



CONSOLIDATED GOVERNMENT  
*What progress has preserved.*  
PLANNING DEPARTMENT

## COUNCIL STAFF REPORT

### REZN-07-22-1372

<b>Applicant:</b>	Steve Corbett
<b>Owner:</b>	Same
<b>Location:</b>	8401 / 8421 / 8439 Veterans Parkway / 2020 Old Guard Road
<b>Parcel:</b>	079-001-038 / 001 / 031 / 041
<b>Acreage:</b>	37.90 Acres
<b>Current Zoning Classification:</b>	SFR1 (Single Family Residential 1) RE1 (Residential Estate 1)
<b>Proposed Zoning Classification:</b>	RO (Residential Office) GC (General Commercial)
<b>Current Use of Property:</b>	Vacant / Undeveloped
<b>Proposed Use of Property:</b>	Mixed-Use
<b>Council District:</b>	District 2 (Davis)
<b>PAC Recommendation:</b>	<b>Approval</b> based on the Staff Report and compatibility with existing land uses.
<b>Planning Department Recommendation:</b>	<b>Approval</b> based on compatibility with existing land uses.
<b>Fort Benning's Recommendation:</b>	N/A
<b>DRI Recommendation:</b>	N/A
<b>General Land Use:</b>	Consistent Planning Area A

<b>Current Land Use Designation:</b>		Vacant / Undeveloped
<b>Future Land Use Designation:</b>		Mixed-Use
<b>Compatible with Existing Land-Uses:</b>		Yes
<b>Environmental Impacts:</b>		The property does not lie within the floodway and floodplain area. The developer will need an approved drainage plan prior to issuance of a Site Development permit, if a permit is required.
<b>City Services:</b>		Property is served by all city services.
<b>Traffic Impact:</b>		Average Annual Daily Trips (AADT) will increase to 8,407 trips up from 2,065 trips if used for mixed-use. The Level of Service (LOS) will remain at level C.
<b>Traffic Engineering:</b>		This site shall meet the Codes and regulations of the Columbus Consolidated Government for mixed-use usage.
<b>Surrounding Zoning:</b>	<b>North</b>	RE1 (Residential Estate 1)
	<b>South</b>	RO (Residential Office) GC (General Commercial) SFR4 (Single Family Residential 1)
	<b>East</b>	SFR1 (Single Family Residential 1)
	<b>West</b>	RE1 (Residential Estate 1) GC (General Commercial) SFR1 (Single Family Residential 1) RE (Residential Estate 1)
<b>Reasonableness of Request:</b>		The request is compatible with existing land uses.
<b>School Impact:</b>		N/A
<b>Buffer Requirement:</b>		The site shall include a Category C buffer along all property lines bordered by the SFR1 / RE1 zoning district. The 3 options under Category C are: <ul style="list-style-type: none"> <li>1) <b>20 feet</b> with a certain amount of canopy trees, under story trees, and shrubs / ornamental grasses per 100 linear feet.</li> <li>2) <b>10 feet</b> with a certain amount of shrubs / ornamental grasses per 100 linear feet and a wood fence or masonry wall.</li> </ul>

3) **30 feet** undisturbed natural buffer.

**Attitude of Property Owners:**

**Thirty (30)** property owners within 300 feet of the subject properties were notified of the rezoning request. The Planning Department received **One (2)** calls and/or emails regarding the rezoning.

**Approval** 0 Responses  
**Opposition** 2 Responses

**Additional Information:**

Veterans Parkway Overlay

Provided Traffic Study shows some intersections at a Category F. The Engineering Department has reviewed and are not concerned with internal backup causing a low traffic score.

Muscogee County School District is still concerned with increased traffic flow at drop off and pick up times due to recent development in the area.

**Attachments:**

Aerial Land Use Map  
Location Map  
Zoning Map  
Existing Land Use Map  
Future Land Use Map  
Traffic Report  
Flood Map



**Area To  
Be Rezoned**



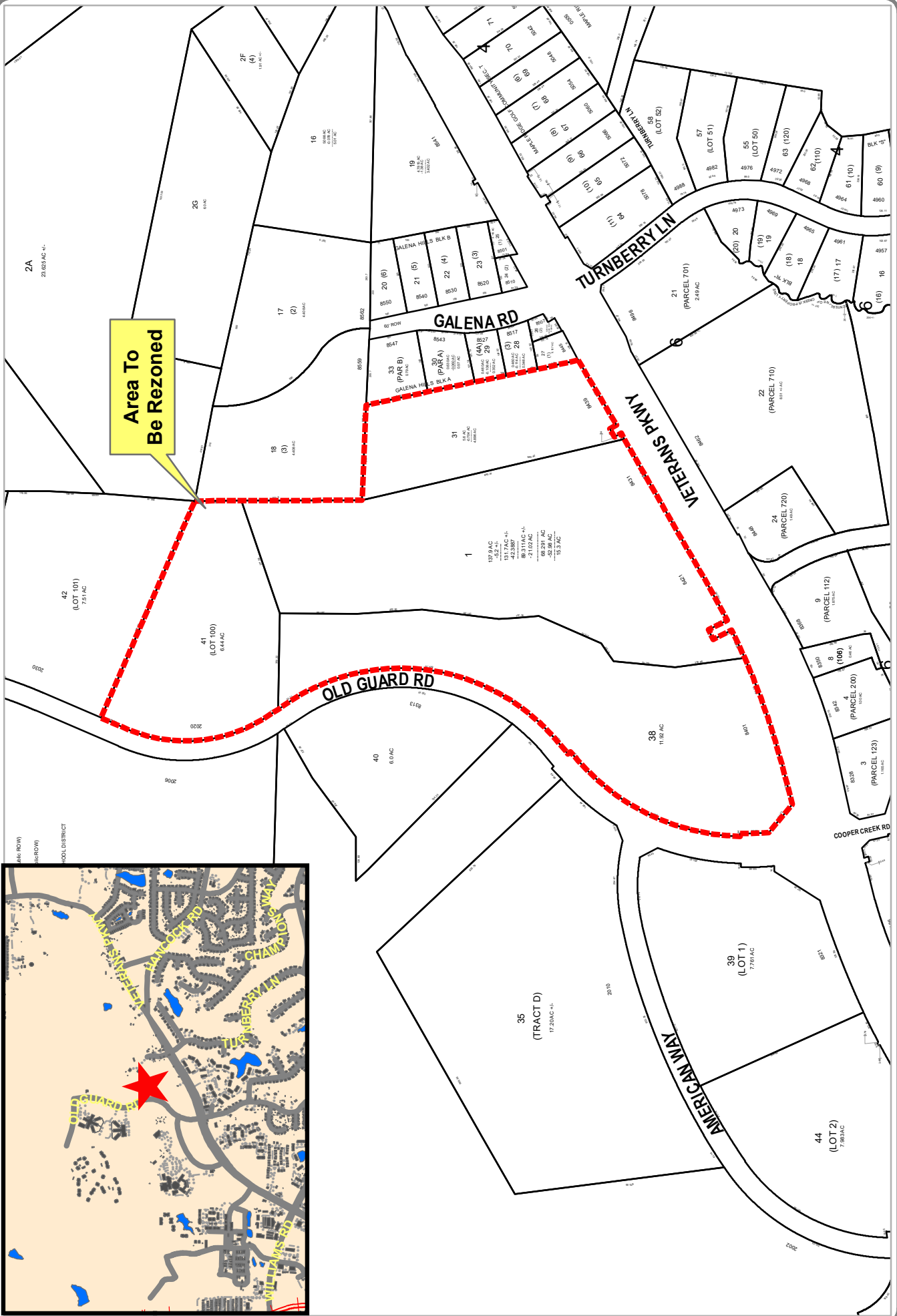
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1 inch = 400 feet  
Data Source: IT/GIS  
Author: David Cooper

**Aerial Map for REZN 07-22-1372  
Map 079 Block 001 Lots 001, 031, 038 & 041  
Planning Department-Planning Division  
Prepared By Planning GIS Tech**

This material is made available as a public service. Maps and data are to be used for reference purposes only. The data contained is subject to constant change. Map information is believed to be correct but is not guaranteed.



Date: 7/22/2022



**Area To  
Be Rezoned**



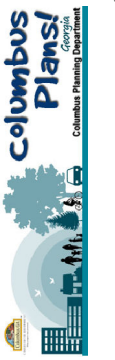
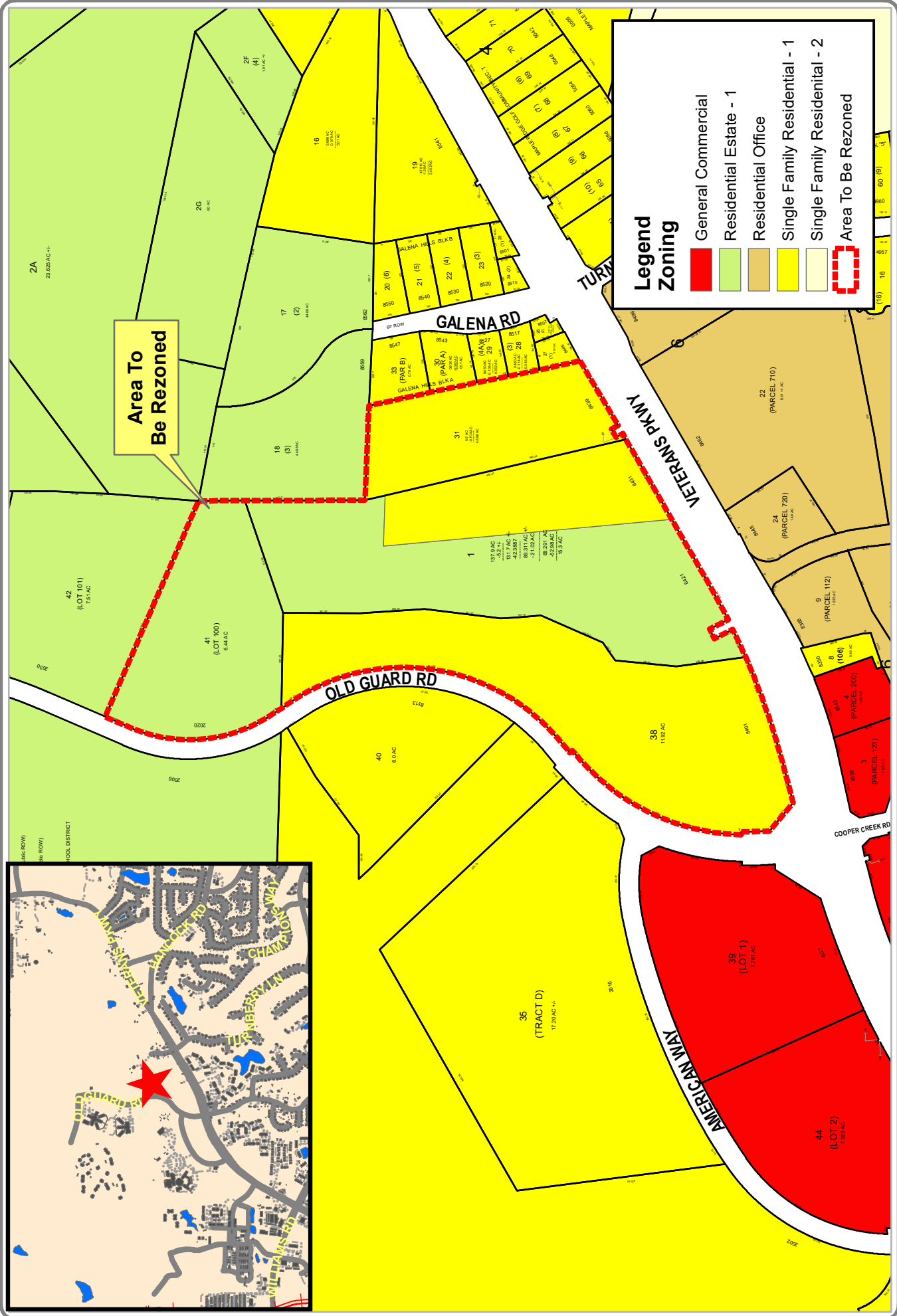
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Location Map for REZN 07-22-1372  
 Map 079 Block 001 Lots 001, 031, 038 & 041  
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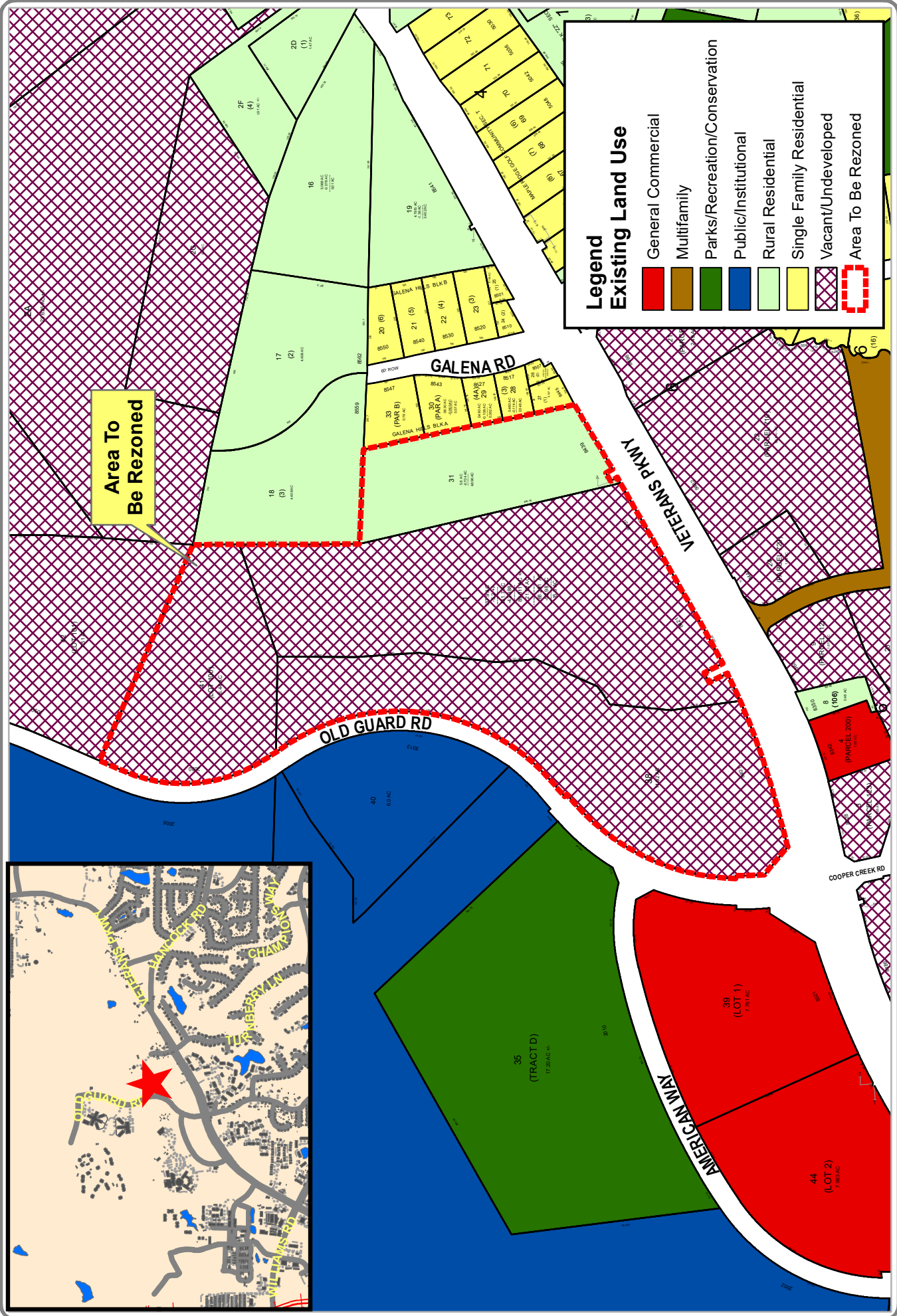


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Date: 7/25/2022



**Area To Be Rezoned**

### Legend Existing Land Use

- General Commercial
- Multifamily
- Parks/Recreation/Conservation
- Public/Institutional
- Rural Residential
- Single Family Residential
- Vacant/Undeveloped
- Area To Be Rezoned

