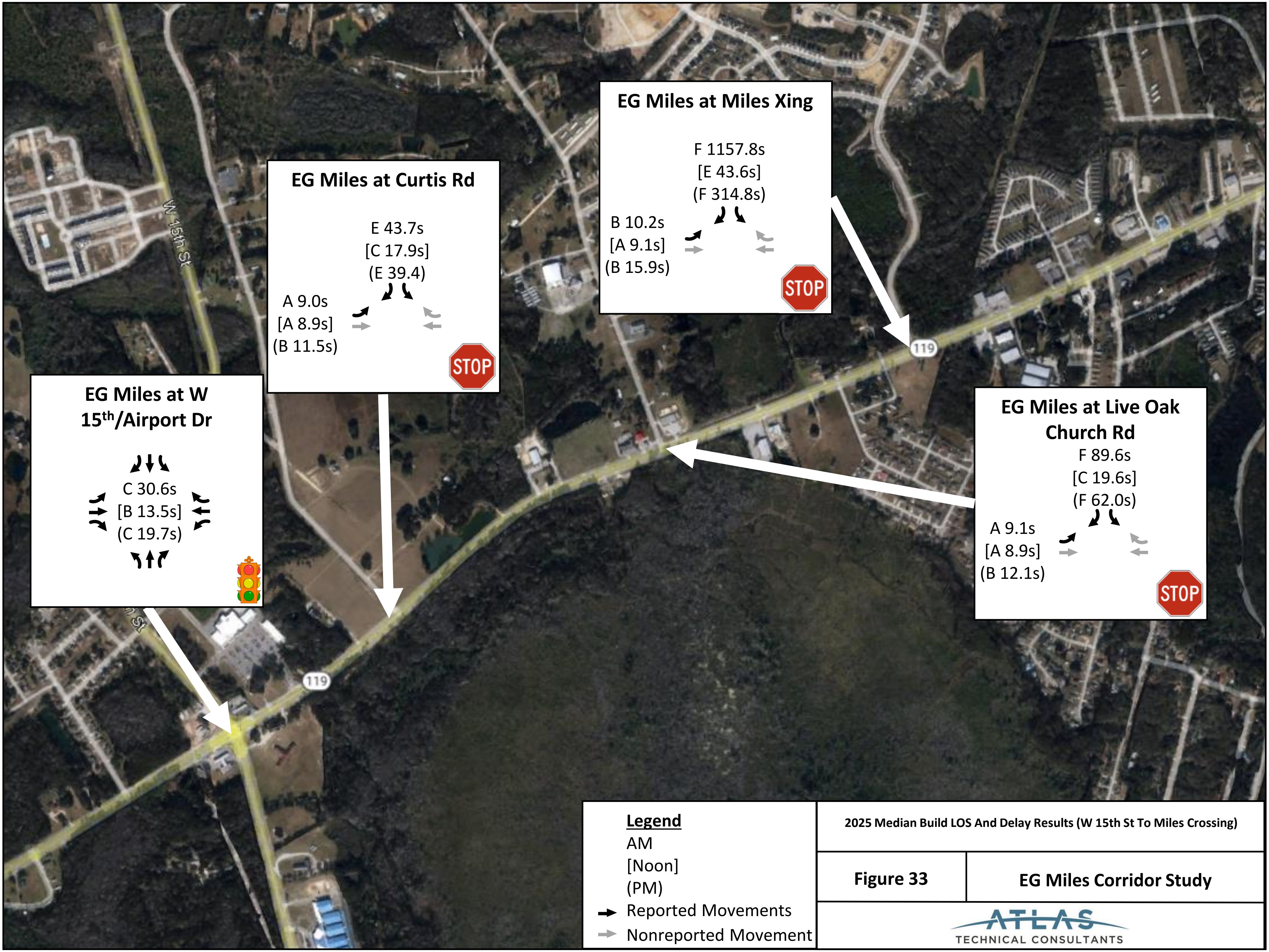
The *Manual on Uniform Traffic Control Devices* (MUTCD), 2009 edition, provides signal warrant guidance to evaluate whether a traffic signal is justified or not at an existing unsignalized intersection. These warrants are based on various traffic and roadway factors including recent crash data, traffic volumes, pedestrian volumes, and roadway network characteristics. The warrant analysis process looks at the total mainline volume and the greatest side street approach volume. The following warrants were determined to apply at all locations: Warrant 1A, Warrant 1B, Warrant 1 (Combine warrant), Warrant 2, and Warrant 7.

- Warrant 1 Condition A (Minimum Vehicular Volume) is intended for locations where a large number of vehicles approach the intersection from the minor road
- Warrant 1 Condition B (Interruption of Continuous Traffic) is intended for locations where the volume on the major road is so heavy, that traffic on the minor intersecting street suffers excessive delay or conflict in entering or crossing the major street
- When the warranting criteria is not met for neither warrant 1A or 1B, and any other measures to improve traffic flow have failed, an evaluation can be performed to determine if conditions A and B combined are met when the required volumes are decreased to 80% (Warrant 1 A and B, Combination of Warrants)
- Warrant 2 (Four Hour Volumes) is applied when the traffic volume on the minor street is the principal reason to consider installing a traffic control signal
- Warrant 7 (Crash Experience) requires a minimum of five crashes of the type that could be corrected by the installation of a traffic signal, to have occurred within the most recent 12-month period of available data and meet 80% of the volume warrants

The signal warrant analysis underwent a process called right turn reductions. According to NCHRP 457, right turns do not yield the same benefit from signalization as through or left turn movements. Consequently, including right turns in a warrant analysis could falsely warrant a signal, resulting in a proliferation of unnecessary traffic control signals at various intersections. To conduct right turn reductions, the number of right turns that can be reduced is determined by NCHRP 457. This number is determined by several factors such as lane configuration, speed limit, and conflicting traffic movements. It was determined that for all the intersections, there would be a 100% right turn reduction on all approaches. The number of right turning vehicles was determined by the hourly directional distribution of E.G. Miles Parkway. A summary of the Warrant Analysis is provided in Table 19.

TABLE 19: SIGNAL WARRANT ANALYSIS SUMMARY

Warrant	Curtis Rd	Live Oak Church Rd	Miles Xing	Live Oak Dr	Pineland Ave	Willowbrook Rd/ Sharon St	Deal St	Surrey Rd/ Arlington Dr	Liberty Regional Medical Center
1A	No	No	No	No	No	No	No	No	No
1B	No	No	No	No	**Yes**	No	No	No	No
1AandB	No	No	No	No	No	No	No	N	No
2	No	No	**Yes**	No	**Yes**	No	No	No	No
7	No	No	No	No	No	N	No	No	No