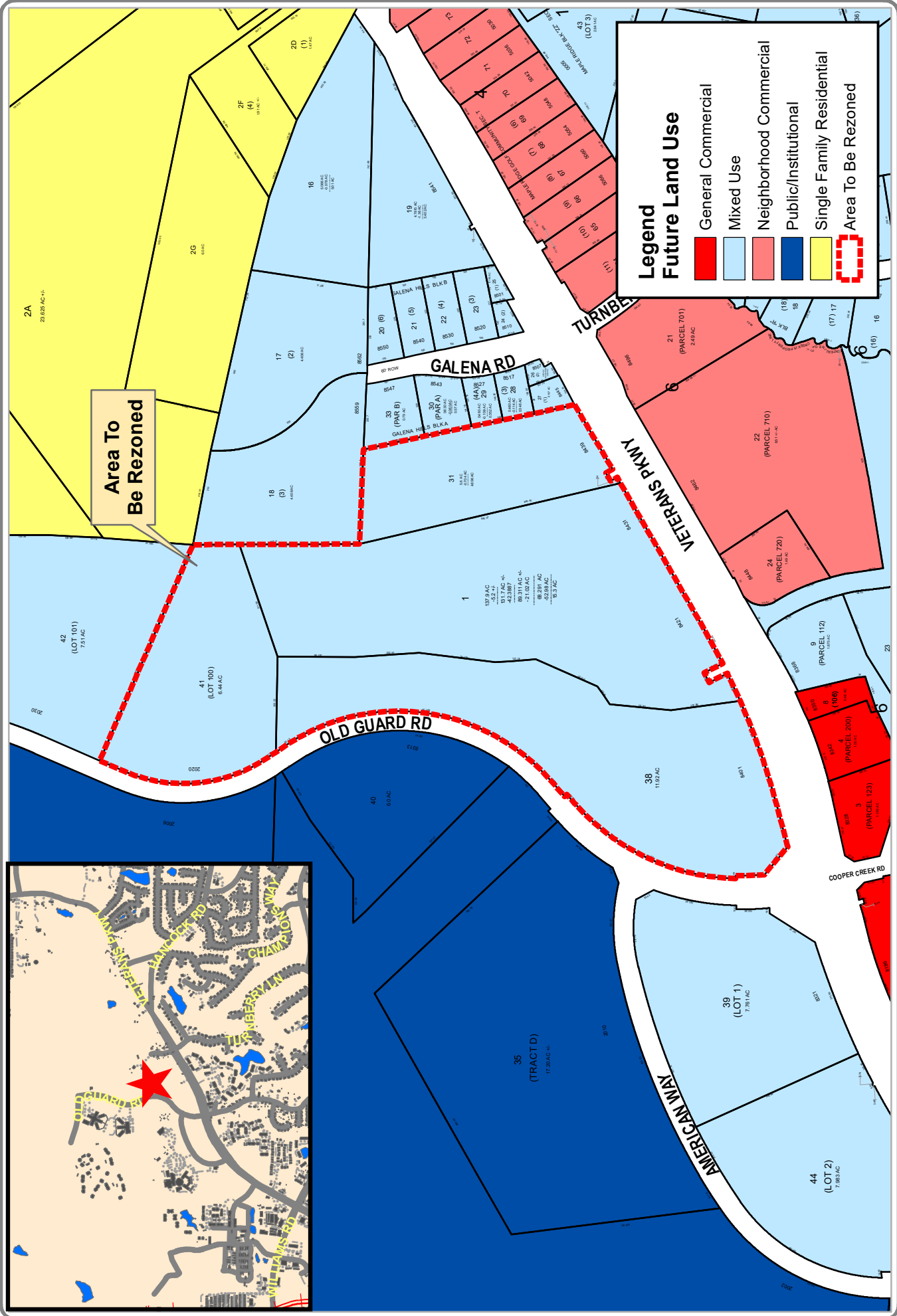


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Existing Land Use Map for REZN 07-22-1372  
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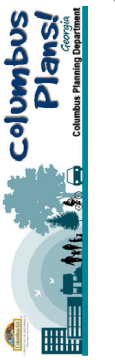
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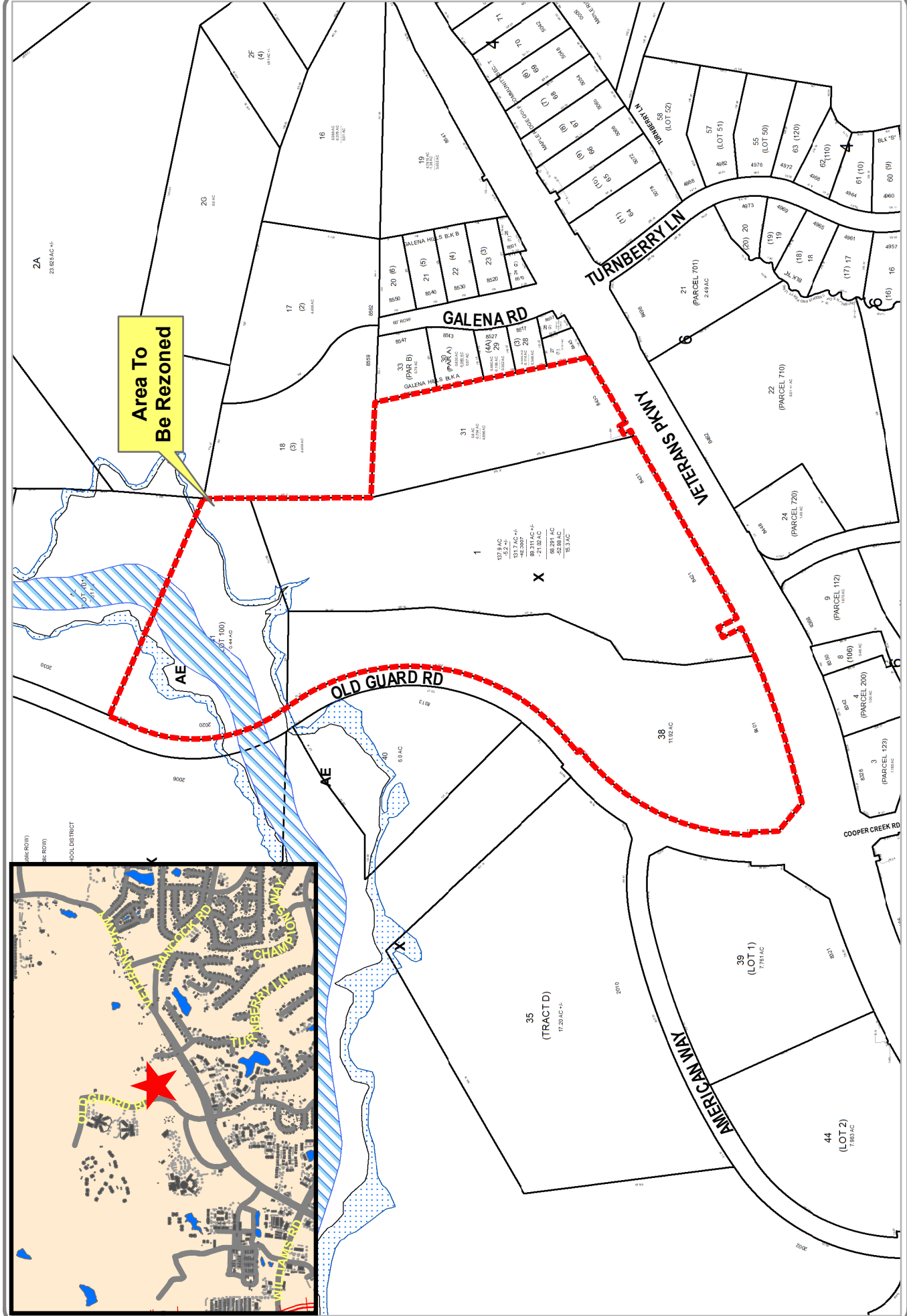
Future Land Use Map for REZN 07-22-1372  
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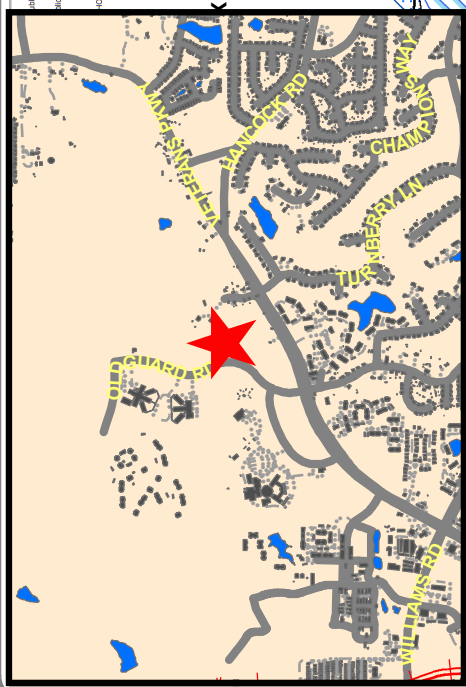
Date: 7/25/2022







**Area To Be Rezoned**



0 200 400 Feet  
 1 inch = 400 feet  
 Data Source: IT/GIS  
 Author: David Cooper

**Floodzone Map for REZN 07-22-1372**  
**Map 079 Block 001 Lots 001, 031, 038 & 041**  
 Planning Department-Planning Division  
 Prepared By Planning GIS Tech

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Date: 7/22/2022

# REZONING TRAFFIC ANALYSIS FORM

**ZONING CASE NO.** REZN 07-22-1372  
**PROJECT** 8401, 8421, and 8439 Veteran's Parkway and 2020 Old Guard Road  
**CLIENT**  
**REZONING REQUEST** SFR1 & RE1 to GC & RO

**LAND USE**  
 Trip Generation Land Use Code\* 210, 220, 930, 945 & 820  
 Existing Land Use Residential-Multi-Family 1 (RMF1) & Neighborhood Commercial (NC)  
 Proposed Land Use General Commercial - (GC)  
 Existing Trip Rate Unit RMF1 & NC - Acreage converted to square footage.  
 Proposed Trip Rate Unit GC - Number of Vehicle Fueling Positions

## TRIP END CALCULATION\*

Land Use	ITE Code	Zone Code	Quantity	Trip Rate	Total Trips
<b>Daily (Existing Zoning)</b>					
Single Family Detached Housing	210	SFR1	18,113 Acres	9.43	1,860
Single Family Detached Housing	210	RE1	21.75 Acres	9.43	205
				<b>Total</b>	<b>2,065</b>
<b>Daily (Proposed Zoning)</b>					
Shopping Center	820	GC	6,000 Sq. Ft.		4,378
Fast Casual Restaurant	930	GC	4,000 Sq. Ft.		1,499
Convenience Store/Gas Station	945	GC	20 Pumps		1,209
Multi-Family Housing (Low Rise)	220	RO	196 Units		1,321
				<b>Total</b>	<b>8,407</b>

*Note: \* Denotes calculation are based on Trip Generation, 8th Edition by Institute of Transportation Engineers*

## TRAFFIC PROJECTIONS

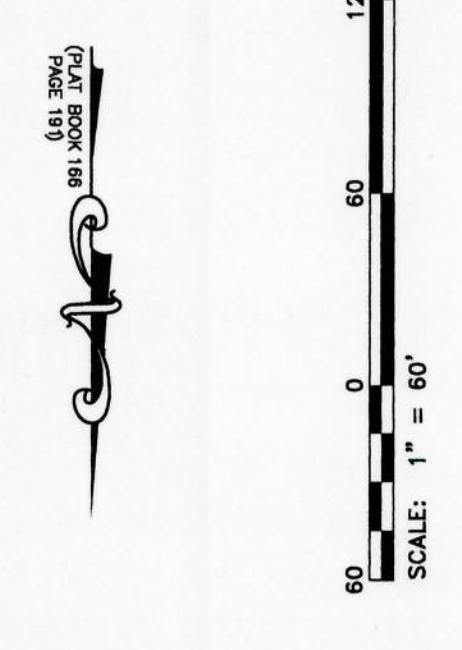
### EXISTING ZONING (SFR1 & RE1)

Name of Street	Veterans Parkway
Street Classification	Divided Arterial
No. of Lanes	4
City Traffic Count (2020)	14,400
Existing Level of Service (LOS)**	B
Additional Traffic due to Existing Zoning	2,065
Total Projected Traffic (2021)	16,465
Projected Level of Service (LOS)**	B

### PROPOSED ZONING (GC & RO)

Name of Street	Veterans Parkway
Street Classification	Divided Arterial
No. of Lanes	4
City Traffic Count (2020)	14,400
Existing Level of Service (LOS)**	B
Additional Traffic due to Proposed	8,407
Total Projected Traffic (2021)	22,807
Projected Level of Service (LOS)**	C

*Note: \*\* Denotes Level of Service Based on National Standards for Different Facility Type (TABLE1- General Highway Capacities by Facility Type)*



**OWNER INFORMATION**  
 STEVEN W. CORBETT  
 P.O. BOX 3290  
 PHENIX CITY, AL 36868  
 PHONE: 334-237-6485



**Conceptual Master Plan**  
 Scale: 1" = 60'



**Project Information**

▲ Total Site Area	37.9 +/- Acres
▲ Current Zoning	RE1
▲ Proposed Zoning & Associated Acreage	GC 9.7 Acres RO 25.1 Acres RE1 3.1 Acres
▲ State Waters On Site	Yes
▲ Jurisdictional Wetlands On Site	Yes

WATER SERVICE & SANITARY SEWER CONNECTIONS SHALL BE MADE TO COLUMBUS WATER WORKS PUBLIC SYSTEMS.

THIS SKETCH IS CONCEPTUAL IN NATURE AND IS SIMPLY BASED ON THE LIMITED INFORMATION PROVIDED. CERTAIN LAND CHARACTERISTICS SUCH AS ROCK, TOPOGRAPHY, WETLANDS, STATE WATERS, AVAILABLE UTILITIES AND NATURAL DRAINAGE PATTERNS WILL CERTAINLY IMPACT THE FINAL DESIGN.

DANA LEE & L. B. CARVER  
 (CRED BOOK 1074, PAGE 239)

CLUNG ROAD  
 (CRED BOOK 1074, PAGE 88)

MUSCOGEE COUNTY SCHOOL DISTRICT  
 (SEEZ BOOK PACT A, PAGE 268)  
 (PLAT BOOK 137, PAGE 75)

Access Point

Access Point

Access Point

Access Point  
 OLD GUARD ROAD LAND INVESTOR, LLC  
 ZONED GC



Traffic Study  
Prepared for  
**Steve Corbett Construction**

**Old Guard Road Development**  
Columbus, GA

June 21, 2022

Submitted by  
**Maldino & Wilburn, LLC**

Report Date:  
June 21, 2022

Prepared For:  
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Prepared By:  
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Additional investigation by:  
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Maldino & Wilburn Project No.:  
22-09

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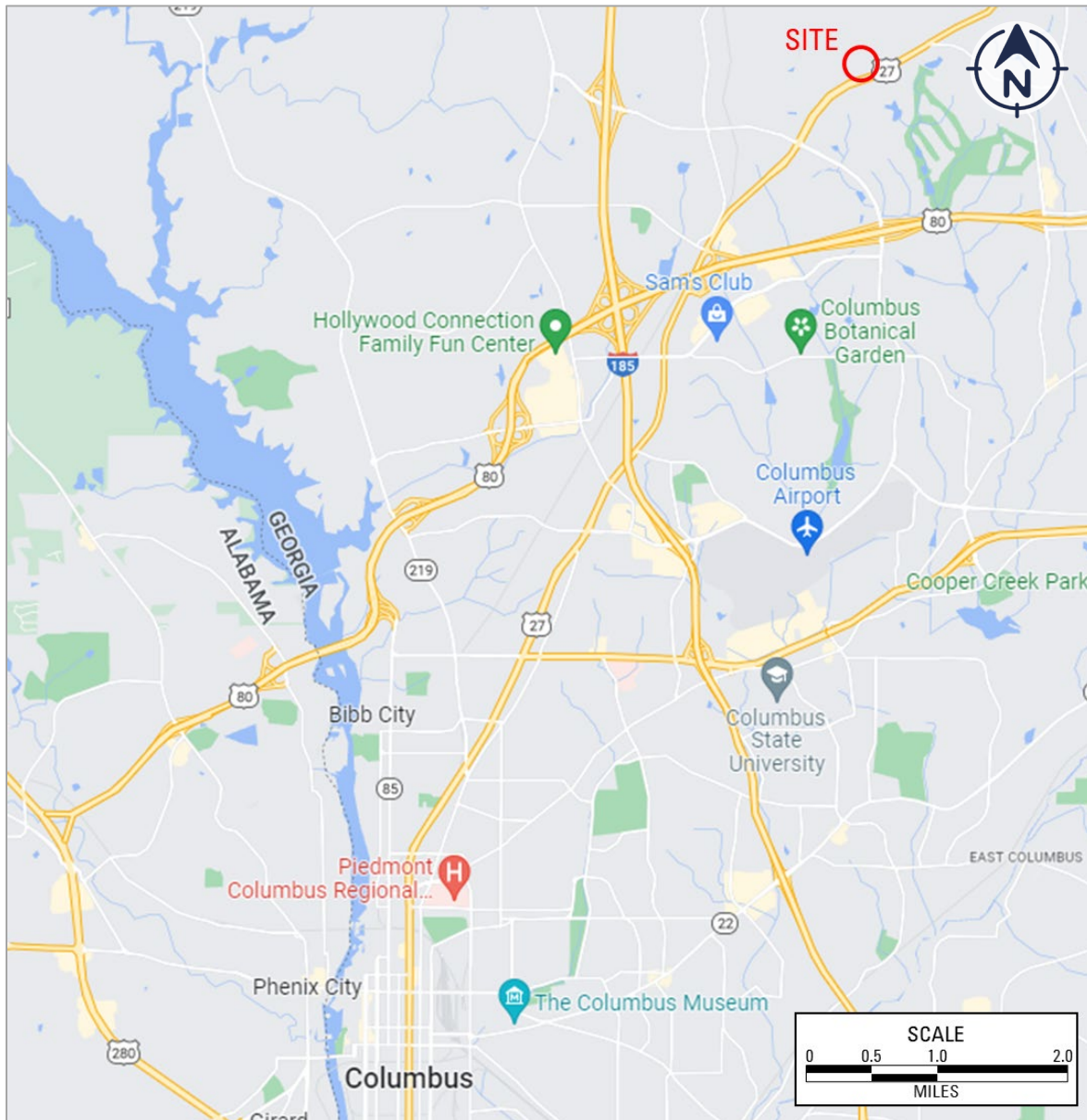
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# 1 Introduction

The purpose of this study is to evaluate the traffic-related impact of a mixed-use development planned for the northeast corner of the intersection of Veterans Parkway and Old Guard Road in Columbus, Georgia. The project location is shown on the map below in Figure 1.

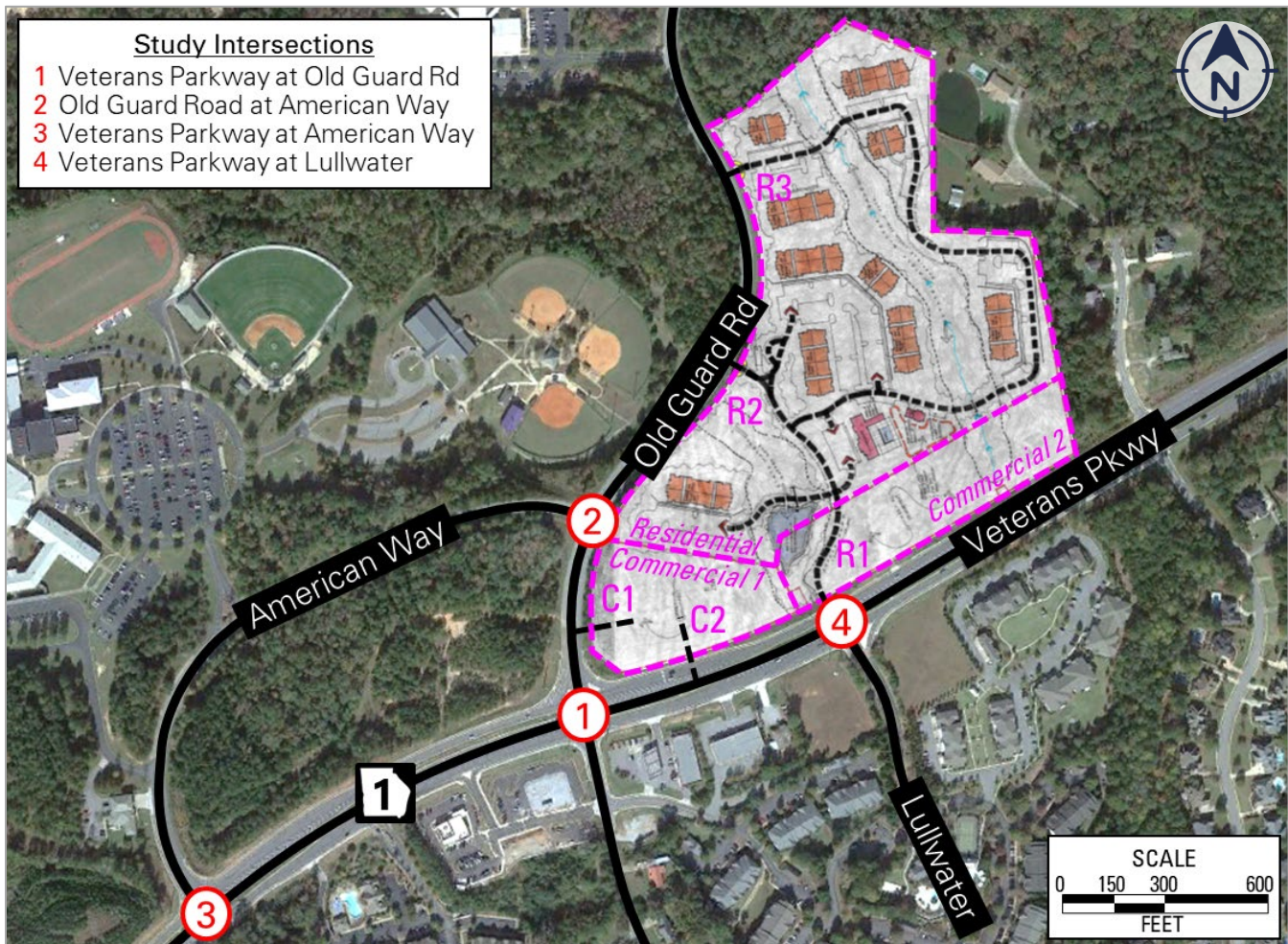
Figure 1: Project Location Map



The development, as well as the existing intersections which will be included in this study, are shown on the following page in Figure 2. The site plan for the development shows five proposed driveways, which will be referred to as labelled in the figure. A full site plan is provided in Appendix A.



Figure 2: Study Area Details



The development was divided into three portions: Residential, Commercial 1, and Commercial 2. Residential and Commercial 2 will share access to Veterans Parkway via R1. Residential will be accessed from Old Guard Road via R2 and R3 (R3 will serve as an emergency access and will not be used by typical development traffic). Commercial 1 will have access to Veterans Parkway and Old Guard Road via C1 and C2, respectively, and will not share any interconnectivity with the other two portions. All driveways will be full-access except C2, which will be restricted to right-in and right-out movements only.

The development will include the residential and commercial land uses listed below; the particular commercial land uses are likely but not certain at this time.

- Residential: 196 Multi-Family Residential Units
- Commercial 1: 4,000 Square-Foot Restaurant Space, 6,000 Square-Foot Convenience Store with 10 Fuel Pumps
- Commercial 2: Retail Space (exact size uncertain at this time, 6,000 square feet assumed)

## 2 Existing Conditions

An inventory of existing conditions was completed for the study area. The inventory includes traffic control measures, intersection geometry, and peak hour traffic volumes.

### Typical Sections and Intersection Spacing

The roadway typical sections and intersection spacing for the study area are shown graphically on the following page in Figure 3A.

### Traffic Control and Intersection Geometry

The traffic control and intersection geometry for the study intersections are shown graphically on Page 5 in Figure 3B.

### Traffic Volumes

Turning Movement Counts (TMC's) were conducted at the four existing study intersections on Wednesday, March 2, and Thursday, April 14, 2022. Data was recorded for a total of six hours during the AM peak period and End of School/PM peak period from 6:30 to 8:30 AM and from 2:30 to 6:30 PM. The existing traffic volumes are shown on Page 6 in Figure 4. Traffic data reports are provided in Appendix B.

Figure 3A: Existing Conditions - Typical Sections and Intersection Spacing

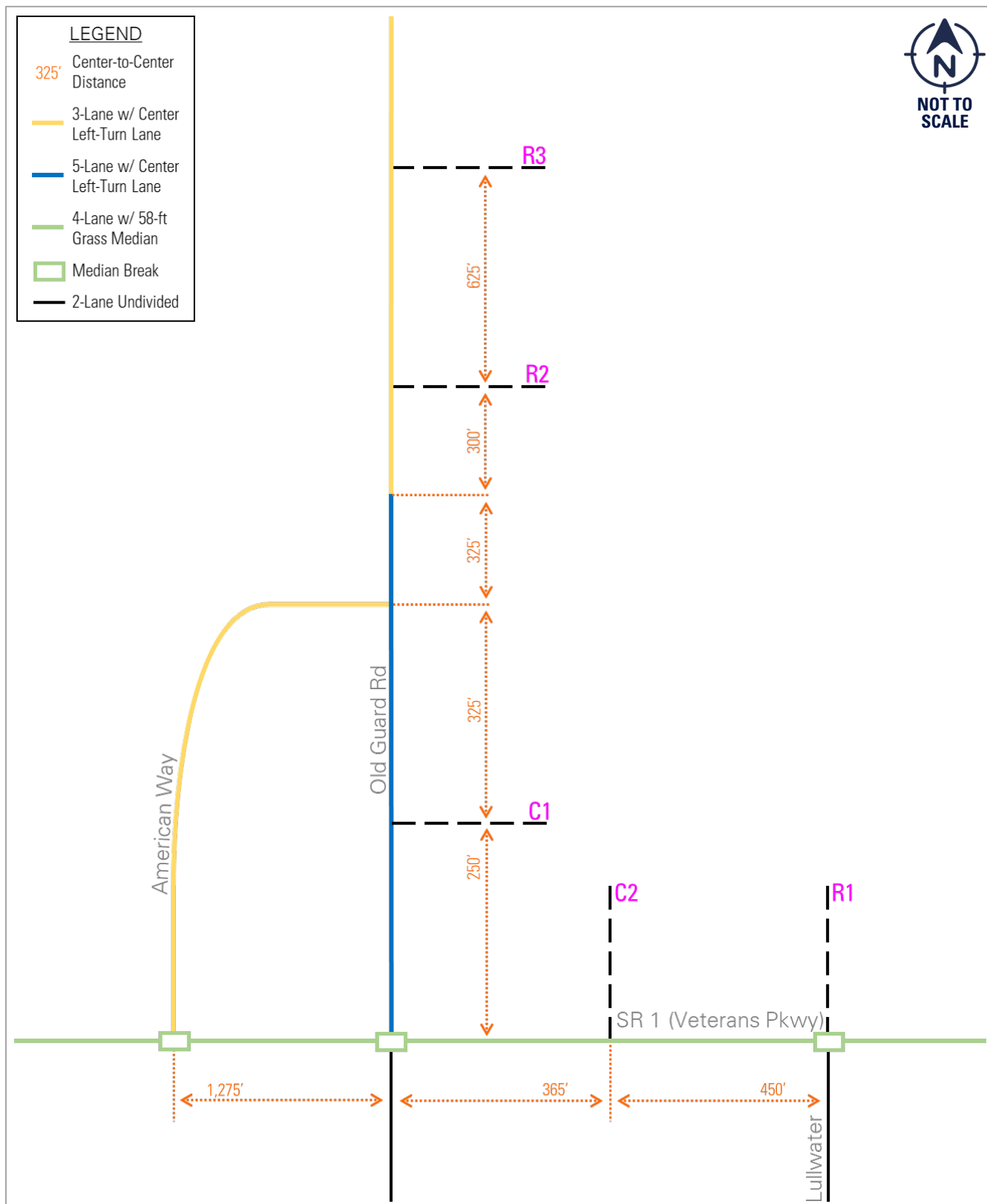


Figure 3B: Existing Conditions - Traffic Control and Intersection Geometry

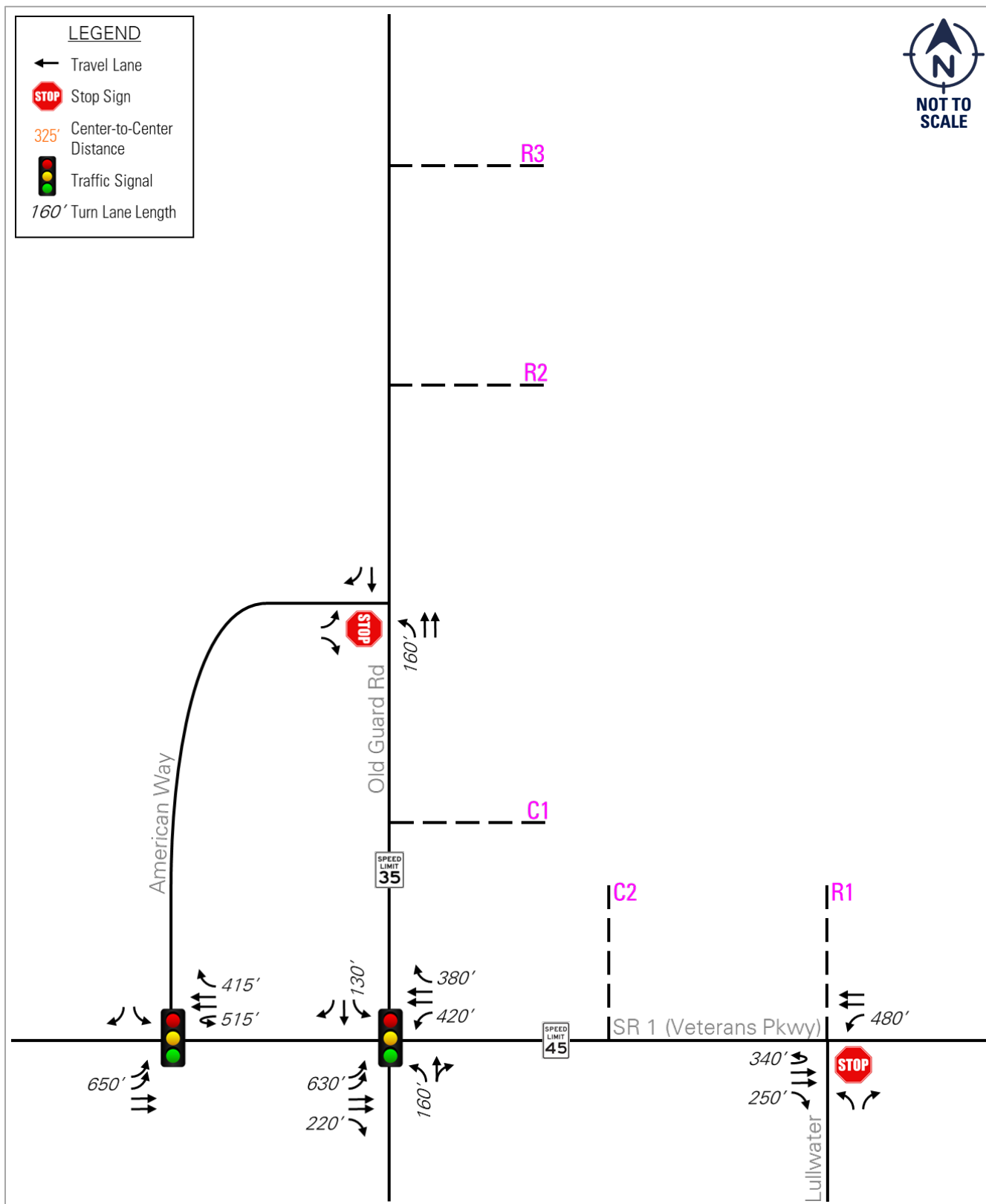
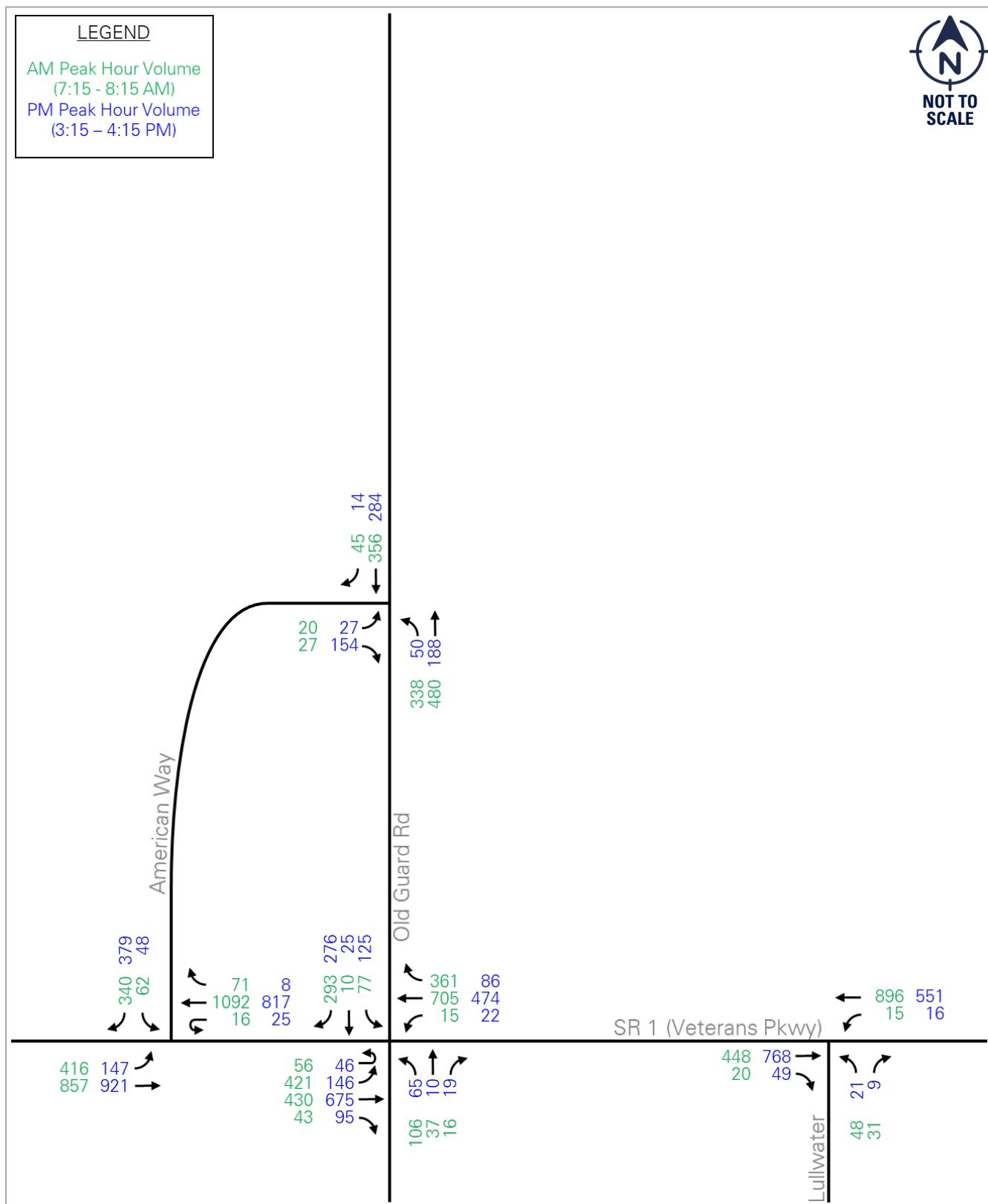


Figure 4: Existing Traffic Volumes

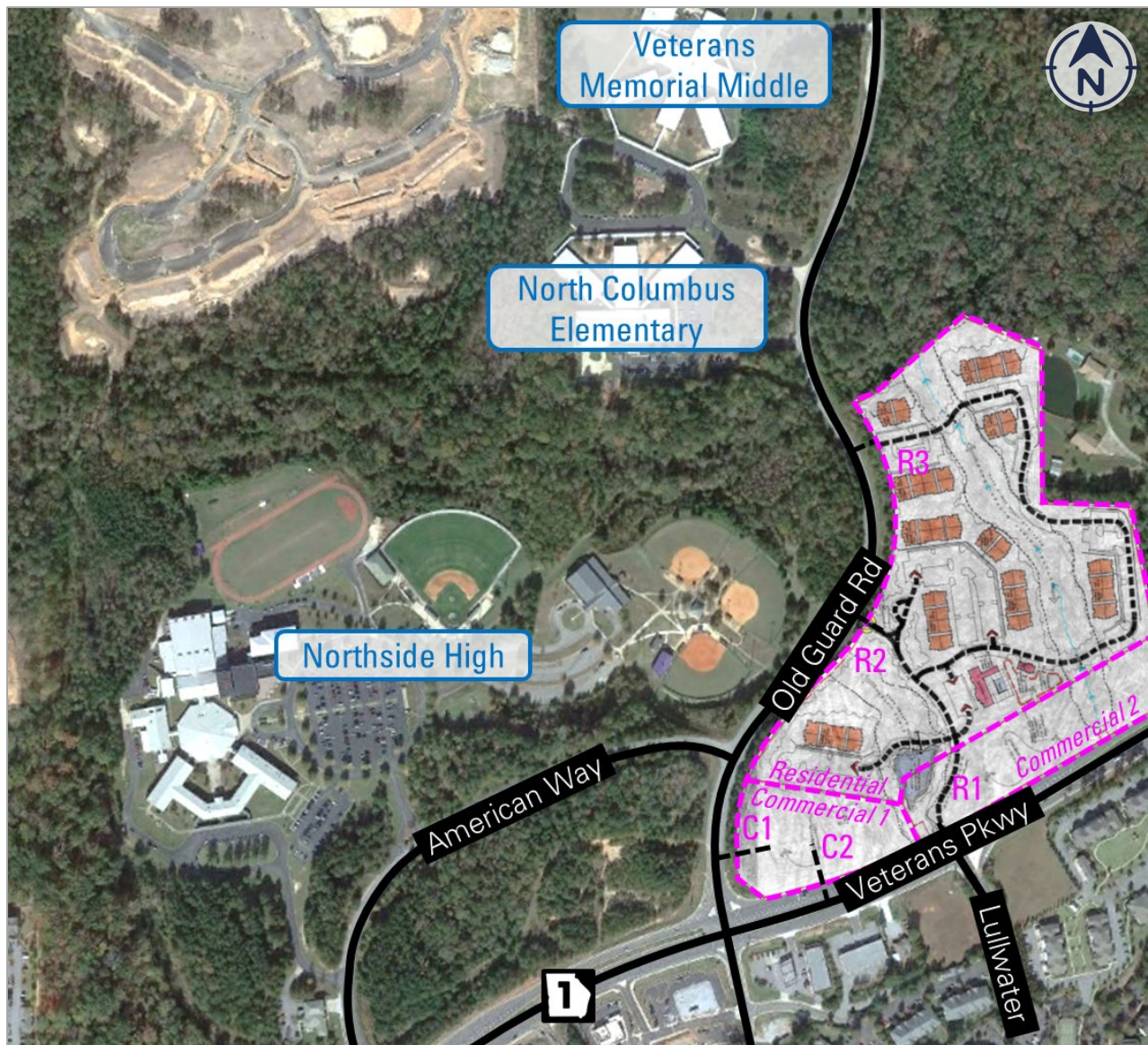


## Field Observations

A site visit was completed by Maldino and Wilburn staff during the peak periods, during which the below observations were made. The schools within the study area are shown below in Figure 5.

- The drop-off and pick-up schedules of the three schools are staggered such that drop-off and pick-up traffic for any school does not overlap with that of any other school.
- During drop-off and pick-up periods for the elementary and middle school, traffic queues along Old Guard Road extend to the intersection of Old Guard Road and American Way.
- At the intersections on Veterans Parkway at American Way and at Old Guard Road, queues for the southbound movements, which serve the traffic exiting from the schools, appear to completely clear with every cycle of the traffic signals.

Figure 5: Schools in Study Area



### 3 Projected Conditions

Projected conditions, which represent the study area after the proposed development is complete and fully occupied, were developed through the traditional three-step process of trip generation, trip distribution, and traffic assignment.

#### Trip Generation

The number of trips to be generated by the proposed development was estimated based on trip rates from the Institute of Transportation Engineers (ITE) publication *Trip Generation*, 10<sup>th</sup> Edition. Since there will not be any interconnectivity between Commercial 1 and the other two portions, Commercial 1 was treated as a separate development throughout the traffic projection process. The estimated trip generation is summarized below in Table 1A for Residential and Commercial 2 and in Table 1B for Commercial 1. The trip generation reports are provided in Appendix C.

Table 1A: Trip Generation Summary, Residential and Commercial 2

Land Use Code	Land Use	Size	Daily			AM Peak Hour			PM Peak Hour		
			Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
221	Multifamily Housing (Mid-Rise)	196 Units	533	533	1066	18	53	71	52	34	86
820	Shopping Center	6 ksf	114	113	227	4	2	6	11	12	23
<b>Subtotal</b>						<b>22</b>	<b>55</b>	<b>77</b>	<b>63</b>	<b>46</b>	<b>109</b>
Less Internal Capture Trips, Residential						<i>0</i>	<i>1</i>	<i>1</i>	<i>3</i>	<i>1</i>	<i>4</i>
Less Internal Capture Trips, Commercial 2						<i>1</i>	<i>0</i>	<i>1</i>	<i>1</i>	<i>3</i>	<i>4</i>
Less Pass-By Trips, Commercial 2						<i>0</i>	<i>0</i>	<i>0</i>	<i>3</i>	<i>3</i>	<i>6</i>
<b>Total Trips Added to Roadway Network</b>						<b>21</b>	<b>54</b>	<b>75</b>	<b>56</b>	<b>39</b>	<b>95</b>

Table 1B: Trip Generation Summary, Commercial 1

Land Use Code	Land Use	Size	Daily			AM Peak Hour			PM Peak Hour		
			Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
930	Fast Casual Restaurant	4 ksf	631	630	1261	5	3	8	31	26	57
945	Gasoline/Service Station With Convenience Market	20 Fueling Positions	2054	2053	4107	127	122	249	143	137	280
<b>Subtotal</b>						<b>132</b>	<b>125</b>	<b>257</b>	<b>174</b>	<b>163</b>	<b>337</b>
Less Pass-By Trips						<i>77</i>	<i>77</i>	<i>154</i>	<i>78</i>	<i>78</i>	<i>156</i>
<b>Total Trips Added to Roadway Network</b>						<b>55</b>	<b>48</b>	<b>103</b>	<b>96</b>	<b>85</b>	<b>181</b>

New trips are trips which are added to the existing traffic on the roadway network. Internal capture trips are trips which are completed by the same vehicle accessing multiple land uses within one development. Pass-by trips are secondary trips which are drawn from the existing traffic stream and continue in the direction they were originally heading after the secondary trip is complete.

## Trip Distribution

Two distributions were developed by which to assign trips to the roadway network: one for the residential portion, Residential 1, and one for the commercial portions, Commercial 1 and Commercial 2. The distribution for the residential portion was developed based on the distribution of existing traffic exiting the study area during the AM peak hour, while the distribution for the commercial portions was developed based on the distribution of existing traffic entering the study area during the AM peak hour. Both distributions are shown below in Figure 6. The resulting distribution of new trips to the roadway network is listed on the following page in Table 2.

Figure 6: Trip Distribution

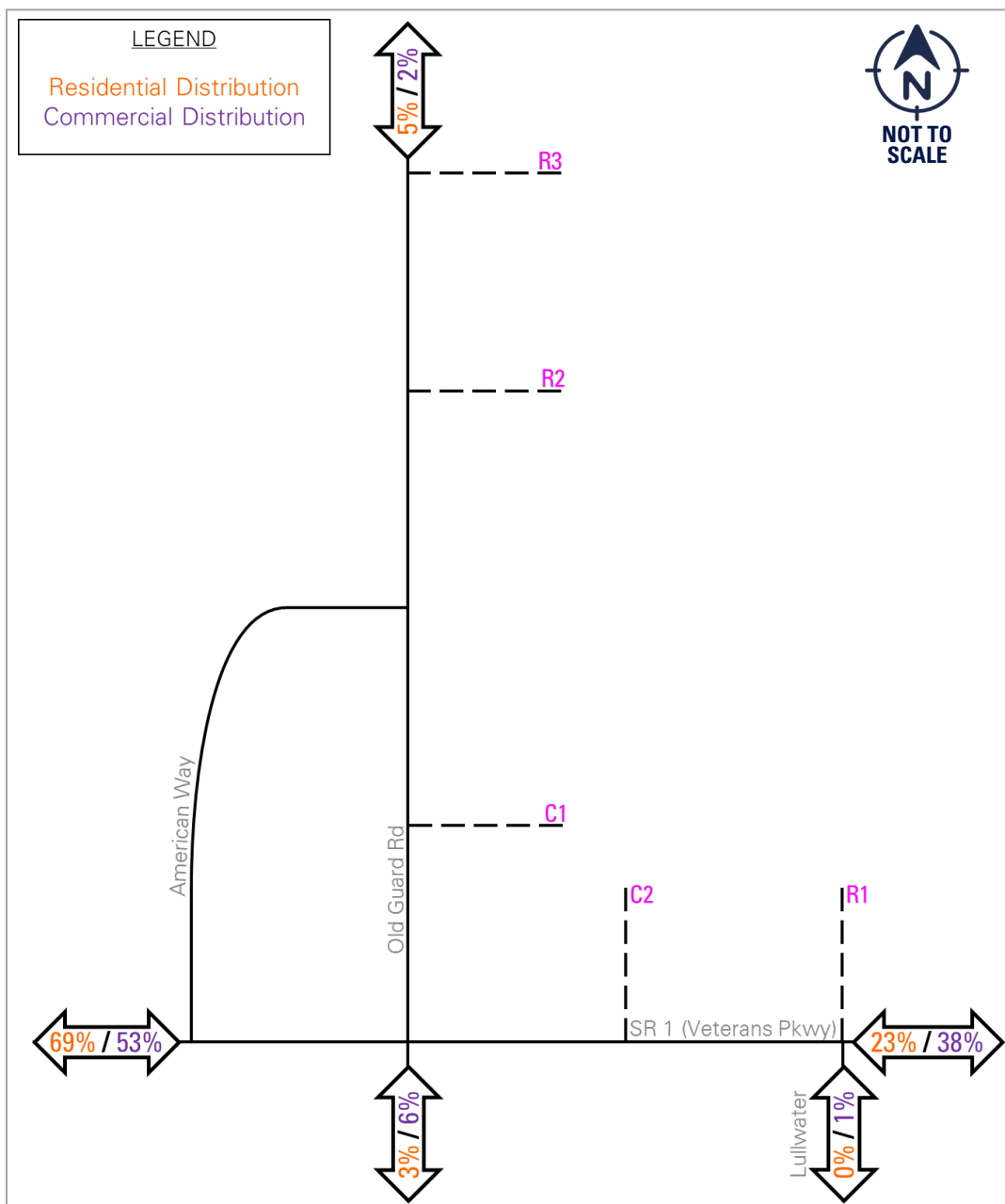




Table 2: Distribution of New Trips to Roadway Network

Direction To/From	AM Peak Hour			PM Peak Hour			
	Enter	Exit	Total	Enter	Exit	Total	
Residential	West on Veterans Pkwy	12	36	48	34	23	57
	East on Veterans Pkwy	4	12	16	11	8	19
	South on Old Guard Rd	1	1	2	2	0	2
	North on Old Guard Rd	1	3	4	2	2	4
	South on Lullwater	0	0	0	0	0	0
<b>Total New Trips, Residential</b>	<b>18</b>	<b>52</b>	<b>70</b>	<b>49</b>	<b>33</b>	<b>82</b>	
Commercial 2	West on Veterans Pkwy	2	1	3	4	3	7
	East on Veterans Pkwy	1	1	2	3	2	5
	South on Old Guard Rd	0	0	0	0	1	1
	North on Old Guard Rd	0	0	0	0	0	0
	South on Lullwater	0	0	0	0	0	0
<b>Total New Trips, Commercial 2</b>	<b>3</b>	<b>2</b>	<b>5</b>	<b>7</b>	<b>6</b>	<b>13</b>	
Commercial 1	West on Veterans Pkwy	29	25	54	51	45	96
	East on Veterans Pkwy	21	18	39	36	32	68
	South on Old Guard Rd	3	3	6	6	5	11
	North on Old Guard Rd	1	1	2	2	2	4
	South on Lullwater	1	1	2	1	1	2
<b>Total New Trips, Commercial 1</b>	<b>55</b>	<b>48</b>	<b>103</b>	<b>96</b>	<b>85</b>	<b>181</b>	

In addition to the distribution percentages, assumptions were made regarding driveway utilization based on the origin and destination of trips. These assumptions are as listed below in Table 3.