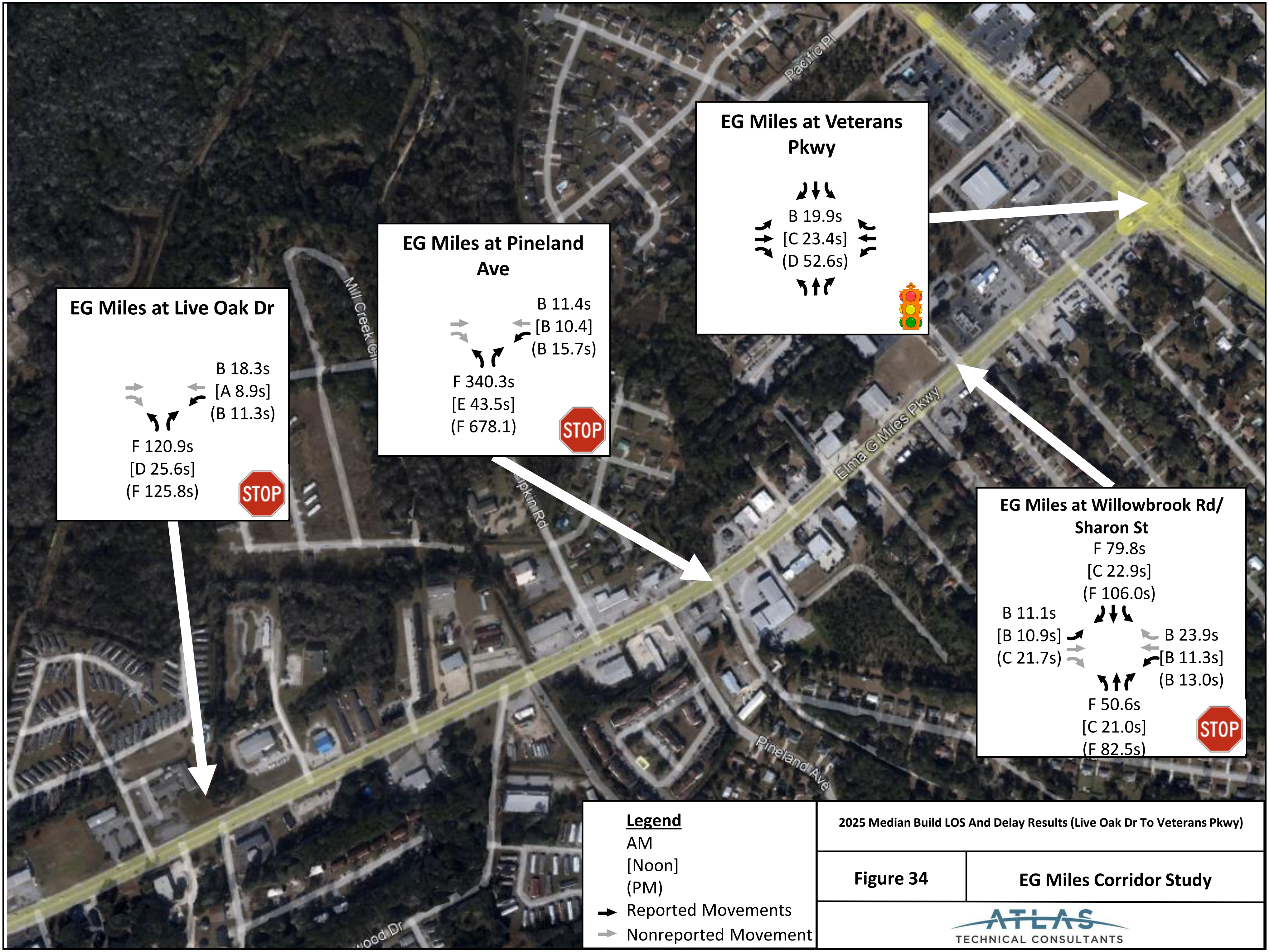


2025 Median Build LOS And Delay Results (W 15th St To Miles Crossing)

Figure 33

EG Miles Corridor Study

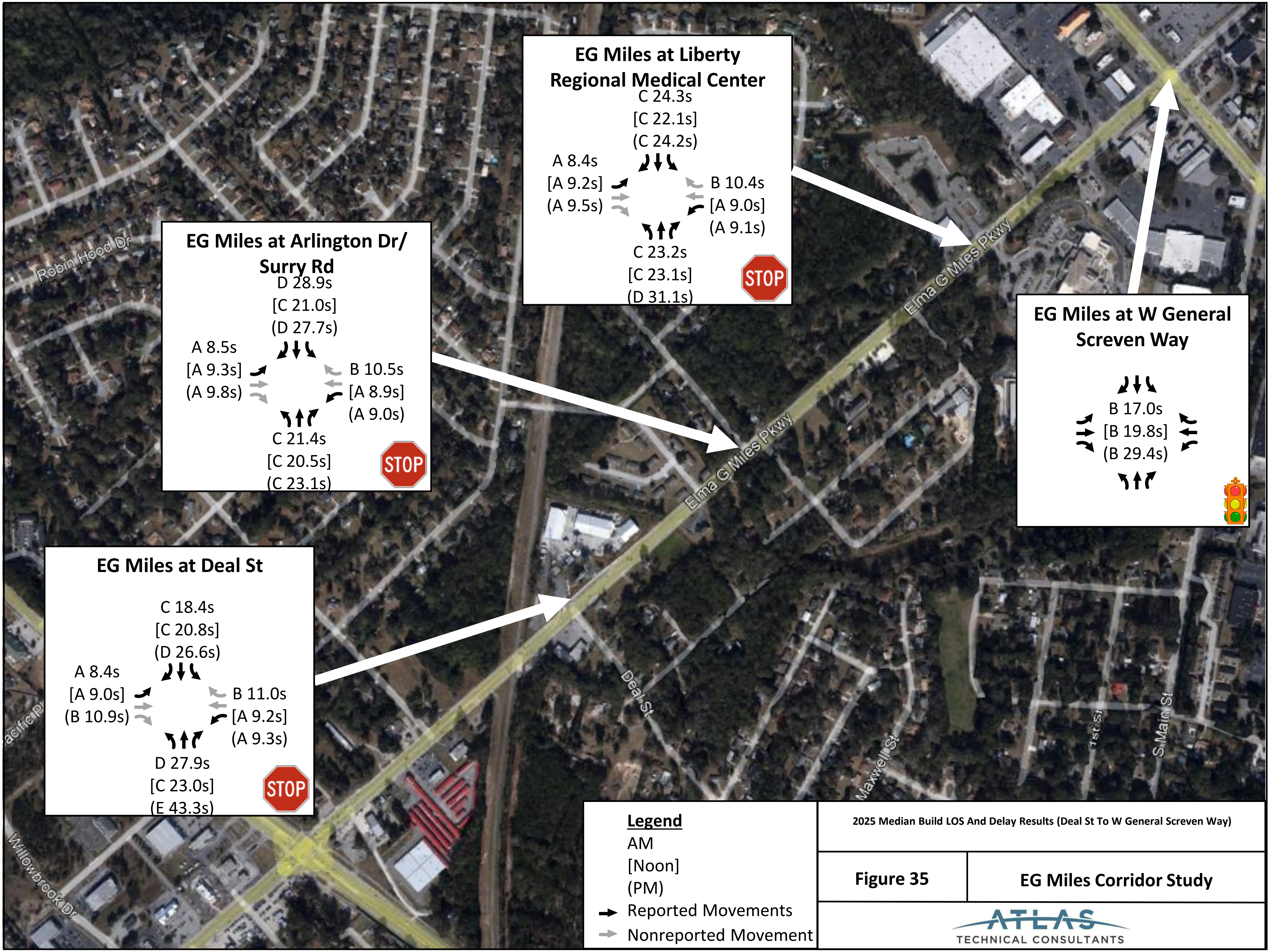
ATLAS TECHNICAL CONSULTANTS



2025 Median Build LOS And Delay Results (Live Oak Dr To Veterans Pkwy)

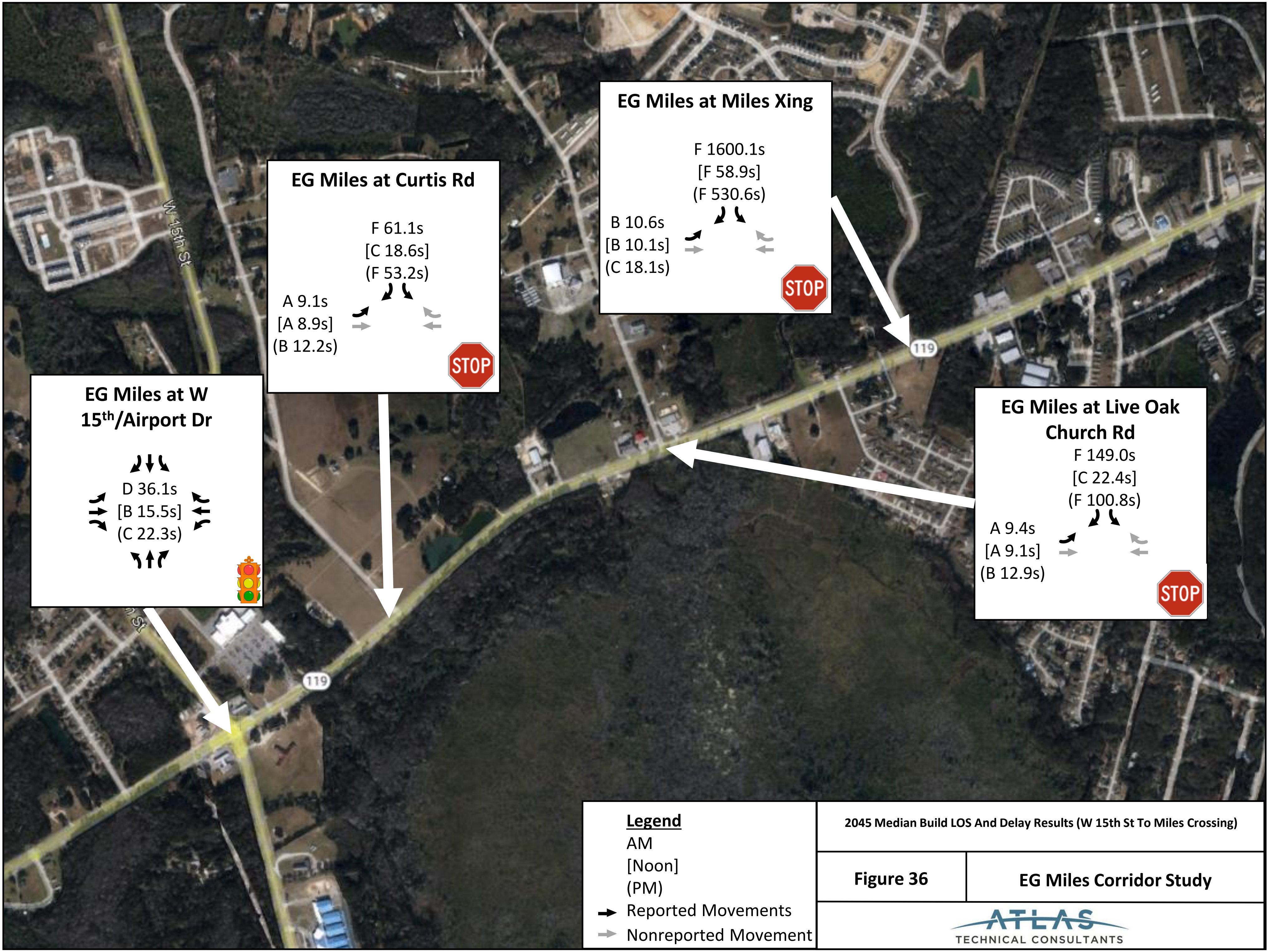
Figure 34

EG Miles Corridor Study



2025 Median Build LOS And Delay Results (Deal St To W General Screven Way)

Figure 35 — **EG Miles Corridor Study**



2045 Median Build LOS And Delay Results (W 15th St To Miles Crossing)

Figure 36

EG Miles Corridor Study

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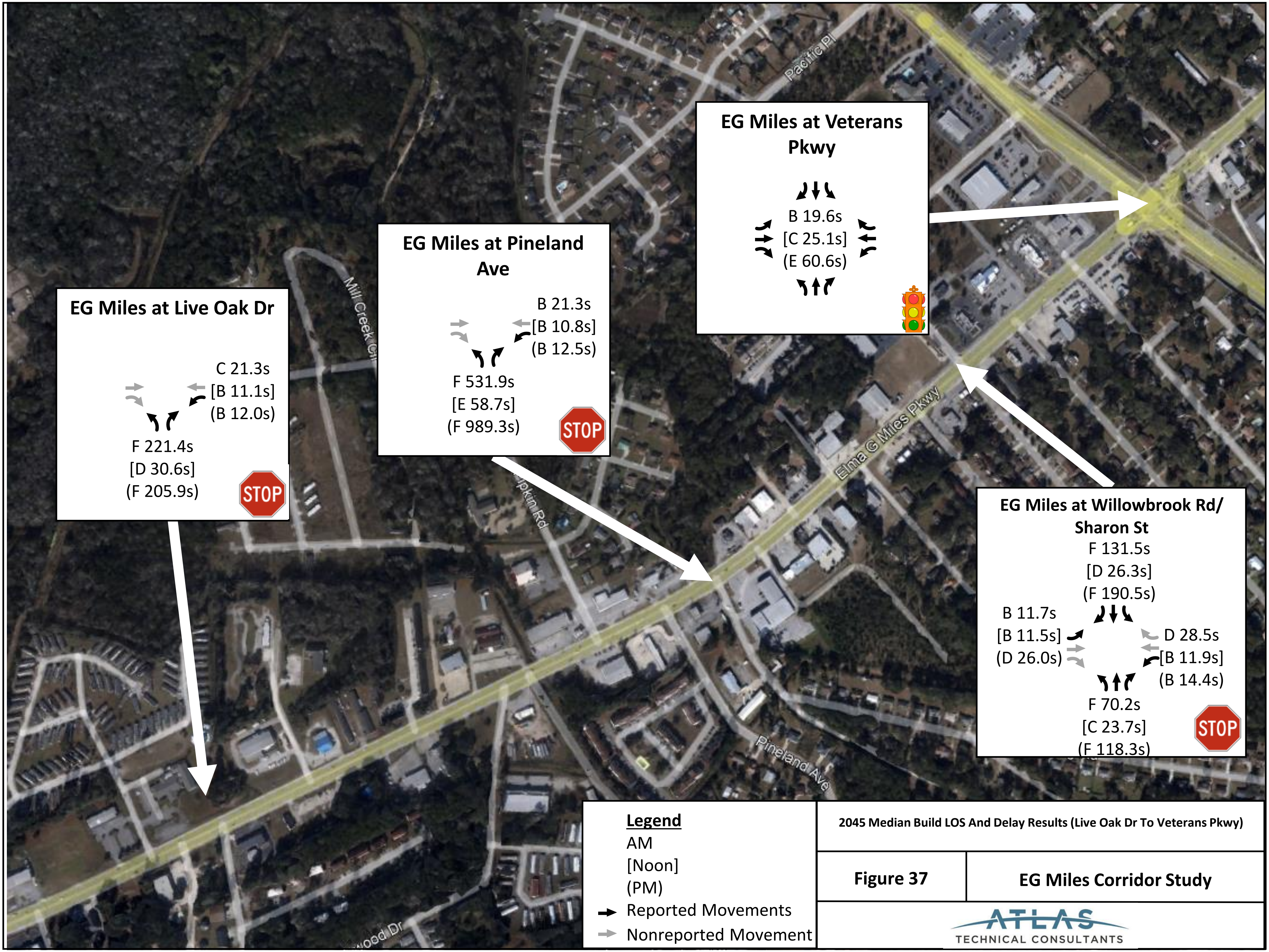
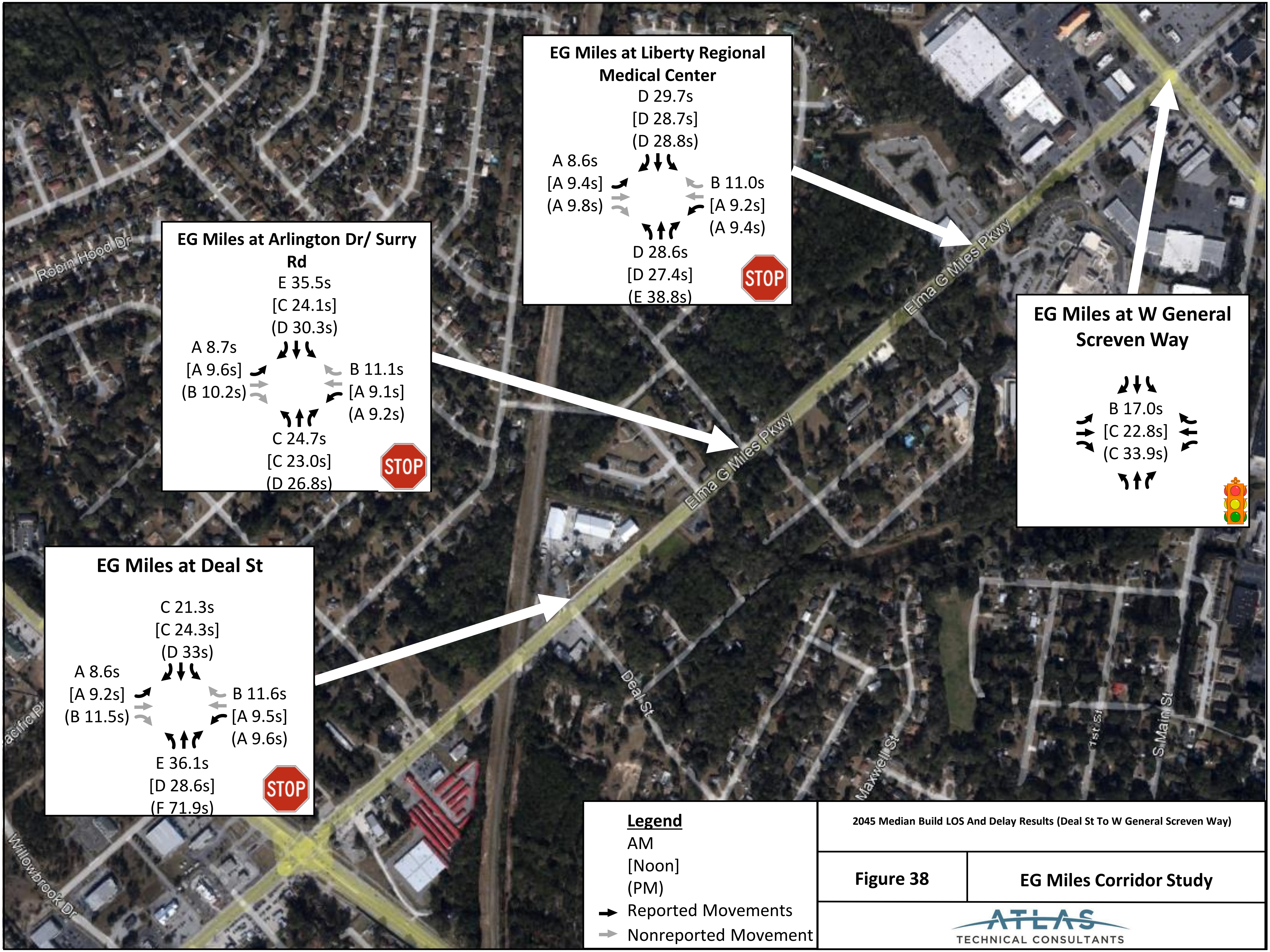