Table 3: Driveway Utilization Percentages

Of New Trips To/From	% Will Enter Via			% Will Exit Via			
	R1	R2	R3	R1	R2	R3	
Residential	West on Veterans Pkwy	50%	50%	0%	50%	50%	0%
	East on Veterans Pkwy	100%	0%	0%	100%	0%	0%
	South on Old Guard Rd	50%	50%	0%	50%	50%	0%
	North on Old Guard Rd	0%	100%	0%	0%	100%	0%
	South on Lullwater	100%	0%	0%	100%	0%	0%
Commercial 2	West on Veterans Pkwy	100%	0%	0%	100%	0%	0%
	East on Veterans Pkwy	100%	0%	0%	100%	0%	0%
	South on Old Guard Rd	100%	0%	0%	100%	0%	0%
	North on Old Guard Rd	100%	0%	0%	100%	0%	0%
	South on Lullwater	100%	0%	0%	100%	0%	0%
	<b>C1</b>	<b>C2</b>		<b>C1</b>	<b>C2</b>		
Commercial 1	West on Veterans Pkwy	100%	0%		50%	50%	
	East on Veterans Pkwy	0%	100%		100%	0%	
	South on Old Guard Rd	100%	0%		100%	0%	
	North on Old Guard Rd	100%	0%		100%	0%	
	South on Lullwater	0%	100%		100%	0%	

## Traffic Assignment

The total assignment of Residential and Commercial 2 new trips, Commercial 2 pass-by trips, Commercial 1 new trips, and Commercial 1 pass-by trips, based on the distribution discussed in the previous pages, is shown on the following pages in Figures 7A-7D, respectively.

Figure 7A: Traffic Assignment – Residential & Commercial 2 New Trips

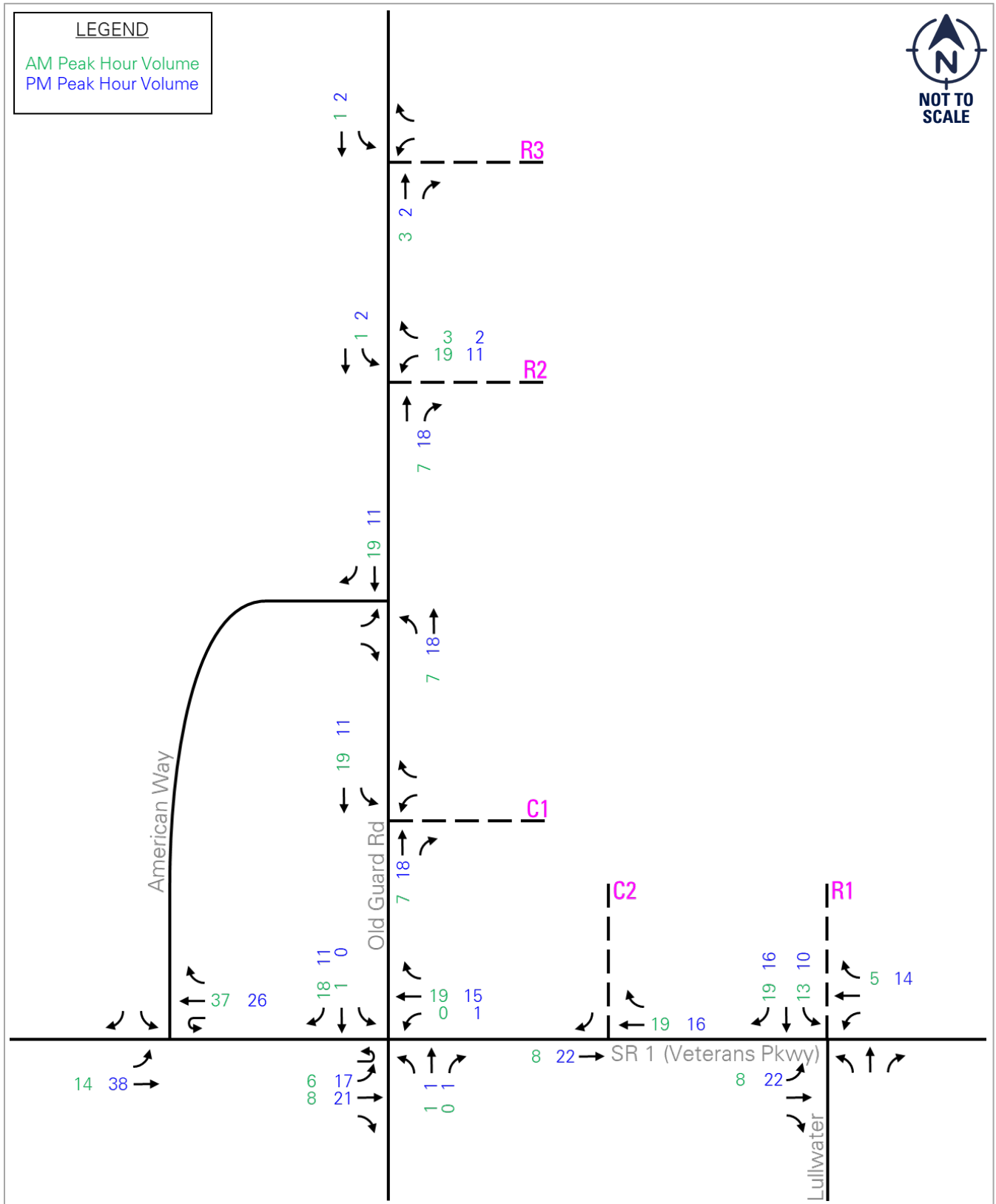


Figure 7B: Traffic Assignment – Commercial 2 Pass-By Trips

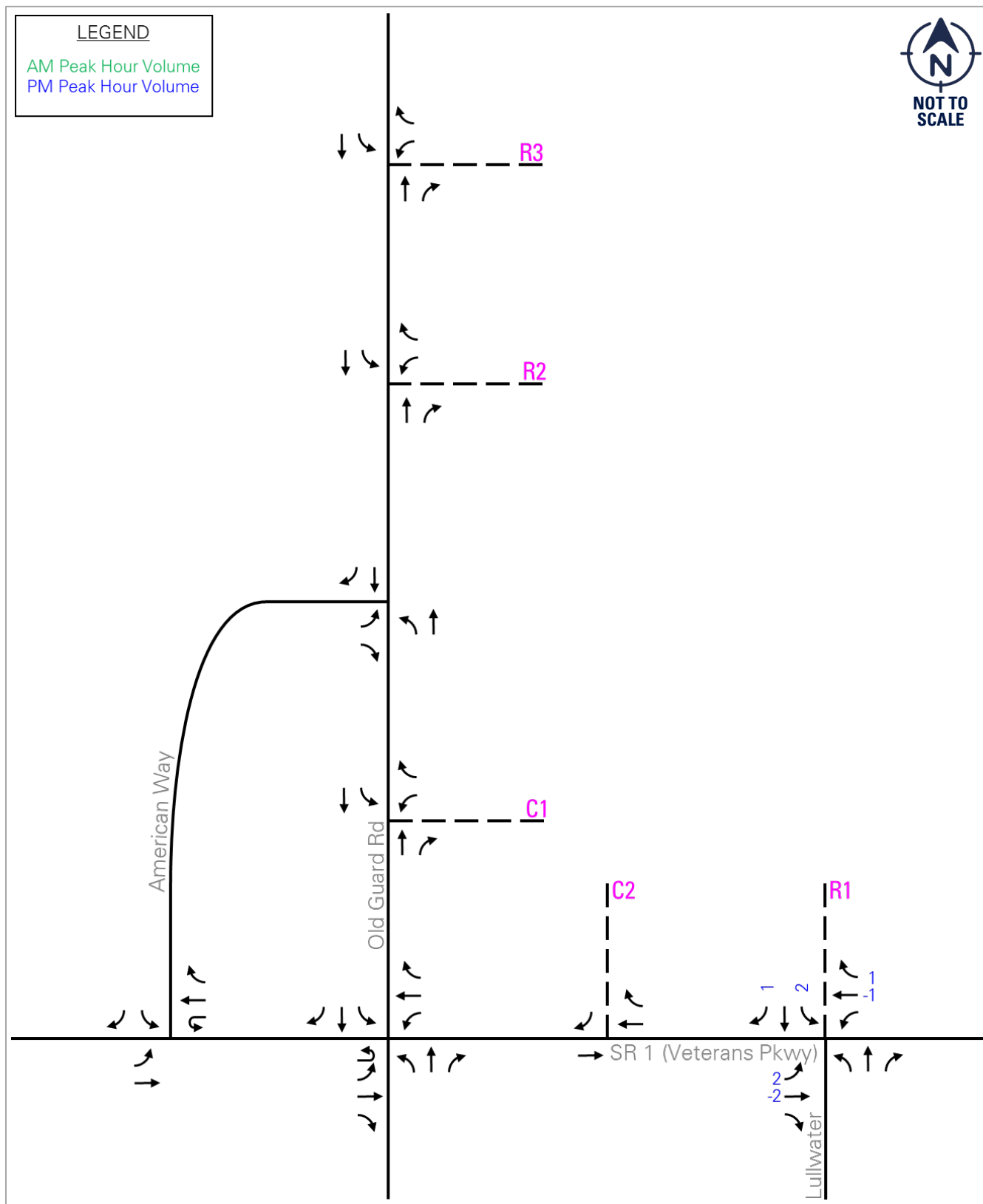


Figure 7C: Traffic Assignment – Commercial 1 New Trips

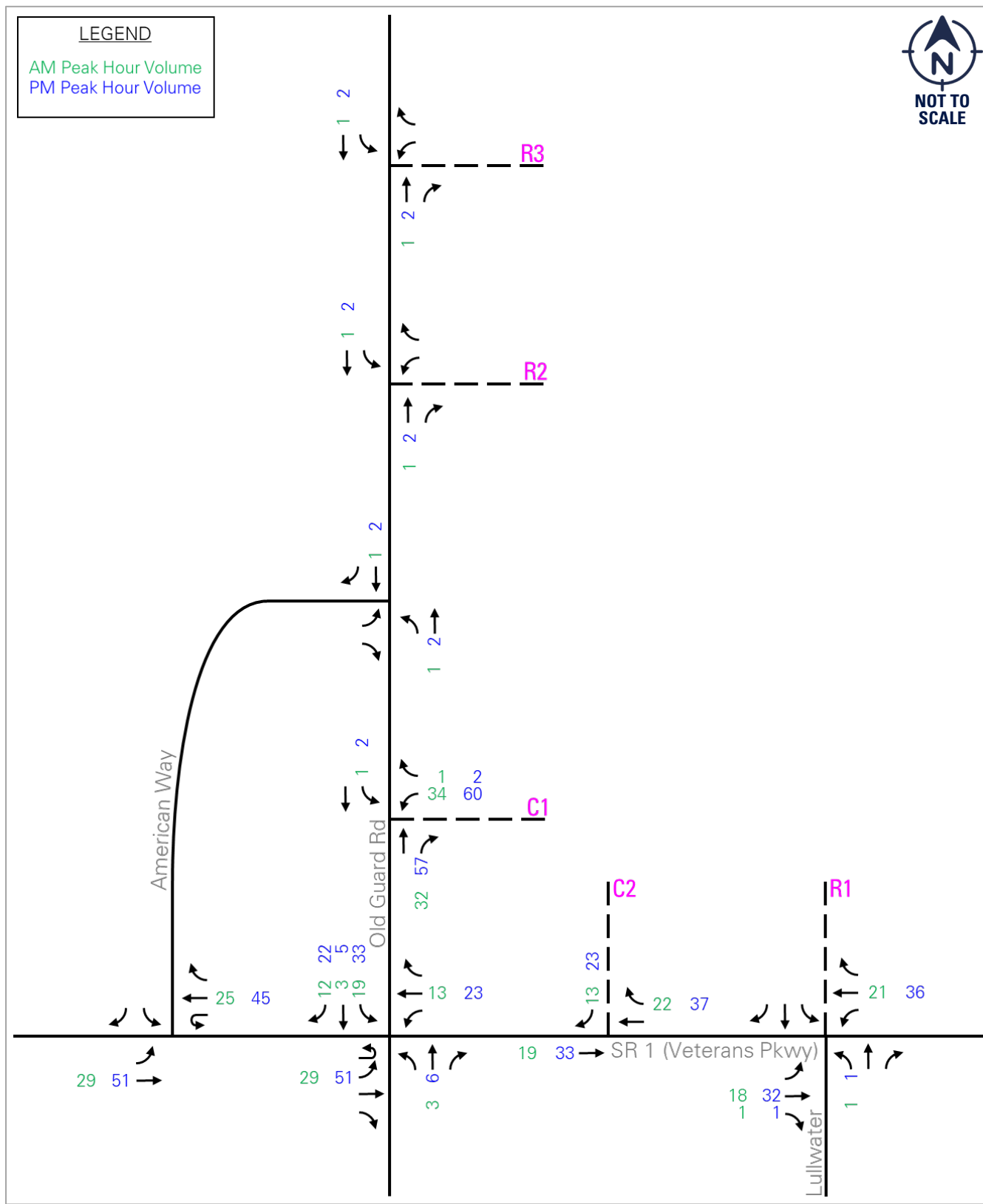
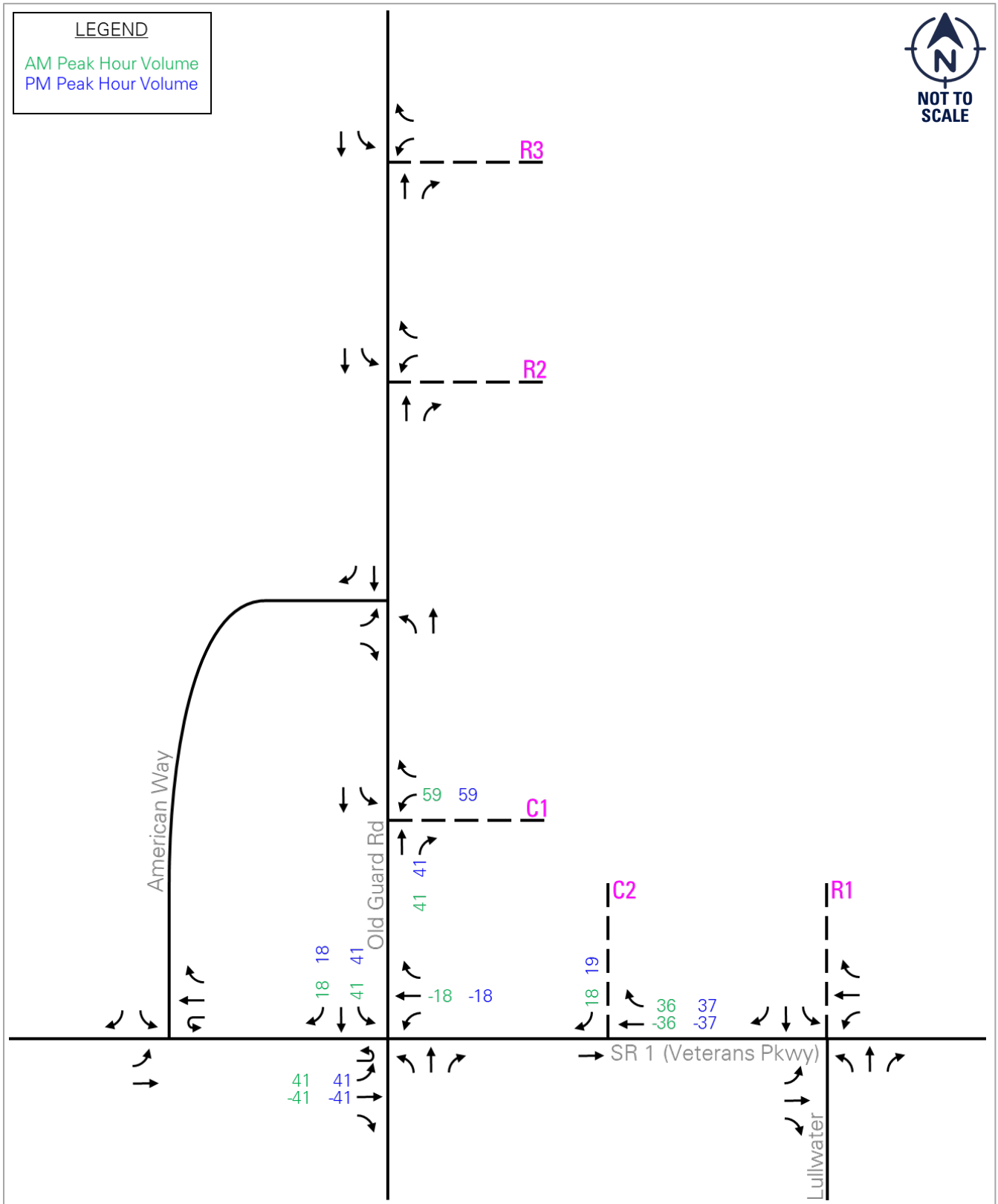


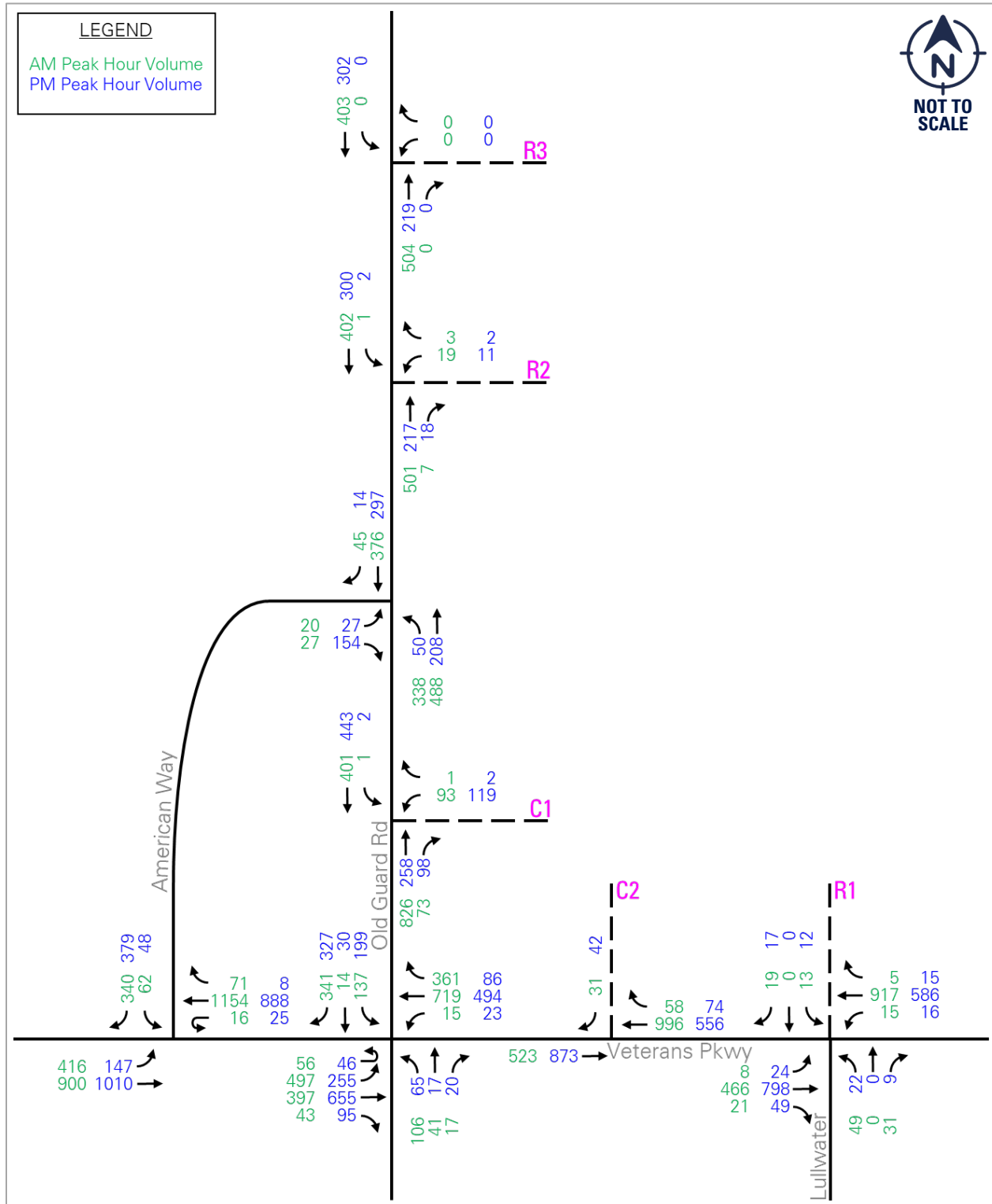
Figure 7D: Traffic Assignment – Commercial 1 Pass-By Trips



# Total Projected Volumes

The total projected volumes expected after the development is complete, shown below in Figure 8, were found by adding the assignments in Figures 7A-7D to the existing volumes in Figure 4.