2045 Median Build LOS And Delay Results (Live Oak Dr To Veterans Pkwy)

Figure 37

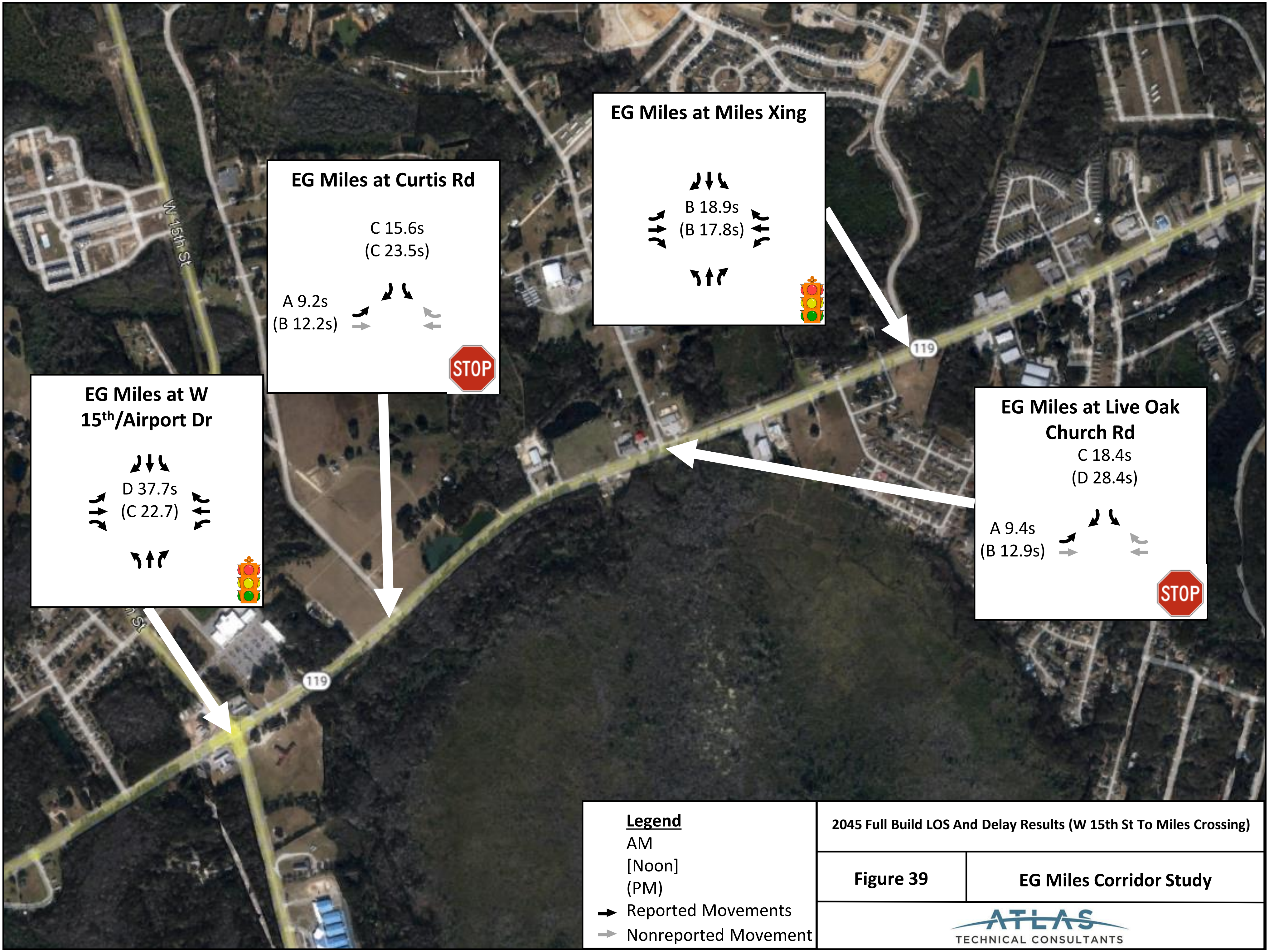
EG Miles Corridor Study



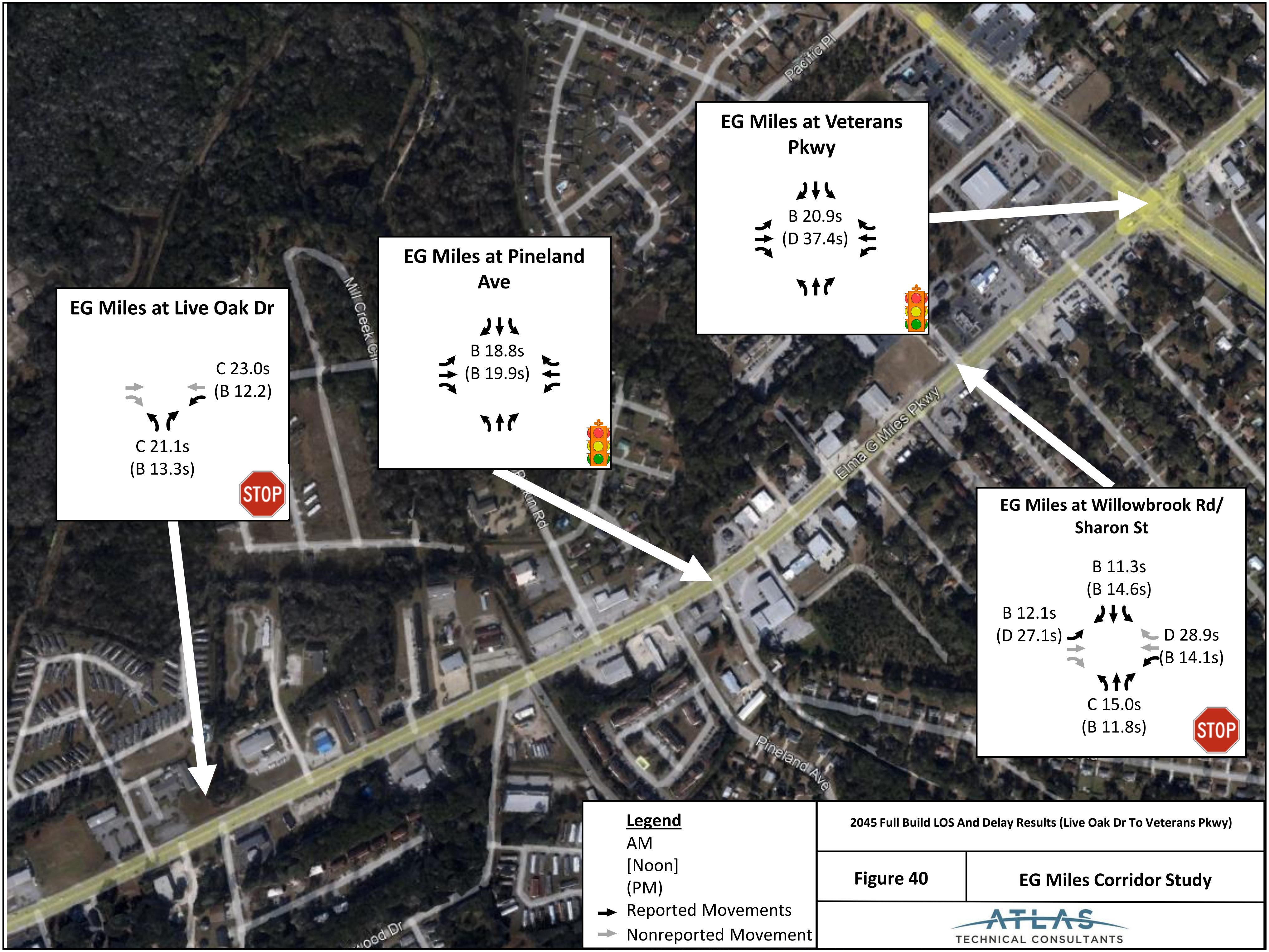
2045 Median Build LOS And Delay Results (Deal St To W General Screven Way)

Figure 38

EG Miles Corridor Study



EG Miles at Miles Xing
B 18.9s
(B 17.8s)
EG Miles at Curtis Rd
C 15.6s
(C 23.5s)
A 9.2s
(B 12.2s)
STOP
W 15th St
EG Miles at W 15th/Airport Dr
D 37.7s
(C 22.7)
119
EG Miles at Live Oak Church Rd
C 18.4s
(D 28.4s)
A 9.4s
(B 12.9s)
STOP
119
Legend
AM
[Noon]
(PM)
Reported Movements
Nonreported Movement
2045 Full Build LOS And Delay Results (W 15th St To Miles Crossing)
Figure 39
EG Miles Corridor Study
ATLAS
TECHNICAL CONSULTANTS

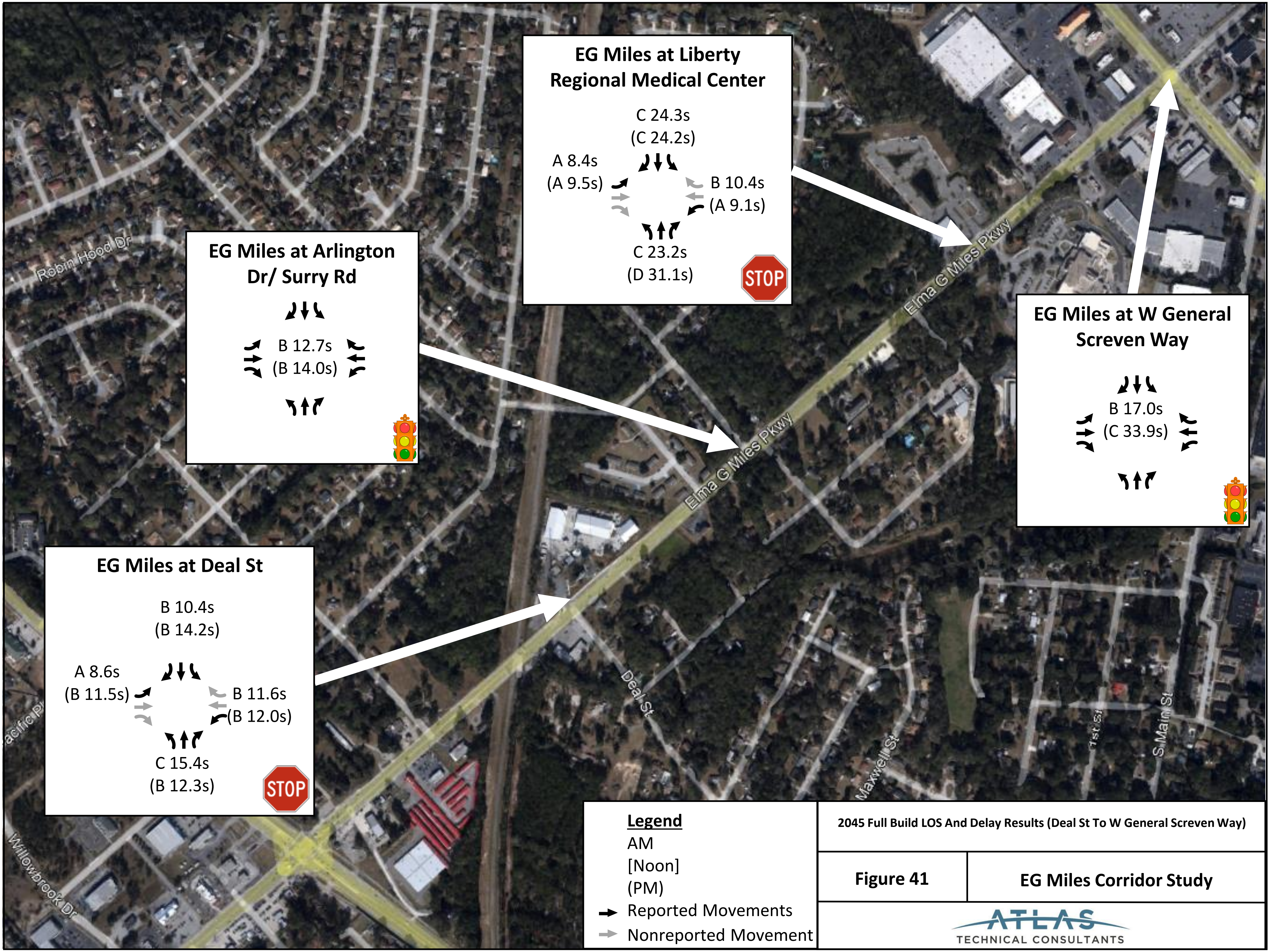


2045 Full Build LOS And Delay Results (Live Oak Dr To Veterans Pkwy)

Figure 40

EG Miles Corridor Study

ATLAS TECHNICAL CONSULTANTS

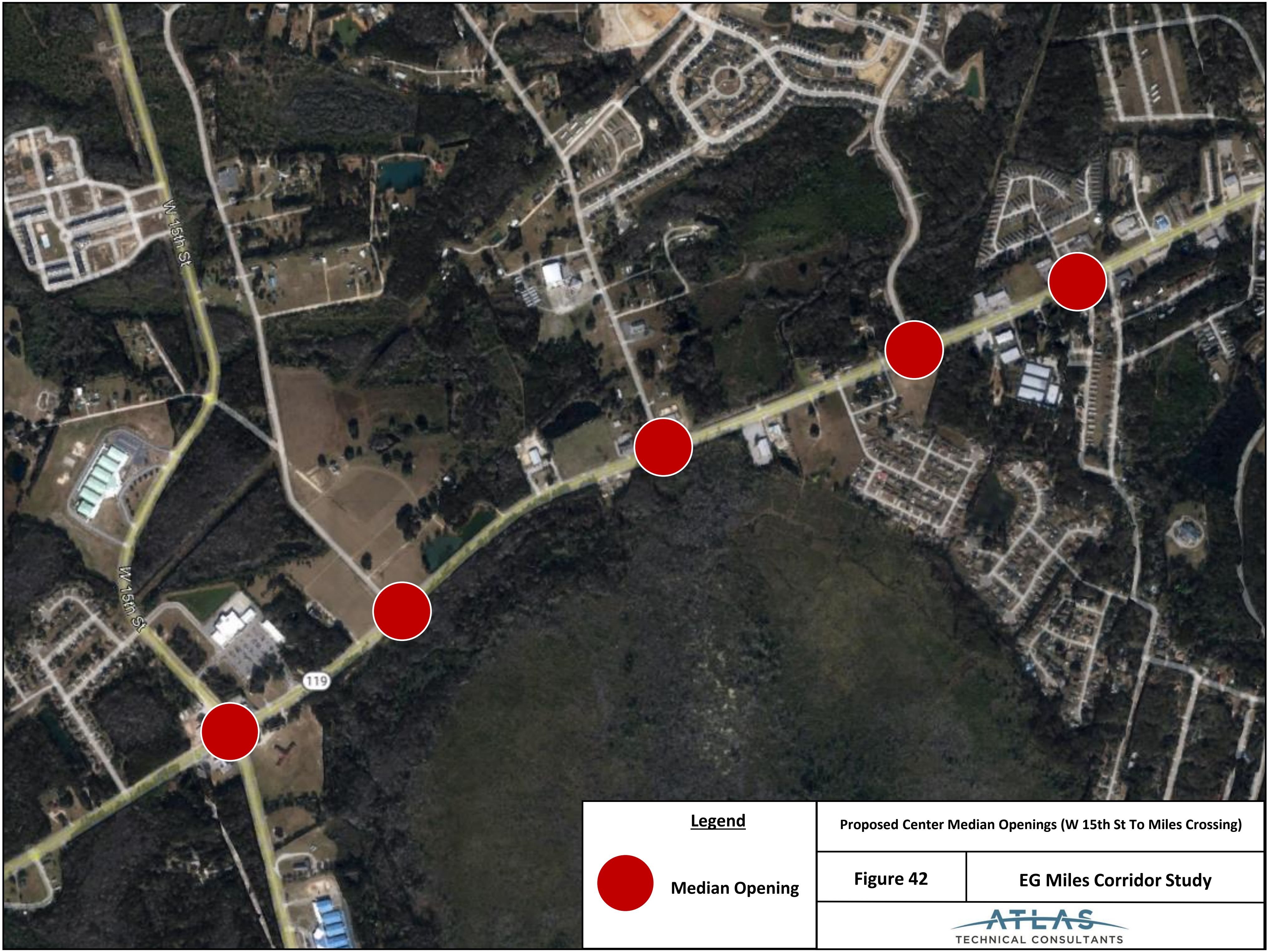


2045 Full Build LOS And Delay Results (Deal St To W General Screven Way)

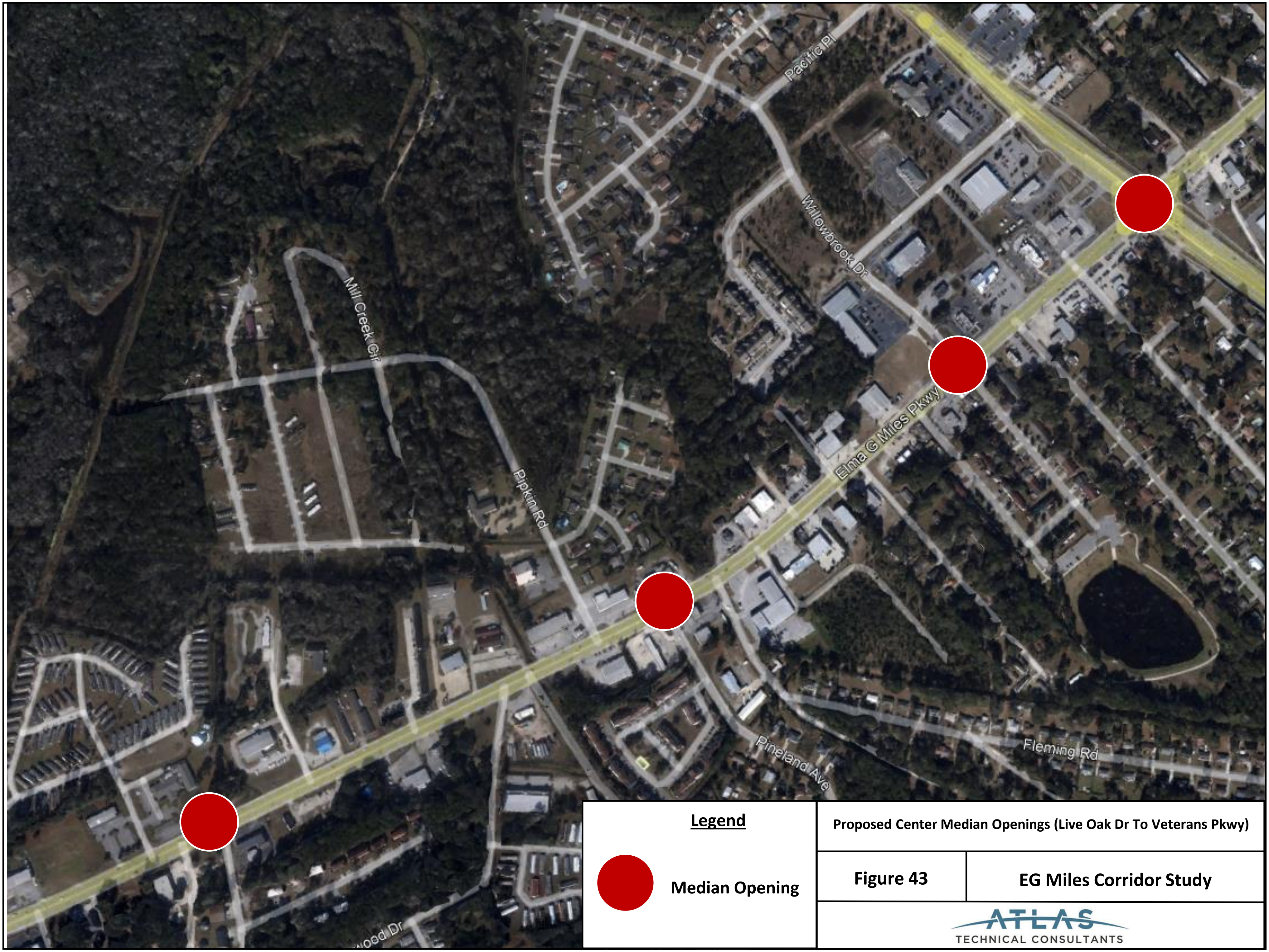
Figure 41

EG Miles Corridor Study

ATLAS TECHNICAL CONSULTANTS



Legend	Proposed Center Median Openings (W 15th St To Miles Crossing)	
Median Opening	Figure 42	EG Miles Corridor Study
	ATLAS TECHNICAL CONSULTANTS	