Figure 8: Total Projected Volumes



## Auxiliary Turn Lane Requirements

The need for dedicated turn lanes on Veterans Parkway and on Old Guard Road at the new driveways was evaluated based on the speed limits, geometry, total daily volumes, and the expected daily turns onto the new driveways. Under existing conditions, left-turn lanes are present at all driveway locations, therefore left-turn lanes were excluded from this evaluation. No turn lanes were considered at R3, as this driveway will serve as an emergency access and is not expected to experience regular traffic.

Veterans Parkway is a four-lane road with a posted speed limit of 45 miles per hour. The daily volume expected on Veterans Parkway following the completion of the development, found by adding an existing daily count on Veterans Parkway, obtained from the GDOT Traffic Analysis and Data Application (TADA), to the generated daily volumes, is 18,101.

Old Guard Road has a posted speed limit of 35 miles per hour. Where it intersects C1, Old Guard Road is a five-lane road (four lanes plus a center left-turn lane), and where it intersects R2, a three-lane road (two lanes plus a center left-turn lane). No data was available for the existing daily volume on Old Guard Road. Therefore, the daily volume was estimated based on ITE data for the hourly distribution of traffic throughout the day for an elementary, middle, and high school, since this leg of Old Guard Road only serves the three schools and one existing apartment complex. At the location of C1, the estimated daily volume is roughly 5,750, and at the location of R2, roughly 4,375. The daily volume expected on Old Guard Road following the completion of the development, found by adding the estimated existing daily volumes on Old Guard Road to the generated daily volumes, is 10,909 at the location of C1 and 5,143 at the location of R2.

To estimate the daily turn volumes into the development, the distribution and driveway utilization percentages described previously were applied to the daily trips generated by the development. The resulting estimated daily turn volumes on Veterans Parkway and Old Guard Road into the development are shown on the following page in Figure 9.

These estimated daily turn volumes were compared to the turn lane requirements provided in the GDOT publication *Regulations for Driveway & Encroachment Control*. Veterans Parkway is a part of the state route system (SR 1), while Old Guard Road is under local jurisdiction. It is common for local governments to refer to GDOT guidance regarding turn lane needs within local jurisdiction.

The GDOT volume thresholds which necessitate the installation of auxiliary turn lanes are shown in Figure 10 on page 17.

Figure 9: Estimated Daily Turn Volumes into Development

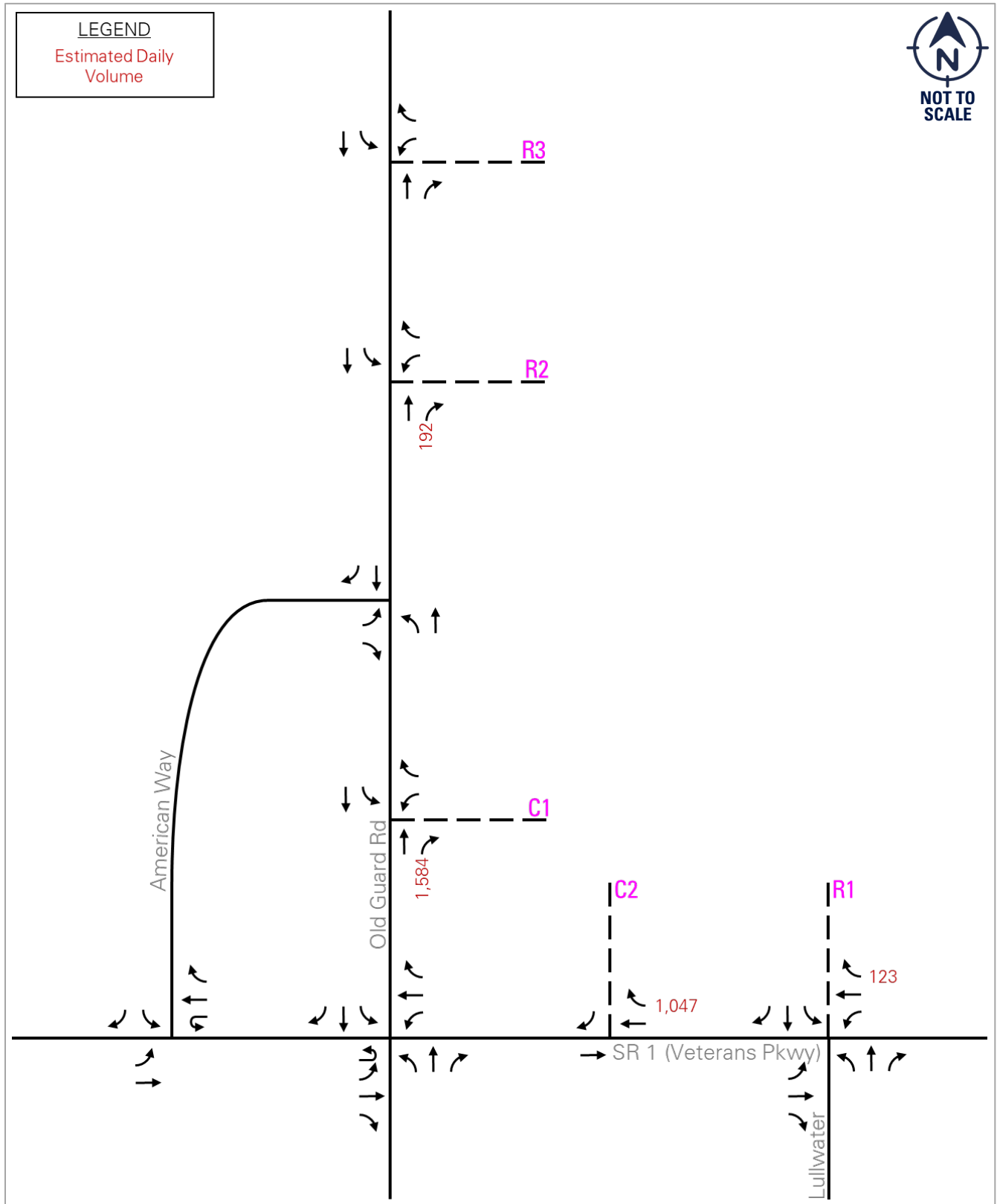




Figure 10: GDOT Turn Lane Warrant Volume Thresholds

Posted Speed	2 Lane Routes		More than 2 Lanes on Main Road	
	AADT		AADT	
	< 6,000	>=6,000	<10,000	>=10,000
35 MPH or Less	200 RTV a day	100 RTV a day	200 RTV a day	100 RTV a day
40 to 50 MPH	150 RTV a day	75 RTV a day	150 RTV a day	75 RTV a day
55 to 60 MPH	100 RTV a day	50 RTV a day	100 RTV a day	50 RTV a day
>= 65 MPH	Always	Always	Always	Always

The thresholds are shown in red for Veterans Parkway, green for the five-lane section of Old Guard Road, and blue for the three-lane section of Old Guard Road.

A comparison of the projected daily turn volumes on Veterans Parkway and Old Guard Road with the volume thresholds shown above is provided below in Table 4.

Table 4: Assessment of Need for Dedicated Turn Lanes into Development

Location		Projected Volume	GDOT Threshold	GDOT Threshold Exceeded?	Minimum Storage/ Taper Length
Veterans Parkway	Right Turn onto C2	1,047	75	Yes	175/100
	Right Turn onto R1	123	75	Yes	175/100
Old Guard Road	Right Turn onto C1	1,584	100	Yes	100/50
	Right Turn onto R2	192	200	No	

# 4 Capacity Analysis

Capacity analysis was conducted using *Synchro 10* software by Trafficware. The results of capacity analysis are reported in terms of Level of Service (LOS), which is a function of average delay per vehicle, in seconds. The Level of Service Scales according to the *Highway Capacity Manual* (HCM) are shown below in Table 5. LOS ‘E’ is generally considered to be the limit of acceptable operations. While the LOS scale is similar to the grading scale used in school, it is different in that LOS ‘D’ is generally considered good operation.

Table 5: HCM Level of Service Scales

LEVEL OF SERVICE	AVERAGE DELAY PER VEHICLE (SECONDS)	
	STOP CONTROL	SIGNAL CONTROL
A	≤10.0	≤10.0
B	10.1 to 15.0	10.1 to 20.0
C	15.1 to 25.0	20.1 to 35.0
D	25.1 to 35.0	35.1 to 55.0
E	35.1 to 50.0	55.1 to 80.0
F	>50.0	>80.0

Capacity analysis was conducted for existing and projected conditions. For projected conditions, all new driveways were evaluated under side-street stop control and with one shared lane exiting the development, since driveway configurations were not specified on the site concepts. Regarding turn lanes into the development, the driveway intersections were evaluated with the dedicated turn lanes which are already present or which were estimated to be required based on the thresholds shown on the previous page.

The results of capacity analysis for existing and projected conditions are provided on the following page in Table 6. Results are only provided for movements which are expected to experience delay. Capacity analysis reports are provided in Appendix D for existing conditions and Appendix E for projected conditions.

Table 6: Capacity Analysis Results

	Intersection	Movement	AM Peak Hour		PM Peak Hour	
			Existing	Projected	Existing	Projected
1	Veterans Pkwy & Old Guard Rd	Average of All	B (17.2)	B (19.2)	B (10.9)	B (13.7)
2	Old Guard Rd & American Way	EB Left onto Old Guard Rd	E (45.4)	E (47.7)	B (12.4)	B (12.6)
		EB Right onto Old Guard Rd	B (10.4)	B (10.5)	B (10.5)	B (10.6)
		NB Left onto American Way	B (12.2)	B (12.5)	A (8.1)	A (8.2)
3	Veterans Pkwy & American Way	Average of All	B (17.1)	B (17.7)	B (14.3)	B (14.9)
4	Veterans Pkwy & Lullwater/R1	WB Left into Lullwater	A (8.5)	A (8.6)	A (9.8)	A (10.0)
		NB Left out of Lullwater	D (27.2)	E (41.3)	D (27.8)	E (44.5)
		NB Right out of Lullwater	B (10.2)	B (10.3)	B (11.6)	B (11.8)
		EB Left into R1	-	B (10.5)	-	A (8.9)
		SB Left out of R1	-	D (28.7)	-	C (20.6)
		SB Right out of R1	-	D (28.7)	-	C (20.6)
5	Veterans Pkwy & C2	SB Right onto Veterans Pkwy	-	B (13.5)	-	B (10.5)
6	Old Guard Rd & C1	WB Left onto Old Guard Rd	-	F (52.7)	-	B (14.0)
		WB Right onto Old Guard Rd	-	F (52.7)	-	B (14.0)
		SB Left into C1	-	B (11.8)	-	A (8.2)
7	Old Guard Rd & R2	WB Left onto Old Guard Rd	-	C (17.4)	-	B (11.6)
		WB Right onto Old Guard Rd	-	C (17.4)	-	B (11.6)
		SB Left into R2	-	A (9.1)	-	A (7.8)

Capacity analysis results indicate that under existing conditions, both signalized intersections on Veterans Parkway operate at LOS ‘B’ and all movements at the unsignalized intersections operate at LOS ‘D’ or better, with the exception of the left-turn movement from American Way onto Old Guard Road (Intersection 2).

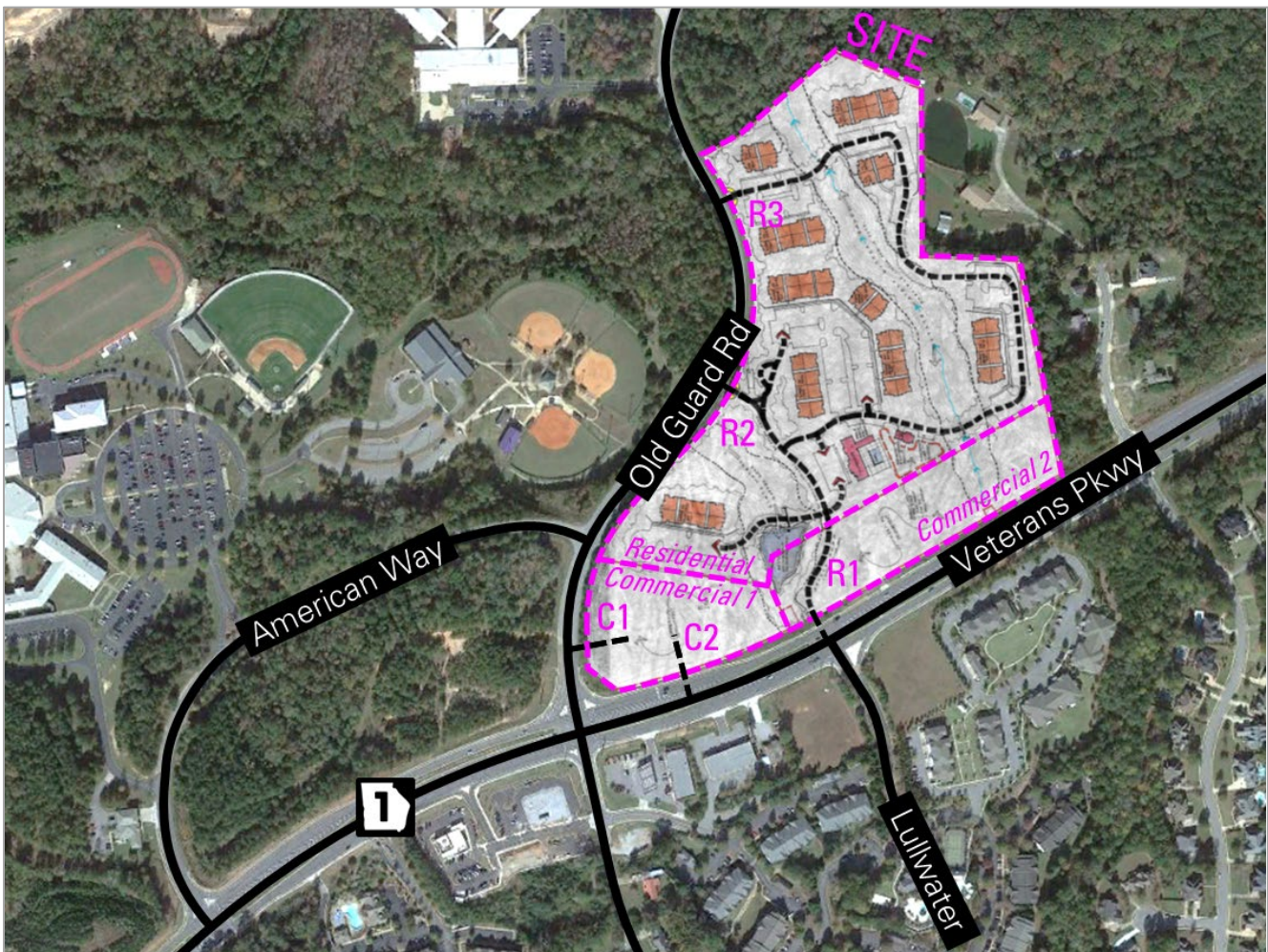
Under projected conditions, both signalized intersections are expected to continue to operate at LOS ‘B’. All movements at the existing unsignalized intersections are expected to remain at their existing levels of service, with the exception of the left turn out of Lullwater onto Veterans Parkway (Intersection 4), which is expected to degrade to LOS ‘E’.

All new driveways are expected to operate at LOS ‘D’ or better, with the exception of the C1 driveway. C1 is expected to operate at LOS ‘F’ during the AM peak hour, however it is expected to operate well at all other hours of the day outside of the morning school drop-off period.

# 5 Summary

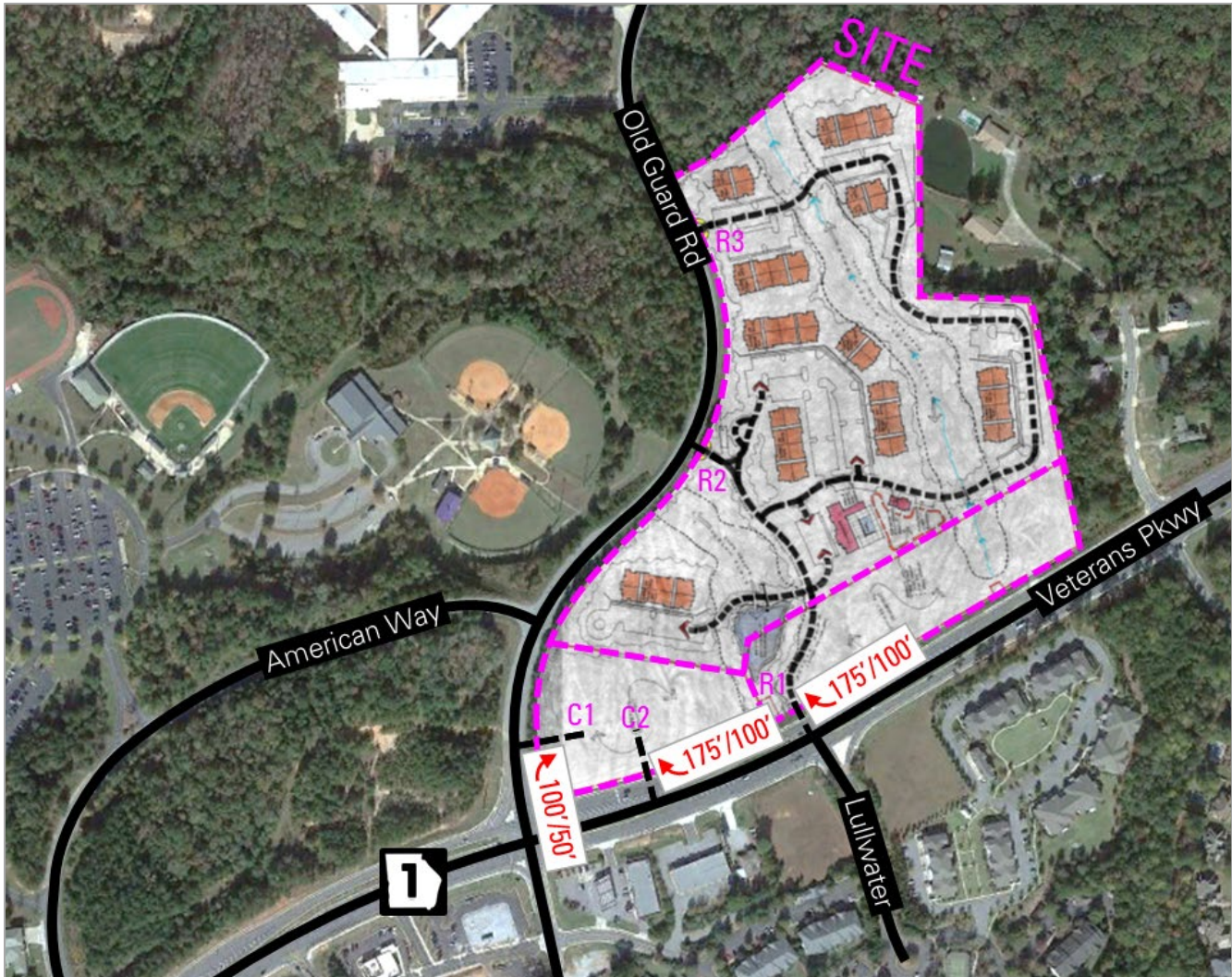
A summary of the study of the traffic-related impact of the proposed development on the northeast corner of Veterans Parkway and Old Guard Road is as follows:

- The development (see image below) was divided into three portions: Residential, Commercial 1, and Commercial 2. There will be interconnectivity between Residential and Commercial 2. Commercial 1 will not share any interconnectivity with the other two portions.