Legend

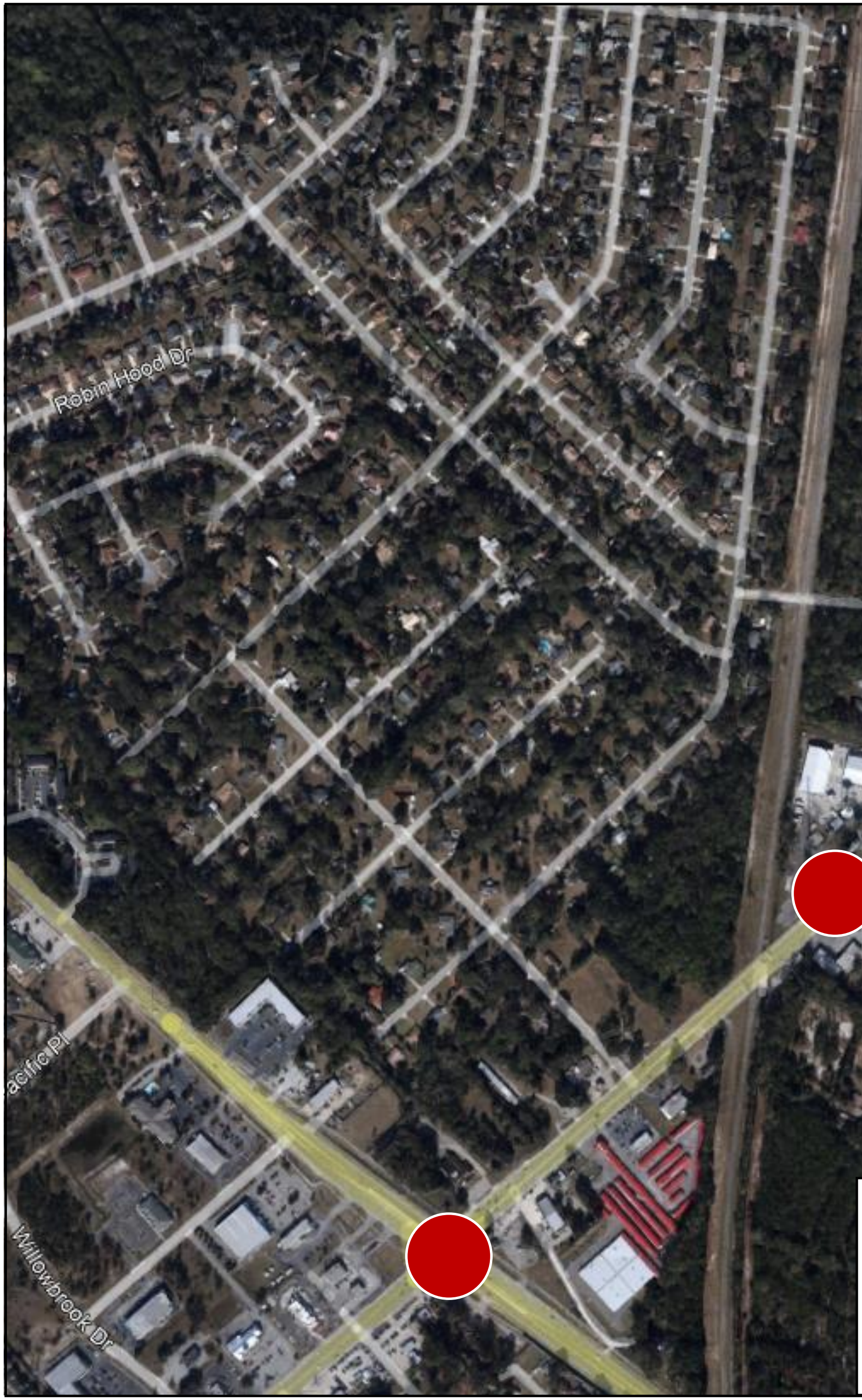
Median Opening

Proposed Center Median Openings (Live Oak Dr To Veterans Pkwy)

Figure 43

EG Miles Corridor Study

ATLAS TECHNICAL CONSULTANTS



Legend

Median Opening

Proposed Center Median Openings (Deal St To W General Screven Way)

Figure 44

EG Miles Corridor Study

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ICE Analysis Summary

GDOT's Intersection Control Evaluation (ICE) analysis is a requirement when planning intersection improvements or enhanced driveway access on state routes. ICE looks at a variety of different intersection designs while weighing in factors such as cost, Crash Reduction Factors (CRFs), and operational metrics such as delay and Volume to Capacity Ratio (V/C). It requires capacity analyses on the various intersection control options. While a variety of intersection controls are considered, it is up to the analyst to determine which options would be feasible given the project conditions. Given the project conditions, intersection changes consider heavy vehicles since they account for 22% of volume. Based on the project corridor conditions, the following intersection controls were analyzed:

- Two Way Stop Control
- Unsignalized High-T
- Restricted Crossing U-Turn Intersection (RCUT)
- Traffic Signal
- Signalized RCUT
- Continuous Green-T
- Multilane Roundabout (Deal Street Only)

Although Roundabouts were a point of interest, it was determined that roundabouts would not be feasible given that the E.G. Miles Parkway accounts for more than 90% of the ADT. Right-In/Right-Out (RIRO) intersections were not considered due to concerns about the impact that rerouted trips can have on the adjacent intersections since all left turns would be rerouted.

A multilane roundabout was considered a Deal Streat after conversation with local leadership. The GDOT roundabout tool was used to analyze the feasibility of this option. The following concerned were acknowledge with the roundabout:

- The railroad tracks are less than 500 feet away from the intersection.
- Just like all other intersections, the mainline consists of at least 90%. The benefit diminishes and can cause major delays on all approaches.
- There will be proper impact to all parcel near by including city property, an apartment complex and local businesses.
- Truck access could be a problem

After the analysis, it was determined that a roundabout would not be the best option give the cost, safety, and operational benefits. The cost of a roundabout and an RCUT was determined to be about 200% of the GDOT ICE estimate. Additional information can be found in the Deal Street memo in the appendices.

Each unsignalized intersection was analyzed with ICE. Although most of the time the preferred ICE alternative coincides with the recommendation, this is not necessarily the case. The ICE result can be disputed at the engineer's discretion, as long as a reasonable explanation is provided, and an ICE waiver form is filled and approved. The recommendations will be discussed in further detail later in report. The summarized ICE results can be found in Table 20.

TABLE 20: ICE RESULTS SUMMARY

Location	Curtis Rd	Live Oak Church Rd	Miles Xing	Live Oak Dr	Pineland Ave	Willowbrook Rd/ Sharon St	Deal St	Surrey Rd/ Arlington Dr	Liberty Regional Medical Center
ICE Result	**High-T**	**High-T**	**Traffic Signal**	**RCUT**	**Traffic Signal**	**RCUT**	**RCUT**	**RCUT**	TWSC

Conventional Minor Street/ Two-Way Stop Control (TWSC)

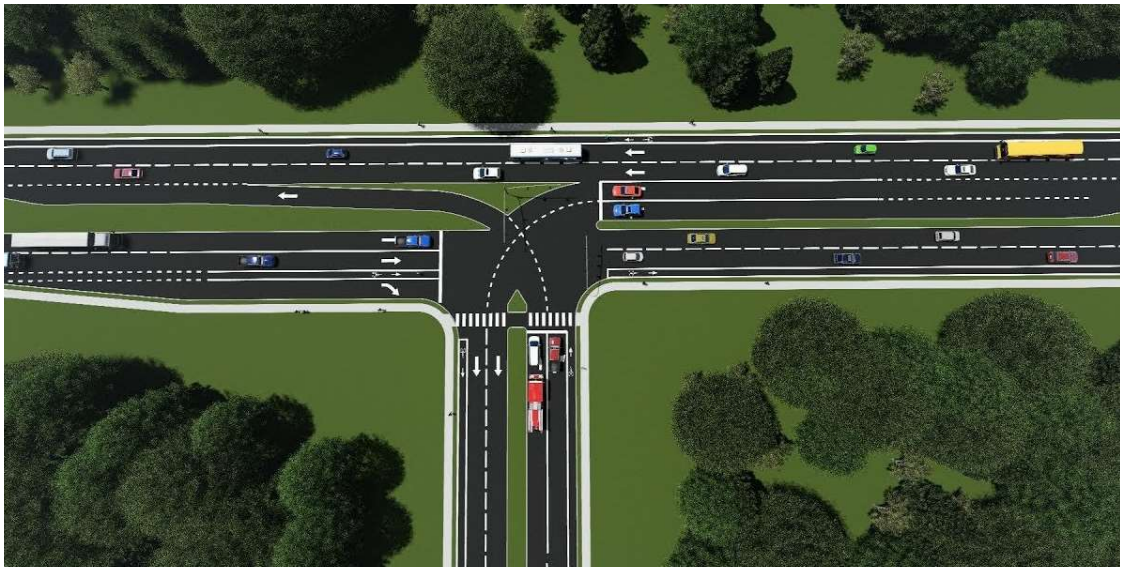
An intersection with a conventional minor street (TWSC for four-way intersection) is an intersection where the minor street is controlled by a stop sign. A conventional minor street intersection allows for full access to all turns and does not restrict any turn. Figure 45 demonstrate TWSC.

FIGURE 45: EXAMPLE OF A CONVENTIONAL MINOR STREET/ TWO-WAY STOP CONTROL (TWSC) INTERSECTION

High-T

A High-T intersection is an intersection that channelizes multiple movements and frees the “top” through lanes which allows the through movement of those labels to operate continuously. The channelization of multiple movements provides added safety benefits. Also, allowing to have a free flow through movement can benefit the overall traffic operations of the intersection. This design allows left turns from the side street to be made safely without having an immediate conflict with the through movement. Figure 46 shows a High-T intersection.

FIGURE 46: EXAMPLE OF A HIGH-T INTERSECTION



Reduced Conflict U-Turn (RCUT)

A Reduced Conflict U-Turn (RCUT) intersection forces all traffic from the minor street to make a right turn onto the major cross street. Minor street left turns are redirected to make a right turn then a left turn at a median opening along the major cross street. An RCUT allows for major street left turns. Since Multiple movements are channelized and there is a reduction in conflict points, a RCUT provides enhanced safety benefits. Figure 47 depicts an RCUT intersection.

FIGURE 47: EXAMPLE OF A REDUCED CONFLICT U-TURN (RCUT) INTERSECTION

Conventional Traffic Signal

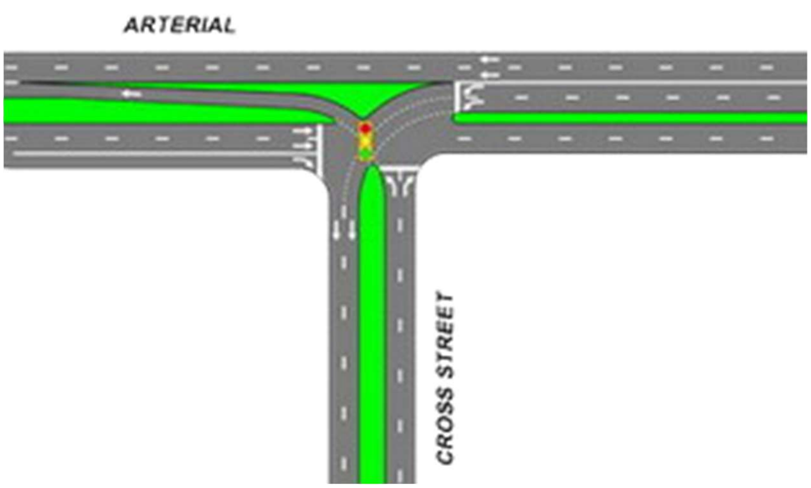
A conventional traffic signal is the most common type of signalized intersection. This involves splitting timings between the mainline and side street. This has an improved safety benefit in that the side street has dedicated time to enter the intersection safely. Figure 48 shows a convectional traffic signal.