- Each portion of the development is expected to generate traffic as follows:
  - Residential – 1,066 daily trips, 71 (18 entering, 53 exiting) during AM Peak Hour, 86 (52 entering, 34 exiting) during PM Peak Hour
  - Commercial 1 – 5,368 daily trips, 257 (132 entering, 125 exiting) during the AM Peak Hour, 337 (174 entering, 163 exiting) during the PM Peak Hour
  - Commercial 2 – 227 daily trips, 6 (4 entering, 2 exiting) during AM Peak Hour, 23 (11 entering, 12 exiting) during PM Peak Hour

- GDOT thresholds are met for installation of right-turn lanes at the locations indicated in the below figure. At each location, the minimum full-width storage length is provided, followed by the minimum taper length.



- Under existing conditions, all intersections operate at LOS 'D' or better, except Old Guard Road at American Way, which experiences LOS 'E' during the AM peak hour.
- Under projected conditions, all intersections will remain at their existing levels of service, except the left turn out of Lullwater, which will degrade from LOS 'D' to LOS 'E' during both peak hours.
- All new driveways are expected to operate at LOS 'D' or better, except C1. C1 is expected to operate at LOS 'F' during the AM peak hour, however it is expected to operate well at all other hours of the day outside of the morning school drop-off period.

# Appendices

Site Plan .....	A
Traffic Data Reports .....	B
Trip Generation Reports .....	C
Capacity Analysis Reports – Existing Conditions .....	D
Capacity Analysis Reports – Projected Conditions .....	E

Appendix A:  
Site Plan



CONCEPT SITE STUDY # 1  
 SCALE: 1" = 60' DATE: 29 MARCH 2022  
 DESIGN BY: E.L. FRENCH, RLS, CLARIF

TOTAL UNIT COUNT = 196 UNITS



PHONE: (706) 327-8306  
 FAX: (706) 325-0424  
 WWW.MOONMEEKS.COM  
 100 SOUTHERN WAY, SUITE A  
 COLUMBUS, GA 31904  
 P.O. Box 47748 (31914)



OVERALL CONCEPT FOR  
**OLD GUARD ROAD DEVELOPMENT**  
 LYING IN LAND LOT 269 OF THE 19TH DISTRICT  
 COLUMBUS, MUSCOGEE COUNTY, GEORGIA

PRELIMINARY FOR REVIEW ONLY

GASWCC# 53175  
 MMA# 202049  
 DATE: 3/16/22  
 SCALE: 1" = 60'

SHEET No.

1

WATER SERVICE & SANITARY SEWER CONNECTIONS SHALL BE MADE TO COLUMBUS WATER WORKS PUBLIC SYSTEMS.  
 THIS SKETCH IS CONCEPTUAL IN NATURE AND IS SIMPLY BASED ON THE LIMITED INFORMATION PROVIDED. CERTAIN LAND CHARACTERISTICS SUCH AS ROCK, TOPOGRAPHY, WETLANDS, STATE WATERS, AVAILABLE UTILITIES AND NATURAL DRAINAGE PATTERNS WILL CERTAINLY IMPACT THE FINAL DESIGN.



## Appendix B: Traffic Data Reports

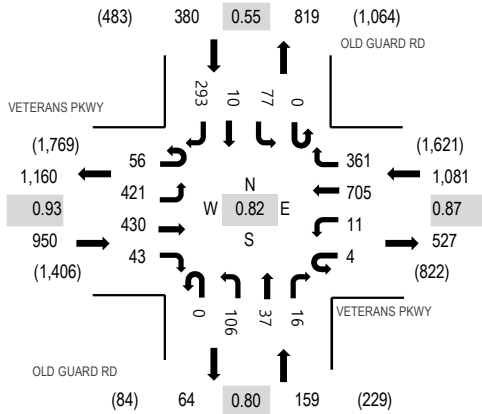
Location: #1 OLD GUARD RD & VETERANS PKWY AM

Date: Wednesday, March 2, 2022

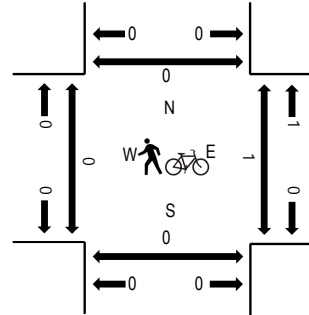
Peak Hour: 07:15 AM - 08:15 AM

Peak 15-Minutes: 07:30 AM - 07:45 AM

### Peak Hour - Motorized Vehicles



### Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

### Traffic Counts - Motorized Vehicles

Interval Start Time	VETERANS PKWY Eastbound				VETERANS PKWY Westbound				OLD GUARD RD Northbound				OLD GUARD RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
6:30 AM	5	2	42	0	0	0	73	2	0	12	0	3	0	0	0	0	139	1,371	0	0	0	0
6:45 AM	9	22	61	3	0	2	91	18	0	11	0	4	0	0	0	0	221	2,015	0	0	0	0
7:00 AM	6	47	75	3	0	1	122	45	0	14	2	1	0	2	0	12	330	2,450	0	0	0	0
7:15 AM	11	133	85	8	1	3	169	93	0	33	11	6	0	18	2	108	681	2,570	0	1	0	0
7:30 AM	10	138	101	7	1	3	195	113	0	26	12	5	0	33	1	138	783	2,368	0	0	0	0
7:45 AM	23	94	125	12	2	4	185	118	0	26	13	3	0	11	3	37	656		0	0	0	0
8:00 AM	12	56	119	16	0	1	156	37	0	21	1	2	0	15	4	10	450		0	0	0	0
8:15 AM	8	75	89	9	3	1	153	29	0	16	3	4	0	11	1	77	479		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	3	0	0	0	1	0	0	0	0	0	0	0	0	0	4
Lights	56	418	408	39	4	11	698	360	0	105	37	14	0	77	10	291	2,528
Mediums	0	3	19	4	0	0	6	1	0	1	0	2	0	0	0	2	38
Total	56	421	430	43	4	11	705	361	0	106	37	16	0	77	10	293	2,570



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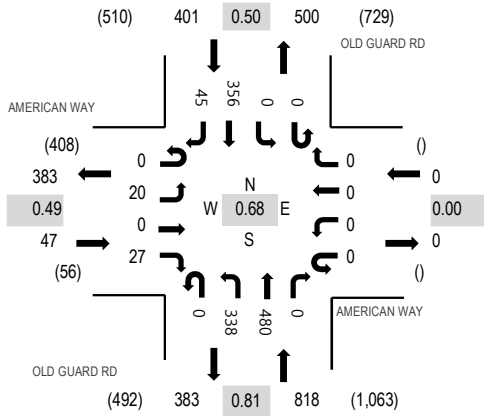
Location: #2 OLD GUARD RD & AMERICAN WAY AM

Date: Wednesday, March 2, 2022

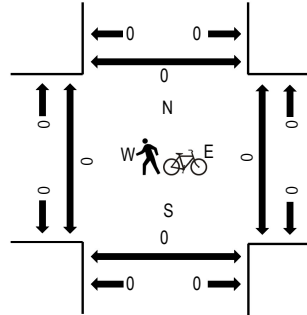
Peak Hour: 07:15 AM - 08:15 AM

Peak 15-Minutes: 07:30 AM - 07:45 AM

**Peak Hour - Motorized Vehicles**



**Peak Hour - Pedestrians/Bicycles in Crosswalk**



Note: Total study counts contained in parentheses.

**Traffic Counts - Motorized Vehicles**

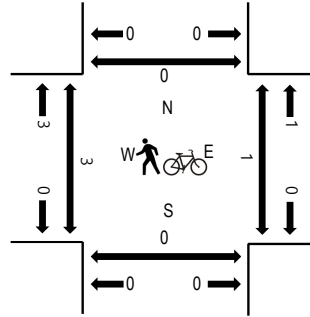
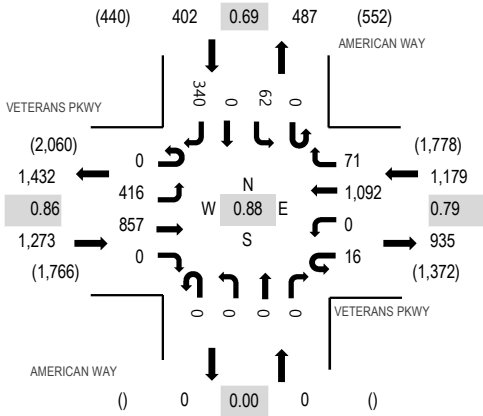
Interval Start Time	AMERICAN WAY Eastbound				AMERICAN WAY Westbound				OLD GUARD RD Northbound				OLD GUARD RD Southbound				Total	Rolling Hour	Pedestrian Crossings				
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North	
6:30 AM	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	4	542	0	0	0	0
6:45 AM	0	1	0	0	0	0	0	0	0	0	3	36	0	0	0	0	40	1,001	0	0	0	0	
7:00 AM	0	3	0	3	0	0	0	0	0	0	15	81	0	0	0	12	1	115	1,246	0	0	0	0
7:15 AM	0	0	0	2	0	0	0	0	0	0	31	202	0	0	0	138	10	383	1,266	0	0	0	0
7:30 AM	0	4	0	4	0	0	0	0	0	0	78	176	0	0	0	176	25	463	1,087	0	0	0	0
7:45 AM	0	5	0	8	0	0	0	0	0	0	197	36	0	0	0	31	8	285	0	0	0	0	
8:00 AM	0	11	0	13	0	0	0	0	0	0	32	66	0	0	0	11	2	135	0	0	0	0	
8:15 AM	0	2	0	0	0	0	0	0	0	0	2	104	0	0	0	94	2	204	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	0	19	0	27	0	0	0	0	0	338	476	0	0	0	354	45	1,259
Mediums	0	1	0	0	0	0	0	0	0	0	4	0	0	0	2	0	7
Total	0	20	0	27	0	0	0	0	0	338	480	0	0	0	356	45	1,266

**Peak Hour - Motorized Vehicles**

**Peak Hour - Pedestrians/Bicycles in Crosswalk**



Note: Total study counts contained in parentheses.

**Traffic Counts - Motorized Vehicles**

Interval Start Time	VETERANS PKWY Eastbound				VETERANS PKWY Westbound				AMERICAN WAY Northbound				AMERICAN WAY Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
6:30 AM	0	2	44	0	0	0	90	0	0	0	0	0	0	0	0	0	136	1,328	0	0	0	0
6:45 AM	0	15	80	0	0	0	106	2	0	0	0	0	0	0	0	7	210	1,999	0	0	0	0
7:00 AM	0	23	130	0	1	0	151	2	0	0	0	0	0	1	0	12	320	2,585	0	0	0	0
7:15 AM	0	82	224	0	6	0	300	13	0	0	0	0	0	4	0	33	662	2,854	0	0	0	0
7:30 AM	0	126	225	0	7	0	360	5	0	0	0	0	0	10	0	74	807	2,656	0	0	0	0
7:45 AM	0	135	237	0	3	0	249	36	0	0	0	0	0	22	0	114	796		2	1	0	0
8:00 AM	0	73	171	0	0	0	183	17	0	0	0	0	0	26	0	119	589		1	0	0	0
8:15 AM	0	20	179	0	1	0	245	1	0	0	0	0	0	1	0	17	464		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	5	0	0	0	1	0	0	0	0	0	0	0	0	0	6
Lights	0	404	836	0	16	0	1,087	68	0	0	0	0	0	57	0	329	2,797
Mediums	0	12	16	0	0	0	4	3	0	0	0	0	0	5	0	11	51
Total	0	416	857	0	16	0	1,092	71	0	0	0	0	0	62	0	340	2,854



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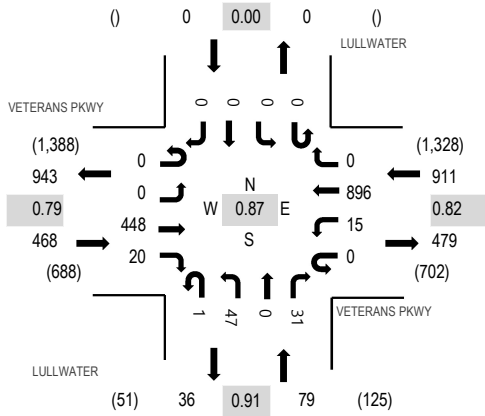
Location: #4 LULLWATER & VETERANS PKWY AM

Date: Thursday, April 14, 2022

Peak Hour: 07:15 AM - 08:15 AM

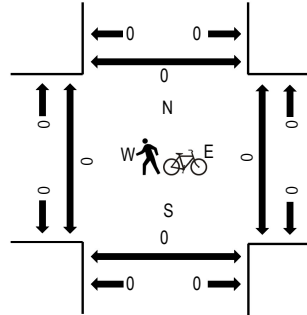
Peak 15-Minutes: 07:30 AM - 07:45 AM

Peak Hour - Motorized Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	VETERANS PKWY Eastbound				VETERANS PKWY Westbound				LULLWATER Northbound				LULLWATER Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
6:30 AM	0	0	29	0	0	0	0	51	0	0	8	0	3	0	0	0	91	767	0	0	0	0
6:45 AM	0	0	41	3	0	1	81	0	0	0	6	0	1	0	0	0	133	1,097	0	0	0	0
7:00 AM	0	0	51	2	0	1	127	0	0	0	15	0	6	0	0	0	202	1,350	0	0	0	0
7:15 AM	0	0	84	3	0	5	231	0	0	7	0	11	0	0	0	0	341	1,458	0	0	0	0
7:30 AM	0	0	115	3	0	4	275	0	1	14	0	9	0	0	0	0	421	1,374	0	0	0	0
7:45 AM	0	0	107	6	0	5	244	0	0	15	0	9	0	0	0	0	386		0	0	0	0
8:00 AM	0	0	142	8	0	1	146	0	0	11	0	2	0	0	0	0	310		0	0	0	0
8:15 AM	0	0	89	5	0	3	153	0	0	4	0	3	0	0	0	0	257		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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	0	0	436	18	0	15	892	0	1	47	0	29	0	0	0	0	1,438
Mediums	0	0	12	2	0	0	4	0	0	0	0	2	0	0	0	0	20
Total	0	0	448	20	0	15	896	0	1	47	0	31	0	0	0	0	1,458



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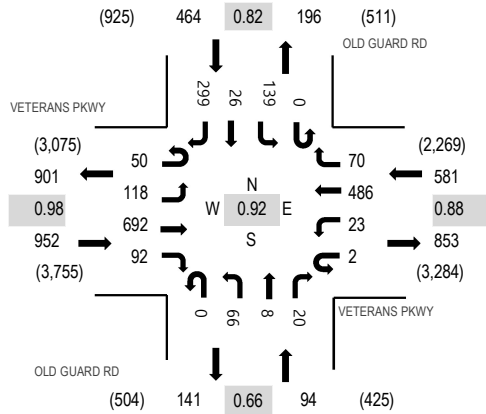
Location: #1 OLD GUARD RD & VETERANS PKWY PM

Date: Wednesday, March 2, 2022

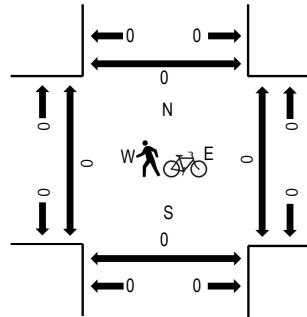
Peak Hour: 03:30 PM - 04:30 PM

Peak 15-Minutes: 03:45 PM - 04:00 PM

Peak Hour - Motorized Vehicles



Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	VETERANS PKWY Eastbound				VETERANS PKWY Westbound				OLD GUARD RD Northbound				OLD GUARD RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
2:30 PM	12	11	125	20	0	1	115	9	0	20	0	3	0	29	1	120	466	1,655	0	0	0	0
2:45 PM	12	19	149	17	1	3	97	15	0	18	1	5	0	17	2	24	380	1,725	0	0	0	0
3:00 PM	8	24	139	15	0	5	119	12	0	19	4	3	0	12	1	21	382	1,913	0	0	0	0
3:15 PM	4	39	172	21	0	6	103	27	0	20	4	6	0	9	1	15	427	2,064	0	0	0	0
3:30 PM	13	30	164	26	1	2	113	25	0	17	1	2	0	54	12	76	536	2,091	0	0	0	0
3:45 PM	15	42	162	29	1	9	141	20	0	13	3	3	0	38	5	87	568	1,975	0	0	0	0
4:00 PM	14	35	177	19	0	3	117	14	0	15	2	8	0	24	7	98	533	1,843	0	0	0	0
4:15 PM	8	11	189	18	0	9	115	11	0	21	2	7	0	23	2	38	454	1,756	0	0	0	0
4:30 PM	8	12	169	26	1	3	135	12	0	15	1	6	0	12	3	17	420	1,792	0	0	0	1
4:45 PM	8	16	191	31	1	3	125	8	0	20	2	6	0	7	1	17	436	1,910	0	0	0	0
5:00 PM	14	6	219	28	1	5	122	3	0	11	1	5	0	11	1	19	446	1,931	0	0	0	0
5:15 PM	16	18	207	31	1	12	136	11	0	25	3	8	0	11	0	11	490	1,887	0	0	0	0
5:30 PM	10	14	221	20	0	4	160	14	0	23	0	6	0	25	5	36	538	1,836	0	0	0	0
5:45 PM	13	8	220	24	2	3	135	4	0	20	2	3	0	9	5	9	457		0	0	0	0
6:00 PM	10	3	196	22	0	5	135	2	0	22	0	2	0	1	1	3	402		0	0	0	0
6:15 PM	16	3	206	30	0	6	121	5	0	34	2	11	0	3	1	1	439		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	3	0	0	0	3	0	0	0	0	0	0	0	0	0	6
Lights	50	111	670	90	2	23	465	68	0	64	7	20	0	134	26	291	2,021
Mediums	0	7	19	2	0	0	18	2	0	2	1	0	0	5	0	8	64
Total	50	118	692	92	2	23	486	70	0	66	8	20	0	139	26	299	2,091



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Location: #2 OLD GUARD RD & AMERICAN WAY PM

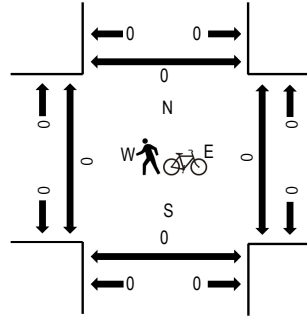
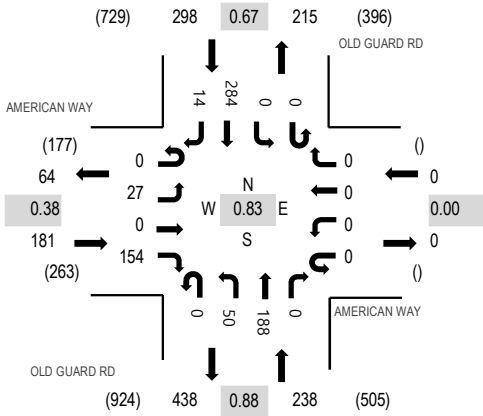
Date: Wednesday, March 2, 2022

Peak Hour: 03:15 PM - 04:15 PM

Peak 15-Minutes: 03:30 PM - 03:45 PM

Peak Hour - Motorized Vehicles

Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

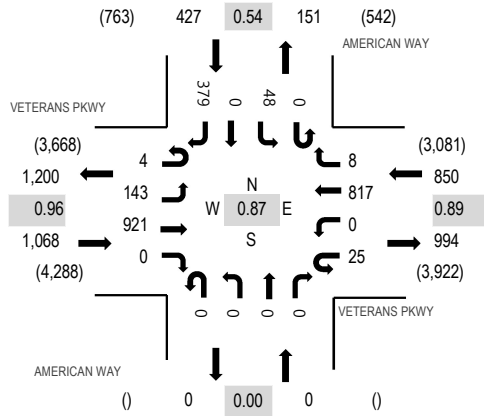
Traffic Counts - Motorized Vehicles

Interval Start Time	AMERICAN WAY Eastbound				AMERICAN WAY Westbound				OLD GUARD RD Northbound				OLD GUARD RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
2:30 PM	0	2	0	4	0	0	0	0	0	6	14	0	0	0	144	8	178	440	0	0	0	0
2:45 PM	0	3	0	13	0	0	0	0	0	11	23	0	0	0	28	2	80	479	0	0	0	0
3:00 PM	0	0	0	7	0	0	0	0	0	10	31	0	0	0	27	0	75	601	0	0	0	0
3:15 PM	0	4	0	20	0	0	0	0	0	24	44	0	0	0	12	3	107	717	0	0	0	0
3:30 PM	0	12	0	108	0	0	0	0	0	13	41	0	0	0	43	0	217	690	0	0	0	0
3:45 PM	0	7	0	13	0	0	0	0	0	7	60	0	0	0	111	4	202	531	0	0	0	0
4:00 PM	0	4	0	13	0	0	0	0	0	6	43	0	0	0	118	7	191	384	0	0	0	0
4:15 PM	0	0	0	5	0	0	0	0	0	8	15	0	0	0	50	2	80	235	0	0	0	0
4:30 PM	0	0	0	8	0	0	0	0	0	13	12	0	0	0	25	0	58	210	0	0	0	0
4:45 PM	0	3	0	3	0	0	0	0	0	10	16	0	0	0	23	0	55	248	0	0	0	0
5:00 PM	0	0	0	3	0	0	0	0	0	7	3	0	0	0	27	2	42	230	0	0	0	0
5:15 PM	0	1	0	5	0	0	0	0	0	7	26	0	0	0	16	0	55	200	0	0	0	0
5:30 PM	0	1	0	15	0	0	0	0	0	7	20	0	0	0	52	1	96	157	0	0	0	0
5:45 PM	0	2	0	3	0	0	0	0	0	6	8	0	0	0	18	0	37		0	0	0	0
6:00 PM	0	0	0	2	0	0	0	0	0	5	0	0	0	0	5	0	12		0	0	0	0
6:15 PM	0	0	0	2	0	0	0	0	0	8	1	0	0	0	1	0	12		1	0	0	0

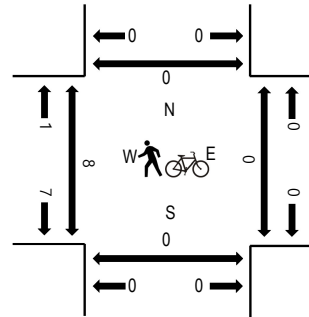
Peak Rolling Hour Flow Rates

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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	0	27	0	154	0	0	0	0	0	50	177	0	0	0	271	14	693
Mediums	0	0	0	0	0	0	0	0	0	0	11	0	0	0	13	0	24
Total	0	27	0	154	0	0	0	0	0	50	188	0	0	0	284	14	717

**Peak Hour - Motorized Vehicles**



**Peak Hour - Pedestrians/Bicycles in Crosswalk**



Note: Total study counts contained in parentheses.