FIGURE 48: EXAMPLE OF A CONVENTIONAL TRAFFIC SIGNAL INTERSECTION

Continuous Green Intersection

A continuous green intersection is the signalized version of the High-T intersection. The "top" of the T operates under a continuous green. This intersection design has the benefits of a signalized intersection and the benefits of a High-T intersection. Figure 49 shows an image of a Continuous Green Intersection.

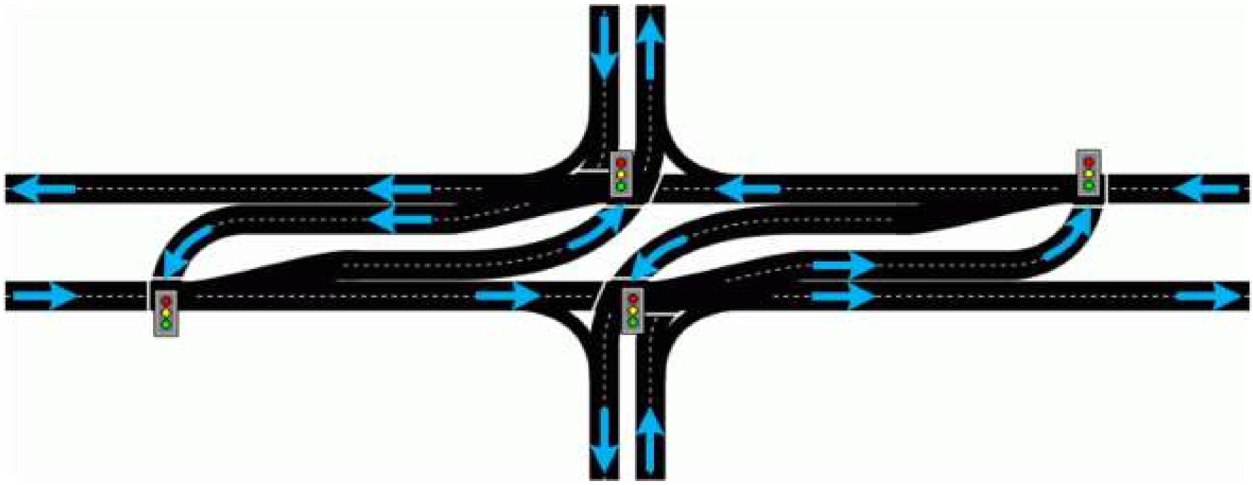
FIGURE 49: EXAMPLE OF A CONTINUOUS GREEN INTERSECTION



Signalized RCUT

A signalized RCUT is the signalized version of the RCUT. This intersection design keeps all the same design highlights as an RCUT but add signalization, which can provide a safety and operational benefits to side street right turns and mainline left turns. Figure 50 shows a Signalization RCUT intersection.

FIGURE 50: EXAMPLE OF A SIGNALIZED RCUT INTERSECTION



Observations

The implementation of U-turns in the build scenarios introduce significant delays at all the intersections that had failing LOS or high levels of delay. U-turns require more space and time, so an increase in delay is anticipated. However, after the preferred intersection improvements were included in the analysis, the entire study corridor operated in an acceptable manner, with vehicle delays, vehicle queuing, and LOS all improving. The preferred intersection improvements are listed in the two tables under the Conclusions and Recommendations section on the following page.

Conclusions and Recommendations

Preferred Intersection Design

With the traffic analysis results coupled with the feedback from the local community and stakeholders, the preferred chosen design concept for each unsignalized intersection within the E.G. Miles study corridor is shown in the Table 21. Additionally, Table 22 shows the recommended improvements to the already existing signalized intersections within the study corridor. A detailed concept can be found in the appendices (Appendix G) of the report.

TABLE 21: UNSIGNALIZED INTERSECTIONS PREFERRED DESIGN

Location	Curtis Rd	Live Oak Church Rd	Miles Xing	Live Oak Dr	Pineland Ave	Willowbrook Rd/ Sharon St	Deal St	Surrey Rd/ Arlington Dr	Liberty Regional Medical Center
Preferred Design	High-T	High-T	Traffic Signal	RCUT	Traffic Signal	RCUT	RCUT	Traffic Signal	TWSC

TABLE 22: SIGNALIZED INTERSECTIONS RECOMMENDED IMPROVEMENTS

E.G. Miles Parkway Intersections	15th Street/ Airport Road	Veterans Parkway	West General Screven Way
Intersection Improvement	Add FYAs	Add FYAs Add Southbound Right Turn Lane (Dual Rights) Add Westbound Left Turn Lane (Dual Lefts)	Add FYAs

Most of the recommendations coincide with the ICE results. The intersection of Surrey Road/ Arlington Drive and E.G. Miles Parkway recommendation does not match with the ICE analysis given the potential future development adjacent to this intersection. Although a signal is not and will not be required if the current conditions continue without development, several noted developments in the area could cause a signal to be warranted in future conditions. Traffic impact studies conducted near the intersection should determine when and if a signal shall be warranted. Given the number of proposed developments, it is expected that a signal will be warranted under future conditions. In addition, the increased turning radii at would accommodate heavy vehicle.

Operational Benefits

A driving factor behind the preferred alternatives is the improved LOS and delay. The traffic analysis found that most of the intersections on E.G. Miles Parkway did not have acceptable LOS and delay. All the intersections would enjoy an improvement in LOS and delay. The traffic analysis under the future build scenario with intersection improvements showed significant reductions in delay and improvements in LOS. This allows the roadway design to be adequate for the future development and forecasted traffic volumes.

Safety Benefits

The proposed intersection improvements were analyzed with safety in mind. All the intersection improvements have Crash Modification Factors (CMFs). A CMF indicates what should be expected in terms of a reduction (or increase) in crashes after a specific roadway improvement has been made. CMF are based off studies conducted on specific roadway configuration. Based on published reports, all the proposed intersection improvements for this corridor result in a reduction of crashes and fatalities. RCUTs have a Crash Reduction Factor (CRF) of 31% for Property Damage Only (PDO) and 53% for injuries and fatalities. High-Ts have a CRF of 23% for PDO and 45% for injuries and fatalities. Traffic signals have a CRF of 39% for PDO and 40% for injuries and fatalities.

Existing Signalized Intersections

At the three existing signalized intersections, Atlas recommends the addition of FYAs for left turn phases that operate under protected/permissive operation. In 2003, NCHRP Report 493 determined that FYAs are a better alternative to a circular green light as an indication of permissive operation, they are better understood by drivers, and they can prevent the “yellow trap” issue that occurs at many signals. The FYA upgrades would provide both safety and operational benefits.

At the EG Miles at Veterans Parkway, Atlas recommends the removal of the protected/permissive operation of the northeast left turn. GDOT’s policy, and the general practice, is to have protected only phasing for left turns that are made from two left-turn lanes or more. Therefore, this phase should be changed to protected only.

Proposed Signalized Intersection

With the introduction of several signalized intersections and improvements on several existing signals, there are additional changes proposed to improve operations and safety. Changes include permissive/protective phases changing to protective only, addition of Flashing Yellow Arrows (FYAs), and new phasing plans.

The warrant process for determining phases was conducted at each of the new intersections. This involved calculating the cross product, left turn volumes, and crash data. All proposed phasing was determined with the peak hour volumes of the intersection. The greater hour determined the phasing.

Since U-turns are prevalent, U-turns were analyzed in the same way as left turns to determine left turn phasing.

The cross product is a number calculated by multiplying the number of left turns, with the volume of opposing through traffic, and divided by the number of opposing through lanes. A cross product greater than 50,000 indicates that a leading left turn phase is warranted and a cross product greater than 30,000 warrants a lagging phase. In addition to the cross products, the number of left turning vehicles was also considered. For volumes greater than 125, a leading left turn is warranted. For volumes greater than 75, a lagging left run is warranted. The equation and resulting cross products can be found below.

$$Cross\ Product = left\ turn\ volume\ \left(\frac{opposing\ through\ \ volume}{number\ of\ opposing\ through\ lanes}\right)$$

TABLE 23: LEFT TURN PHASING RECOMMENDATIONS

Intersection	Approach	Peak Hour	Cross Product	LT+UT Volume	Recommendation
EG Miles @ Miles Xing	WB	AM	44,330	65	Lagging
	EB	PM	71,675	123	Leading
EG Miles @Pineland Ave	WB	PM	80,800	200	Leading
	EB	PM	57,034	99	Leading
EG Miles @Arlington Dr/ Surrey Rd	WB	PM	3,600	10	No Phasing
	EB	PM	36,279	87	Lagging

Priority Improvement Project Recommendations

Based on the operations and safety data, proposed project recommendations were categorized into three different categories: short term, mid-term, and long-term recommendation. The following tables show the proposed projects for the short-, mid-, and long-term planning scenarios, with estimated costs per project.

TABLE 24: SHORT TERM PROJECT RECOMMENDATIONS

Project	Location(s)	Implementation Timeframe	Project Funding Category	Estimated Planning Level Cost
Flashing Yellow Arrow (FYA) Signal Upgrades	EG Miles Pkwy (SR 196/119) at 15th St EG Miles Pkwy (SR 196/119) at Veterans Pkwy EG Miles Pkwy at General Screven Way	Short Range	Pedestrian Safety	$15k - $30k (Per Intersection)
Traffic Signal Installation	EG Miles Pkwy (SR 196/119) at Miles Crossing EG Miles Pkwy (SR 196/119) at Pineland Ave EG Miles Pkwy (SR 196/119) at Arlington Dr	Short Range	Intersection Safety and Operations	$200k - $300k (Per Intersection)
Signalized (PHB) Mid-Block Pedestrian Crossing	East of EG Miles Pkwy at Hearn Rd	Short Range	Pedestrian Safety	$200K - $300k
Signal Timing Optimization	Signalized Intersections (From 15th St to General Screven Way)	Short Range	Intersection Operations	$8k (Per intersection)

TABLE 25: MID-TERM PROJECT RECOMMENDATIONS

Project	Location(s)	Implementation Timeframe	Project Funding Category	Estimated Planning Level Cost
Intersection Lane Improvements	EG Miles Pkwy (SR 196/119) at Veterans Pkwy	Mid Range	Intersection Safety and Operations	$1 - $2 million
	EG Miles Pkwy (SR 196/119) at Liberty Regional Medical Center			$500k - $800k
Roadway Lighting Installation	EG Miles Pkwy (From 15th St to Veterans Pkwy)	Mid Range	Roadway Safety	$2k - $4k (Per Light)
Sidewalk Installation / Repair	EG Miles Pkwy (From 15th St to General Screven Way)	Mid Range	Pedestrian Safety	$100 - $500 (Per Linear Foot)

TABLE 26: LONG-TERM PROJECT RECOMMENDATIONS

Project	Location(s)	Implementation Timeframe	Project Funding Category	Estimated Planning Level Cost
R-CUT (Restricted Crossing U-Turn) Intersection Installation	EG Miles Pkwy (SR 196/119) at Live Oak Dr EG Miles Pkwy (SR 196/119) at Sharon St EG Miles Pkwy at Deal St	Long Range	Intersection Safety and Operations	$300k - $1m (Per Location)
Hight-T Intersection Installation	EG Miles Pkwy (SR 196/119) at Curtis St EG Miles Pkwy (SR 196/119) at Live Oak Church Rd	Long Range	Intersection Safety and Operations	$300k - $1m (Per Location)
Center Median Installation	EG Miles Pkwy (From 15th St to General Screven Way)	Long Range	Roadway Safety	$2 - $5 million (Per Mile)
Multi-Use Path Construction	EG Miles Pkwy (From 15th St to General Screven Way)	Long Range	Pedestrian and Bicycle Safety	$500 (Per Linear Foot)

Potential Funding Sources

As part of this corridor study, potential funding options from federal, state, and local sources are summarized below. One funding option at the federal level is the US DOT Highway Safety Improvement Program (HSIP). This is a Federal Aid program with the purpose of reducing fatalities and serious roadway injuries on all public roads. Given the aforementioned safety conditions on the corridor, HSIP could potentially help with some of the cost associated with these types of improvements.

Other potential federal funding sources which may be applicable with new funding under the recently passed (2021) Infrastructure Investment and Jobs Act (IIJA) includes the TAP set-aside in the Surface Transportation Block Grant (STPG) program and significantly increases its funding level. Throughout Georgia, the STBG program is a major source of federal funds for large roadway projects including State Route widenings Interstate projects.

In addition to increasing funding for traditional federal road, bridge and transit improvement grants, the IIJA also created several new categories of funding such as the Safe Streets for All and Reconnecting Communities programs. Some new merit criteria for grant awards under this program have been established with a focus on improvements that support sustainability and resiliency, equity, climate and other factors in addition to mobility and safety. HAMPO and the County can position themselves for some of these grant programs with carefully selected projects for consideration for each program.

The Transportation Block Grant Program provides grants to maintain and improve for bridges and tunnels, pedestrian and bicycle facilities, and transit capital projects. The Transportation Alternative Program (TAP) focuses on providing funds for pedestrian facilities, bicycle facilities, and pedestrian streetscape enhancements. This funding program has the potential to also be used for the multiuse path construction and sidewalk repairs.

Another aforementioned valuable grant program is the Safe Streets and Roads for All (SS4A) which comes from the bipartisan Infrastructure Bill (IIJA) and it provides funds to regional and local projects which help to reduce roadway injuries and fatalities through safety enhancements such as a center roadway median which is proposed as part of this study. Given the scope of the project, these funding sources may be appropriate for several parts of the proposed improvements.

SigOps is GDOT's regional management program. This program expands its reach to actively manage traffic signals in the state of Georgia. Included in this program are the maintenance and upgrades to signals throughout the state of Georgia. Hinesville is in SigOps Southeast region, which is comprised of GDOT districts 2 and 5. Funds for the signal upgrades, for example, could possibly be used to improve the three existing signalized intersections and future signalized locations along the E.G. Miles Parkway study corridor. In addition, these funds could help with the ongoing maintenance of all the signals along the corridor.

Other state funding sources include the Georgia Transportation Infrastructure Bank (GTIB) Grant, Local Maintenance, and Improvement Grant (LMIG), and the Transportation Funding Act of 2015 (HB 170). The Georgia Transportation Infrastructure Bank (GTIB) Grant provides funding in the state of Georgia in the form of a grant that can cover up to $2 million or one-third of the project value. In 2015, the Georgia Legislature passed a sweeping reform of the Motor Vehicle Fuel Tax (MVFT) system under House Bill (HB) 170. The previous method of a 7.5 cents/gallon plus a 4 percent excise tax rate was replaced with a single motor fuel excise tax. It was initially established at 26 cents per gallon for gasoline plus 29 cents per gallon for diesel, with provisions to increase in relation to inflation. As of January 1, 2021, the State Excise Tax was established as 28.7 cents per gallon for gasoline and 32.2 cents per gallon for diesel.

In the past decade, Georgia has passed legislation which has broadened the ability for counties to fund transportation projects. In 2015, HB 170 passed, which included the ability of single counties to pass up to a 1 percent sales tax, referred to as a single county TSPLOST. Previously, legislation had only allowed a tax by region as discussed above. HB 170 allows for a sales tax in increments of 0.05 percent up to a maximum collection of 1 percent for a period of 5 years for the funding of transportation projects.

At the local county and municipal level, a Special Purpose Local Option Sales Tax (SPLOST) is a sales tax used to fund capital projects proposed by county and municipal governments. A Transportation SPLOST is a sales tax where the capital funds are intended for transportation purposes specifically.

As defined by Georgia legislation TSPLOST funds can be spent only on “transportation purposes”. TSPLOST defines this as follows (See O.C.G.A. 48-8-260). 'Transportation purposes' means and includes roads, bridges, public transit, rails, airports, buses, seaports, including without limitation road, street, and bridge purposes pursuant to paragraph (1) of subsection (b) of Code Section 48-8-121, and all accompanying infrastructure and services necessary to provide access to these transportation facilities.

For Liberty County, a TSPLOST referendum was successfully passed in 2020 which identified the E.G. Miles corridor as a key location for investment that allocated 30% STIP eligible funding. In Georgia there are now 29 counties that have passed a single county TSPLOST. Furthermore, 64 other counties participate in the regional TSPLOST within the four TIA regions that passed the tax. Currently, almost 60 percent of counties in Georgia are receiving dedicated transportation funding from a local transportation sales tax from one of these two funding sources.

General Recommendations and Conclusions

Recommendations To Local Jurisdiction for Adoption

Of significant importance to any improvement in the transportation system will be jurisdictional concurrency amongst the various stakeholders in the study area. The City of Hinesville and Liberty County may consider local design and policy that supports the type of community they want to see built. This can include rural, urban, commercial, and recreational considerations to create a safe and equitable network. This also could support the local communities’ vision for how transportation is managed locally when it reaches the state systems. Concepts such as complete streets policies, active transportation in transit connectivity plans, or mobility plans, are a great way to start this process and garner public participation and support for long-term funding needs.

Consideration Of Transit Improvements and Access

We recommend all concepts should consider the transit plan or future transit access points when approaching commercial areas including the hospital and shopping. While currently this may be difficult since stops may not exist, logical termini based on development can support decisions to reduce lane with, speed limits and establish reason to improve non-motorized facilities adjacent to roadway facilities.

Midblock Conditions to Manage Design Speed

Existing state related guidance and local design guidelines focus on intersections and collision concentrated areas. A focus on the midblock crossing not just for pedestrian crossings but also as a way to manage approach speeds between two intersections should be considered. This can support better radii at the intersections, reducing speed by up to 15 mph through an intersection, and allowing more time for drivers to make better decisions and avoid vehicle or pedestrian related collisions at the mid-block locations.

Design Considerations for Freight Traffic

There is heavy freight movement in the corridor. Large tractor trailers are prevalent at all hours and present challenges with the residential nature of the area. The addition of the median helps manage speeds along the corridor, including freight vehicles. Also, the intersection upgrades should be designed to accommodate the required turning radius for trucks and buses.

Conclusion

In conclusion the E.G. Miles Corridor Study should be advanced with future planning and construction measures in coordination with GDOT and local governments (e.g. City of Hinesville and Liberty County) based on the recommendations and proposed corridor improvements provided in this study. As previously mentioned, safety concerns along the E.G. Miles corridor are reflected by the existing roadway geometry and consistently high daily traffic volumes and vehicle speeds. The 2045 HAMPO Metropolitan Transportation Plan (2020) designated this route as a high accident corridor which should be improved for safety while supporting existing roadway capacities and freight activity.