**Traffic Counts - Motorized Vehicles**

Interval Start Time	VETERANS PKWY Eastbound				VETERANS PKWY Westbound				AMERICAN WAY Northbound				AMERICAN WAY Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
2:30 PM	0	12	181	0	4	0	268	1	0	0	0	0	0	1	0	25	492	1,858	0	0	0	0
2:45 PM	1	30	189	0	3	0	140	2	0	0	0	0	0	3	0	17	385	2,042	0	0	0	0
3:00 PM	0	45	189	0	1	0	173	4	0	0	0	0	0	4	0	52	468	2,268	0	0	0	0
3:15 PM	1	47	231	0	3	0	132	3	0	0	0	0	0	9	0	87	513	2,345	0	0	0	0
3:30 PM	2	46	203	0	9	0	208	2	0	0	0	0	0	25	0	181	676	2,301	7	0	0	0
3:45 PM	0	36	239	0	5	0	247	0	0	0	0	0	0	8	0	76	611	2,092	1	0	0	0
4:00 PM	1	14	248	0	8	0	230	3	0	0	0	0	0	6	0	35	545	1,974	0	0	0	0
4:15 PM	0	25	226	0	2	0	181	0	0	0	0	0	0	6	0	29	469	1,934	0	0	0	0
4:30 PM	0	33	222	0	5	0	170	1	0	0	0	0	0	3	0	33	467	1,980	1	0	0	0
4:45 PM	0	40	257	0	4	0	169	5	0	0	0	0	0	1	0	17	493	2,097	1	0	0	0
5:00 PM	0	35	288	0	3	0	159	3	0	0	0	0	0	0	0	17	505	2,060	0	0	0	0
5:15 PM	1	35	277	0	7	0	172	5	0	0	0	0	0	2	0	16	515	2,021	0	0	0	0
5:30 PM	3	25	281	0	2	0	228	4	0	0	0	0	0	1	0	40	584	1,993	0	0	0	0
5:45 PM	0	19	252	0	1	0	171	0	0	0	0	0	0	3	0	10	456		0	0	0	0
6:00 PM	4	25	251	0	5	0	171	1	0	0	0	0	0	1	0	8	466		0	0	0	0
6:15 PM	2	37	235	0	2	0	160	4	0	0	0	0	0	16	0	31	487		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	2	0	0	0	3	0	0	0	0	0	0	0	0	0	5
Lights	4	138	892	0	25	0	789	7	0	0	0	0	45	0	366	2,266	
Mediums	0	5	27	0	0	0	25	1	0	0	0	0	3	0	13	74	
Total	4	143	921	0	25	0	817	8	0	0	0	0	48	0	379	2,345	



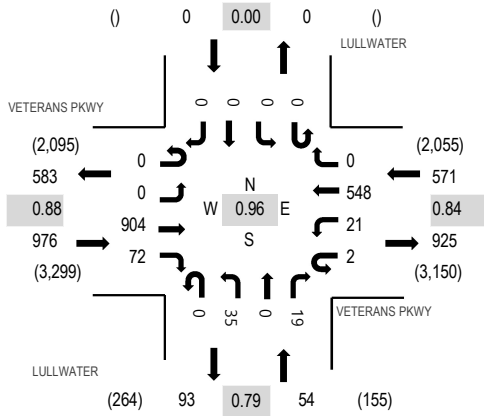
Location: #4 LULLWATER & VETERANS PKWY PM

Date: Thursday, April 14, 2022

Peak Hour: 05:15 PM - 06:15 PM

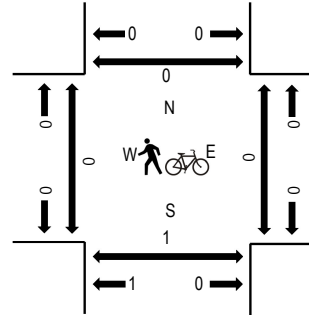
Peak 15-Minutes: 05:15 PM - 05:30 PM

### Peak Hour - Motorized Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles in Crosswalk



### Traffic Counts - Motorized Vehicles

Interval Start Time	VETERANS PKWY Eastbound				VETERANS PKWY Westbound				LULLWATER Northbound				LULLWATER Southbound				Total	Rolling Hour	Pedestrian Crossings							
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North				
2:30 PM	0	0	144	6	0	1	111	0	0	0	6	0	5	0	0	0	0	0	0	0	273	1,125	0	0	0	0
2:45 PM	0	0	139	7	0	2	114	0	0	0	3	0	1	0	0	0	0	0	0	0	266	1,240	0	0	0	0
3:00 PM	0	0	128	10	0	3	100	0	0	0	10	0	2	0	0	0	0	0	0	0	253	1,321	0	0	0	0
3:15 PM	0	0	165	9	0	3	149	0	0	0	7	0	0	0	0	0	0	0	0	0	333	1,414	0	0	0	0
3:30 PM	0	0	227	15	0	5	131	0	0	0	5	0	5	0	0	0	0	0	0	0	388	1,430	0	0	0	0
3:45 PM	0	0	193	11	1	4	131	0	0	0	5	0	2	0	0	0	0	0	0	0	347	1,363	0	0	0	0
4:00 PM	0	0	183	14	0	3	140	0	0	0	4	0	2	0	0	0	0	0	0	0	346	1,367	0	0	0	0
4:15 PM	0	0	204	16	0	5	120	0	0	0	0	0	4	0	0	0	0	0	0	0	349	1,373	0	0	0	0
4:30 PM	1	0	178	14	0	3	118	0	0	0	4	0	3	0	0	0	0	0	0	1	321	1,443	0	0	1	0
4:45 PM	0	0	200	12	0	6	117	0	0	0	8	0	8	0	0	0	0	0	0	0	351	1,538	0	0	0	0
5:00 PM	0	0	215	10	0	2	115	0	0	0	8	0	2	0	0	0	0	0	0	0	352	1,573	0	0	0	0
5:15 PM	0	0	249	27	0	5	128	0	0	0	5	0	5	0	0	0	0	0	0	1	419	1,601	0	0	1	0
5:30 PM	0	0	220	13	2	3	165	0	0	0	12	0	1	0	0	0	0	0	0	0	416	1,511	0	0	0	0
5:45 PM	0	0	228	14	0	8	122	0	0	0	6	0	8	0	0	0	0	0	0	0	386		0	0	0	0
6:00 PM	0	0	207	18	0	5	133	0	0	0	12	0	5	0	0	0	0	0	0	0	380		0	0	0	0
6:15 PM	0	0	213	9	0	1	99	0	0	0	6	0	1	0	0	0	0	0	0	0	329		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	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Lights	0	0	898	72	2	21	545	0	0	35	0	19	0	0	0	0	1,592
Mediums	0	0	6	0	0	0	2	0	0	0	0	0	0	0	0	0	8
Total	0	0	904	72	2	21	548	0	0	35	0	19	0	0	0	0	1,601

## Appendix C: Trip Generation Reports

### Trip Generation Summary

Alternative: Alternative 1  
 Phase: Open Date: 6/20/2022  
 Project: Old Guard Rd, Residential and Commercial 2 Analysis Date: 6/20/2022

ITE	Land Use	Weekday Average Daily Trips			Weekday AM Peak Hour of Adjacent Street Traffic			Weekday PM Peak Hour of Adjacent Street Traffic		
		* Enter	Exit	Total	* Enter	Exit	Total	* Enter	Exit	Total
221	Apartments	533	533	1066	18	53	71	52	34	86
	196 Dwelling Units									
820	Shopping Center	114	113	227	4	2	6	11	12	23
	6 1000 Sq. Ft. GLA									
Unadjusted Volume		647	646	1293	22	55	77	63	46	109
Internal Capture Trips		0	0	0	1	1	2	4	4	8
Pass-By Trips		0	0	0	0	0	0	3	3	6
Volume Added to Adjacent Streets		647	646	1293	21	54	75	56	39	95

Total Weekday Average Daily Trips Internal Capture = 0 Percent  
 Total Weekday AM Peak Hour of Adjacent Street Traffic Internal Capture = 3 Percent  
 Total Weekday PM Peak Hour of Adjacent Street Traffic Internal Capture = 7 Percent

\* - Custom rate used for selected time period.

### Trip Generation Summary

Alternative: Alternative 1  
 Phase: Open Date: 6/20/2022  
 Project: Old Guard Rd, Commercial 1 Analysis Date: 6/20/2022

ITE	Land Use	Weekday Average Daily Trips			Weekday AM Peak Hour of Adjacent Street Traffic			Weekday PM Peak Hour of Adjacent Street Traffic		
		* Enter	Exit	Total	* Enter	Exit	Total	* Enter	Exit	Total
930	Attached Restaurant, No Drive-Thru 4 1000 Sq. Ft. GFA	631	630	1261	5	3	8	31	26	57
945	Gas Station & Convenience Store 20 Vehicle Fueling Positions	2054	2053	4107	127	122	249	143	137	280
Unadjusted Volume		2685	2683	5368	132	125	257	174	163	337
Internal Capture Trips		0	0	0	0	0	0	0	0	0
Pass-By Trips		0	0	0	77	77	154	78	78	156
Volume Added to Adjacent Streets		2685	2683	5368	55	48	103	96	85	181

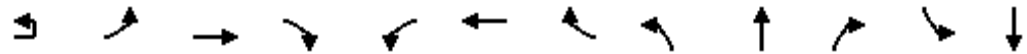
Total Weekday Average Daily Trips Internal Capture = 0 Percent  
 Total Weekday AM Peak Hour of Adjacent Street Traffic Internal Capture = 0 Percent  
 Total Weekday PM Peak Hour of Adjacent Street Traffic Internal Capture = 0 Percent

\* - Custom rate used for selected time period.

Appendix D:  
Capacity Analysis Reports  
*Existing Conditions*

Lanes, Volumes, Timings  
1: Veterans Pkwy & Old Guard Rd

Existing Conditions  
AM Peak Hour



Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations		↔↔	↕↕	↗	↖	↕↕	↗	↖	↕		↖	↕
Traffic Volume (vph)	56	421	430	43	15	705	361	106	37	16	77	10
Future Volume (vph)	56	421	430	43	15	705	361	106	37	16	77	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		630		220	420		380	160		0	130	
Storage Lanes		2		1	1		1	1		0	1	
Taper Length (ft)		125			100			50			75	
Satd. Flow (prot)	0	3471	3438	1482	1805	3574	1615	1787	1743	0	1805	1900
Flt Permitted		0.950			0.458			0.750			0.715	
Satd. Flow (perm)	0	3471	3438	1482	870	3574	1615	1411	1743	0	1358	1900
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)				52			440		20			
Link Speed (mph)			45			45			35			35
Link Distance (ft)			1844			661			500			435
Travel Time (s)			27.9			10.0			9.7			8.5
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	0%	1%	5%	9%	0%	1%	0%	1%	0%	13%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	581	524	52	18	860	440	129	65	0	94	12
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			24			24			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			16			16			16			16
Two way Left Turn Lane												Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Turn Type	Prot	Prot	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA
Protected Phases	1	1	6			2			4			8
Permitted Phases				6	2		2	4				8
Total Split (s)	15.0	15.0	37.5	37.5	22.5	22.5	22.5	22.5	22.5		22.5	22.5
Total Lost Time (s)		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5
Act Effct Green (s)		10.6	32.4	32.4	17.2	17.2	17.2	10.7	10.7		10.7	10.7
Actuated g/C Ratio		0.20	0.62	0.62	0.33	0.33	0.33	0.20	0.20		0.20	0.20
v/c Ratio		0.82	0.25	0.06	0.06	0.73	0.53	0.45	0.17		0.34	0.03
Control Delay		34.4	5.5	2.3	14.6	21.0	4.7	23.1	13.6		20.9	15.9
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay		34.4	5.5	2.3	14.6	21.0	4.7	23.1	13.6		20.9	15.9
LOS		C	A	A	B	C	A	C	B		C	B
Approach Delay			19.8			15.5			19.9			14.4
Approach LOS			B			B			B			B
Queue Length 50th (ft)		88	29	0	4	115	0	36	12		25	3
Queue Length 95th (ft)		#170	64	10	16	185	38	67	32		52	12
Internal Link Dist (ft)			1764			581			420			355
Turn Bay Length (ft)		630		220	420		380	160			130	
Base Capacity (vph)		705	2196	965	303	1245	849	491	620		472	662
Starvation Cap Reductn		0	0	0	0	0	0	0	0		0	0
Spillback Cap Reductn		0	0	0	0	0	0	0	0		0	0
Storage Cap Reductn		0	0	0	0	0	0	0	0		0	0

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Synchro 10 Report

Lanes, Volumes, Timings  
 1: Veterans Pkwy & Old Guard Rd

Existing Conditions  
 AM Peak Hour

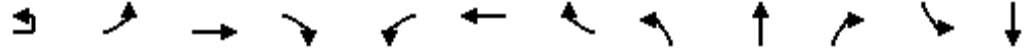
Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	293
Future Volume (vph)	293
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	1
Taper Length (ft)	
Satd. Flow (prot)	1599
Flt Permitted	
Satd. Flow (perm)	1599
Right Turn on Red	Yes
Satd. Flow (RTOR)	259
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.82
Heavy Vehicles (%)	1%
Shared Lane Traffic (%)	
Lane Group Flow (vph)	357
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Turn Type	Perm
Protected Phases	
Permitted Phases	8
Total Split (s)	22.5
Total Lost Time (s)	4.5
Act Effct Green (s)	10.7
Actuated g/C Ratio	0.20
v/c Ratio	0.67
Control Delay	12.6
Queue Delay	0.0
Total Delay	12.6
LOS	B
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	26
Queue Length 95th (ft)	68
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	725
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0

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Synchro 10 Report

Lanes, Volumes, Timings  
 1: Veterans Pkwy & Old Guard Rd

Existing Conditions  
 AM Peak Hour

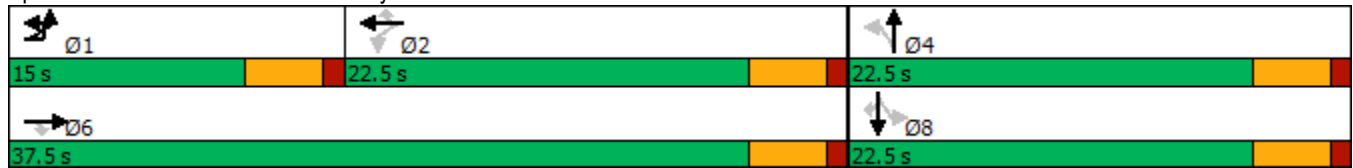


Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Reduced v/c Ratio		0.82	0.24	0.05	0.06	0.69	0.52	0.26	0.10		0.20	0.02

Intersection Summary

Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	52.2
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.82
Intersection Signal Delay:	17.2
Intersection LOS:	B
Intersection Capacity Utilization	72.1%
ICU Level of Service	C
Analysis Period (min)	15
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

Splits and Phases: 1: Veterans Pkwy & Old Guard Rd







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Lane Group	SBR
Reduced v/c Ratio	0.49
Intersection Summary	

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Intersection						
Int Delay, s/veh	4.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↕↕	↕↗	
Traffic Vol, veh/h	20	27	338	480	356	45
Future Vol, veh/h	20	27	338	480	356	45
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	140	0	160	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	68	68	68	68	68	68
Heavy Vehicles, %	5	0	0	1	1	0
Mvmt Flow	29	40	497	706	524	66

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1904	295	590	0	-	0
Stage 1	557	-	-	-	-	-
Stage 2	1347	-	-	-	-	-
Critical Hdwy	6.9	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.9	-	-	-	-	-
Critical Hdwy Stg 2	5.9	-	-	-	-	-
Follow-up Hdwy	3.55	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	58	707	995	-	-	-
Stage 1	529	-	-	-	-	-
Stage 2	202	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 29	707	995	-	-	-
Mov Cap-2 Maneuver	118	-	-	-	-	-
Stage 1	265	-	-	-	-	-
Stage 2	202	-	-	-	-	-

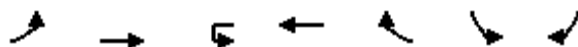
Approach	EB	NB	SB
HCM Control Delay, s	25.3	5	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	995	-	118	707	-	-
HCM Lane V/C Ratio	0.5	-	0.249	0.056	-	-
HCM Control Delay (s)	12.2	-	45.4	10.4	-	-
HCM Lane LOS	B	-	E	B	-	-
HCM 95th %tile Q(veh)	2.9	-	0.9	0.2	-	-

Notes  
 ~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

Lanes, Volumes, Timings  
3: Veterans Pkwy & American Way

Existing Conditions  
AM Peak Hour



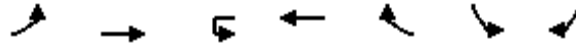
Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations	↖↖	↗↗	↘	↖↖	↖	↘	↘
Traffic Volume (vph)	416	857	16	1092	71	62	340
Future Volume (vph)	416	857	16	1092	71	62	340
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	650		515		415	360	0
Storage Lanes	2		1		1	1	1
Taper Length (ft)	125		125		50		
Satd. Flow (prot)	3400	3505	1805	3574	1553	1671	1568
Flt Permitted	0.950		0.294			0.950	
Satd. Flow (perm)	3400	3505	559	3574	1553	1671	1568
Right Turn on Red					Yes		Yes
Satd. Flow (RTOR)					81		326
Link Speed (mph)		45		45		30	
Link Distance (ft)		863		1844		2275	
Travel Time (s)		13.1		27.9		51.7	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	3%	3%	0%	1%	4%	8%	3%
Shared Lane Traffic (%)							
Lane Group Flow (vph)	473	974	18	1241	81	70	386
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Left	R NA	Left	Right	Left	Right
Median Width(ft)		24		24		12	
Link Offset(ft)		0		0		0	
Crosswalk Width(ft)		16		16		16	
Two way Left Turn Lane						Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9		9	15	9
Turn Type	Prot	NA	Perm	NA	Perm	Perm	Perm
Protected Phases	1	6		2			
Permitted Phases			2		2	8	8
Total Split (s)	17.0	52.5	35.5	35.5	35.5	22.5	22.5
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Act Effct Green (s)	12.2	44.7	27.9	27.9	27.9	9.9	9.9
Actuated g/C Ratio	0.19	0.70	0.44	0.44	0.44	0.16	0.16
v/c Ratio	0.73	0.40	0.07	0.79	0.11	0.27	0.74
Control Delay	34.2	5.0	13.1	20.9	4.0	27.0	15.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.2	5.0	13.1	20.9	4.0	27.0	15.4
LOS	C	A	B	C	A	C	B
Approach Delay		14.6		19.8		17.2	
Approach LOS		B		B		B	
Queue Length 50th (ft)	92	56	4	198	0	26	22
Queue Length 95th (ft)	#178	134	17	337	23	56	93
Internal Link Dist (ft)		783		1764		2195	
Turn Bay Length (ft)	650		515		415	360	
Base Capacity (vph)	679	2690	277	1772	810	481	683
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0

M&W

Synchro 10 Report

Lanes, Volumes, Timings  
 3: Veterans Pkwy & American Way

Existing Conditions  
 AM Peak Hour

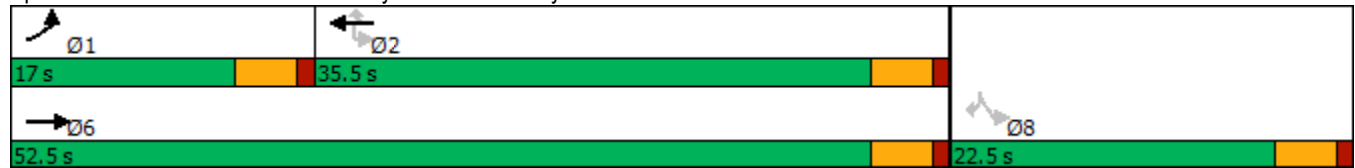


Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Reduced v/c Ratio	0.70	0.36	0.06	0.70	0.10	0.15	0.57

Intersection Summary

Area Type:	Other
Cycle Length:	75
Actuated Cycle Length:	63.8
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.79
Intersection Signal Delay:	17.1
Intersection LOS:	B
Intersection Capacity Utilization	58.7%
ICU Level of Service	B
Analysis Period (min)	15
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

Splits and Phases: 3: Veterans Pkwy & American Way



Intersection						
Int Delay, s/veh	1.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Vol, veh/h	448	20	15	896	48	31
Future Vol, veh/h	448	20	15	896	48	31
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Yield
Storage Length	-	250	475	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	3	10	0	0	0	7
Mvmt Flow	515	23	17	1030	55	36























Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	538	0	1064
Stage 1	-	-	-	-	515
Stage 2	-	-	-	-	549
Critical Hdwy	-	-	4.1	-	6.8
Critical Hdwy Stg 1	-	-	-	-	5.8
Critical Hdwy Stg 2	-	-	-	-	5.8
Follow-up Hdwy	-	-	2.2	-	3.5
Pot Cap-1 Maneuver	-	-	1040	-	221
Stage 1	-	-	-	-	570
Stage 2	-	-	-	-	548
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1040	-	217
Mov Cap-2 Maneuver	-	-	-	-	217
Stage 1	-	-	-	-	570
Stage 2	-	-	-	-	539

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	20.5
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	217	726	-	-	1040	-
HCM Lane V/C Ratio	0.254	0.049	-	-	0.017	-
HCM Control Delay (s)	27.2	10.2	-	-	8.5	-
HCM Lane LOS	D	B	-	-	A	-
HCM 95th %tile Q(veh)	1	0.2	-	-	0.1	-

Lanes, Volumes, Timings  
1: Veterans Pkwy & Old Guard Rd

Existing Conditions  
PM Peak Hour

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	46	146	675	95	22	474	86	65	10	19	125	25
Future Volume (vph)	46	146	675	95	22	474	86	65	10	19	125	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		630		220	420		380	160		0	130	
Storage Lanes		2		1	1		1	1		0	1	
Taper Length (ft)		125			100			50			75	
Satd. Flow (prot)	0	3349	3471	1583	1805	3471	1583	1770	1657	0	1752	1900
Flt Permitted		0.950			0.370			0.740			0.736	
Satd. Flow (perm)	0	3349	3471	1583	703	3471	1583	1378	1657	0	1358	1900
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)				104			119		21			
Link Speed (mph)			45			45			35			35
Link Distance (ft)			1844			661			500			435
Travel Time (s)			27.9			10.0			9.7			8.5
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	6%	4%	2%	0%	4%	2%	2%	10%	0%	3%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	211	742	104	24	521	95	71	32	0	137	27
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			24			24			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			16			16			16			16
Two way Left Turn Lane												Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Turn Type	Prot	Prot	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA
Protected Phases	1	1	6			2			4			8
Permitted Phases				6	2		2	4				8
Total Split (s)	10.0	10.0	32.5	32.5	22.5	22.5	22.5	22.5	22.5		22.5	22.5
Total Lost Time (s)		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5
Act Effct Green (s)		5.8	21.1	21.1	13.6	13.6	13.6	10.1	10.1		10.1	10.1
Actuated g/C Ratio		0.14	0.52	0.52	0.33	0.33	0.33	0.25	0.25		0.25	0.25
v/c Ratio		0.44	0.41	0.12	0.10	0.45	0.16	0.21	0.08		0.41	0.06
Control Delay		22.9	7.1	2.1	13.0	13.5	3.1	14.9	8.6		18.0	13.1
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay		22.9	7.1	2.1	13.0	13.5	3.1	14.9	8.6		18.0	13.1
LOS		C	A	A	B	B	A	B	A		B	B
Approach Delay			9.8			12.0			13.0			11.4
Approach LOS			A			B			B			B
Queue Length 50th (ft)		23	43	0	4	50	0	13	2		27	5
Queue Length 95th (ft)		#69	101	17	19	103	18	41	17		71	20
Internal Link Dist (ft)			1764			581			420			355
Turn Bay Length (ft)		630		220	420		380	160			130	
Base Capacity (vph)		477	2492	1166	328	1620	802	643	784		634	887
Starvation Cap Reductn		0	0	0	0	0	0	0	0		0	0
Spillback Cap Reductn		0	0	0	0	0	0	0	0		0	0
Storage Cap Reductn		0	0	0	0	0	0	0	0		0	0

M&W

Synchro 10 Report

Lanes, Volumes, Timings  
 1: Veterans Pkwy & Old Guard Rd

Existing Conditions  
 PM Peak Hour

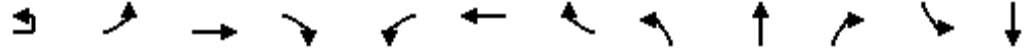
Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	276
Future Volume (vph)	276
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	1
Taper Length (ft)	
Satd. Flow (prot)	1568
Flt Permitted	
Satd. Flow (perm)	1568
Right Turn on Red	Yes
Satd. Flow (RTOR)	235
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.91
Heavy Vehicles (%)	3%
Shared Lane Traffic (%)	
Lane Group Flow (vph)	303
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Turn Type	Perm
Protected Phases	
Permitted Phases	8
Total Split (s)	22.5
Total Lost Time (s)	4.5
Act Effct Green (s)	10.1
Actuated g/C Ratio	0.25
v/c Ratio	0.54
Control Delay	8.3
Queue Delay	0.0
Total Delay	8.3
LOS	A
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	12
Queue Length 95th (ft)	63
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	857
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0

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Synchro 10 Report

Lanes, Volumes, Timings  
 1: Veterans Pkwy & Old Guard Rd

Existing Conditions  
 PM Peak Hour



Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Reduced v/c Ratio		0.44	0.30	0.09	0.07	0.32	0.12	0.11	0.04		0.22	0.03

Intersection Summary

Area Type:	Other
Cycle Length:	55
Actuated Cycle Length:	40.7
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.54
Intersection Signal Delay:	10.9
Intersection LOS:	B
Intersection Capacity Utilization	54.8%
ICU Level of Service	A
Analysis Period (min)	15
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

Splits and Phases: 1: Veterans Pkwy & Old Guard Rd







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Lane Group	SBR
Reduced v/c Ratio	0.35
Intersection Summary	

Intersection						
Int Delay, s/veh	3.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	27	154	50	188	284	14
Future Vol, veh/h	27	154	50	188	284	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	140	0	160	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	6	5	0
Mvmt Flow	33	186	60	227	342	17

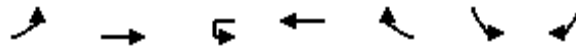
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	585	180	359	0	-	0
Stage 1	351	-	-	-	-	-
Stage 2	234	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	447	838	1211	-	-	-
Stage 1	690	-	-	-	-	-
Stage 2	789	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	425	838	1211	-	-	-
Mov Cap-2 Maneuver	517	-	-	-	-	-
Stage 1	656	-	-	-	-	-
Stage 2	789	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.8	1.7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1211	-	517	838	-	-
HCM Lane V/C Ratio	0.05	-	0.063	0.221	-	-
HCM Control Delay (s)	8.1	-	12.4	10.5	-	-
HCM Lane LOS	A	-	B	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.2	0.8	-	-

Lanes, Volumes, Timings  
3: Veterans Pkwy & American Way

Existing Conditions  
PM Peak Hour



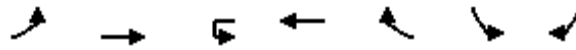
Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	147	921	25	817	8	48	379
Future Volume (vph)	147	921	25	817	8	48	379
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	650		515		415	360	0
Storage Lanes	2		1		1	1	1
Taper Length (ft)	125		125			50	
Satd. Flow (prot)	3367	3505	1805	3505	1429	1703	1568
Flt Permitted	0.950		0.270			0.950	
Satd. Flow (perm)	3367	3505	513	3505	1429	1703	1568
Right Turn on Red					Yes		Yes
Satd. Flow (RTOR)					9		244
Link Speed (mph)		45		45		30	
Link Distance (ft)		863		1844		2275	
Travel Time (s)		13.1		27.9		51.7	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	4%	3%	0%	3%	13%	6%	3%
Shared Lane Traffic (%)							
Lane Group Flow (vph)	169	1059	29	939	9	55	436
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Left	R NA	Left	Right	Left	Right
Median Width(ft)		24		24		12	
Link Offset(ft)		0		0		0	
Crosswalk Width(ft)		16		16		16	
Two way Left Turn Lane						Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9		9	15	9
Turn Type	Prot	NA	Perm	NA	Perm	Perm	Perm
Protected Phases	1	6		2			
Permitted Phases			2		2	8	8
Total Split (s)	10.0	37.0	27.0	27.0	27.0	23.0	23.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Act Effct Green (s)	6.1	26.2	19.0	19.0	19.0	12.2	12.2
Actuated g/C Ratio	0.13	0.54	0.39	0.39	0.39	0.25	0.25
v/c Ratio	0.40	0.56	0.14	0.68	0.02	0.13	0.75
Control Delay	27.1	8.8	14.2	16.6	7.2	16.1	17.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.1	8.8	14.2	16.6	7.2	16.1	17.4
LOS	C	A	B	B	A	B	B
Approach Delay		11.3		16.4		17.3	
Approach LOS		B		B		B	
Queue Length 50th (ft)	26	87	6	121	0	13	52
Queue Length 95th (ft)	55	158	22	198	7	35	132
Internal Link Dist (ft)		783		1764		2195	
Turn Bay Length (ft)	650		515		415	360	
Base Capacity (vph)	422	2407	263	1799	738	719	803
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0

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Synchro 10 Report

Lanes, Volumes, Timings  
 3: Veterans Pkwy & American Way

Existing Conditions  
 PM Peak Hour



Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Reduced v/c Ratio	0.40	0.44	0.11	0.52	0.01	0.08	0.54

Intersection Summary	
Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	48.4
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.75
Intersection Signal Delay:	14.3
Intersection LOS:	B
Intersection Capacity Utilization	53.6%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 3: Veterans Pkwy & American Way



Intersection						
Int Delay, s/veh	0.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Vol, veh/h	768	49	16	551	21	9
Future Vol, veh/h	768	49	16	551	21	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Yield
Storage Length	-	250	475	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	1	2	0	2	0	11
Mvmt Flow	844	54	18	605	23	10

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	898	0	1183
Stage 1	-	-	-	-	844
Stage 2	-	-	-	-	339
Critical Hdwy	-	-	4.1	-	6.8
Critical Hdwy Stg 1	-	-	-	-	5.8
Critical Hdwy Stg 2	-	-	-	-	5.8
Follow-up Hdwy	-	-	2.2	-	3.5
Pot Cap-1 Maneuver	-	-	765	-	185
Stage 1	-	-	-	-	387
Stage 2	-	-	-	-	699
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	765	-	181
Mov Cap-2 Maneuver	-	-	-	-	181
Stage 1	-	-	-	-	387
Stage 2	-	-	-	-	682

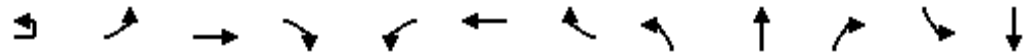
Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	22.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	181	556	-	-	765	-
HCM Lane V/C Ratio	0.127	0.018	-	-	0.023	-
HCM Control Delay (s)	27.8	11.6	-	-	9.8	-
HCM Lane LOS	D	B	-	-	A	-
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0.1	-

Appendix E:  
Capacity Analysis Reports  
*Projected Conditions*

Lanes, Volumes, Timings  
1: Veterans Pkwy & Old Guard Rd

Projected Conditions  
AM Peak Hour



Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	56	497	397	43	15	719	361	106	41	17	137	14
Future Volume (vph)	56	497	397	43	15	719	361	106	41	17	137	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		630		220	420		380	160		0	130	
Storage Lanes		2		1	1		1	1		0	1	
Taper Length (ft)		125			100			50			75	
Satd. Flow (prot)	0	3470	3438	1482	1805	3574	1615	1787	1749	0	1805	1900
Flt Permitted		0.950			0.476			0.746			0.711	
Satd. Flow (perm)	0	3470	3438	1482	904	3574	1615	1403	1749	0	1351	1900
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)				52			440		21			
Link Speed (mph)			45			45			35			35
Link Distance (ft)			1844			661			500			435
Travel Time (s)			27.9			10.0			9.7			8.5
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	0%	1%	5%	9%	0%	1%	0%	1%	0%	13%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	674	484	52	18	877	440	129	71	0	167	17
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			24			24			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			16			16			16			16
Two way Left Turn Lane												Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Turn Type	Prot	Prot	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA
Protected Phases	1	1	6			2			4			8
Permitted Phases				6	2		2	4				8
Total Split (s)	19.0	19.0	42.5	42.5	23.5	23.5	23.5	22.5	22.5		22.5	22.5
Total Lost Time (s)		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5
Act Effct Green (s)		14.1	37.0	37.0	18.4	18.4	18.4	12.8	12.8		12.8	12.8
Actuated g/C Ratio		0.24	0.63	0.63	0.31	0.31	0.31	0.22	0.22		0.22	0.22
v/c Ratio		0.81	0.22	0.05	0.06	0.79	0.55	0.42	0.18		0.57	0.04
Control Delay		32.2	5.7	2.1	17.0	26.1	5.1	24.4	15.2		28.8	17.9
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay		32.2	5.7	2.1	17.0	26.1	5.1	24.4	15.2		28.8	17.9
LOS		C	A	A	B	C	A	C	B		C	B
Approach Delay			20.3			19.0			21.1			16.6
Approach LOS			C			B			C			B
Queue Length 50th (ft)		119	33	0	5	150	0	40	15		54	5
Queue Length 95th (ft)		#186	57	10	17	207	40	74	37		95	16
Internal Link Dist (ft)			1764			581			420			355
Turn Bay Length (ft)		630		220	420		380	160			130	
Base Capacity (vph)		863	2241	984	294	1165	823	433	554		417	587
Starvation Cap Reductn		0	0	0	0	0	0	0	0		0	0
Spillback Cap Reductn		0	0	0	0	0	0	0	0		0	0
Storage Cap Reductn		0	0	0	0	0	0	0	0		0	0

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Synchro 10 Report

Lanes, Volumes, Timings  
1: Veterans Pkwy & Old Guard Rd

Projected Conditions  
AM Peak Hour

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	341
Future Volume (vph)	341
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	1
Taper Length (ft)	
Satd. Flow (prot)	1599
Flt Permitted	
Satd. Flow (perm)	1599
Right Turn on Red	Yes
Satd. Flow (RTOR)	330
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.82
Heavy Vehicles (%)	1%
Shared Lane Traffic (%)	
Lane Group Flow (vph)	416
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Turn Type	Perm
Protected Phases	
Permitted Phases	8
Total Split (s)	22.5
Total Lost Time (s)	4.5
Act Effct Green (s)	12.8
Actuated g/C Ratio	0.22
v/c Ratio	0.69
Control Delay	11.7
Queue Delay	0.0
Total Delay	11.7
LOS	B
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	26
Queue Length 95th (ft)	73
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	722
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0

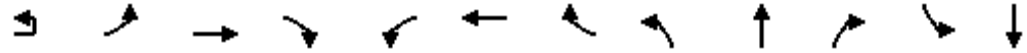
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Synchro 10 Report



Lanes, Volumes, Timings  
 1: Veterans Pkwy & Old Guard Rd

Projected Conditions  
 AM Peak Hour

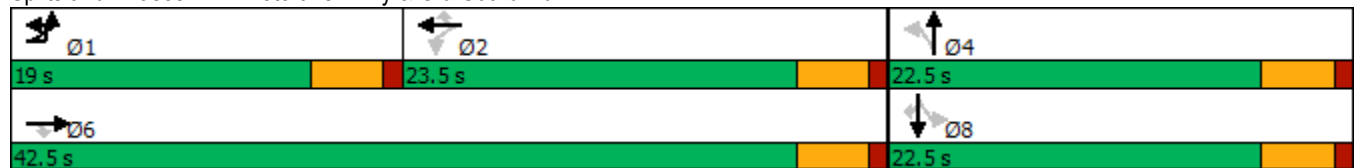


Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Reduced v/c Ratio		0.78	0.22	0.05	0.06	0.75	0.53	0.30	0.13		0.40	0.03

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 58.9  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.81  
 Intersection Signal Delay: 19.2 Intersection LOS: B  
 Intersection Capacity Utilization 77.6% ICU Level of Service D  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Veterans Pkwy & Old Guard Rd





Lane Group	SBR
Reduced v/c Ratio	0.58
Intersection Summary	

Intersection						
Int Delay, s/veh	4.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↕↕	↕↕	
Traffic Vol, veh/h	20	27	338	488	376	45
Future Vol, veh/h	20	27	338	488	376	45
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	140	0	160	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	68	68	68	68	68	68
Heavy Vehicles, %	5	0	0	1	1	0
Mvmt Flow	29	40	497	718	553	66

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1939	310	619	0	-	0
Stage 1	586	-	-	-	-	-
Stage 2	1353	-	-	-	-	-
Critical Hdwy	6.9	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.9	-	-	-	-	-
Critical Hdwy Stg 2	5.9	-	-	-	-	-
Follow-up Hdwy	3.55	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	55	692	971	-	-	-
Stage 1	511	-	-	-	-	-
Stage 2	200	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 27	692	971	-	-	-
Mov Cap-2 Maneuver	113	-	-	-	-	-
Stage 1	249	-	-	-	-	-
Stage 2	200	-	-	-	-	-

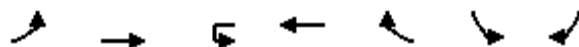
Approach	EB	NB	SB
HCM Control Delay, s	26.3	5.1	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	971	-	113	692	-	-
HCM Lane V/C Ratio	0.512	-	0.26	0.057	-	-
HCM Control Delay (s)	12.5	-	47.7	10.5	-	-
HCM Lane LOS	B	-	E	B	-	-
HCM 95th %tile Q(veh)	3	-	1	0.2	-	-

Notes  
 ~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

Lanes, Volumes, Timings  
3: Veterans Pkwy & American Way

Projected Conditions  
AM Peak Hour



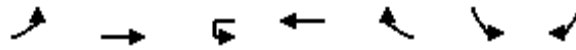
Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations	↖↖	↗↗	↘	↖↖	↖	↘	↘
Traffic Volume (vph)	416	900	16	1154	71	62	340
Future Volume (vph)	416	900	16	1154	71	62	340
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	650		515		415	360	0
Storage Lanes	2		1		1	1	1
Taper Length (ft)	125		125		50		
Satd. Flow (prot)	3400	3505	1805	3574	1553	1671	1568
Flt Permitted	0.950		0.280			0.950	
Satd. Flow (perm)	3400	3505	532	3574	1553	1671	1568
Right Turn on Red					Yes		Yes
Satd. Flow (RTOR)					81		324
Link Speed (mph)		45		45		30	
Link Distance (ft)		863		1844		2275	
Travel Time (s)		13.1		27.9		51.7	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	3%	3%	0%	1%	4%	8%	3%
Shared Lane Traffic (%)							
Lane Group Flow (vph)	473	1023	18	1311	81	70	386
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Left	R NA	Left	Right	Left	Right
Median Width(ft)		24		24		12	
Link Offset(ft)		0		0		0	
Crosswalk Width(ft)		16		16		16	
Two way Left Turn Lane						Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9		9	15	9
Turn Type	Prot	NA	Perm	NA	Perm	Perm	Perm
Protected Phases	1	6		2			
Permitted Phases			2		2	8	8
Total Split (s)	17.0	52.5	35.5	35.5	35.5	22.5	22.5
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Act Effct Green (s)	12.2	45.7	28.9	28.9	28.9	10.0	10.0
Actuated g/C Ratio	0.19	0.71	0.45	0.45	0.45	0.15	0.15
v/c Ratio	0.74	0.41	0.08	0.82	0.11	0.27	0.75
Control Delay	35.1	5.1	13.2	22.2	3.9	27.2	15.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.1	5.1	13.2	22.2	3.9	27.2	15.7
LOS	D	A	B	C	A	C	B
Approach Delay		14.6		21.0		17.5	
Approach LOS		B		C		B	
Queue Length 50th (ft)	92	61	4	216	0	26	23
Queue Length 95th (ft)	#178	144	17	#383	23	56	94
Internal Link Dist (ft)		783		1764		2195	
Turn Bay Length (ft)	650		515		415	360	
Base Capacity (vph)	665	2635	258	1735	795	471	674
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0

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Synchro 10 Report

Lanes, Volumes, Timings  
 3: Veterans Pkwy & American Way

Projected Conditions  
 AM Peak Hour

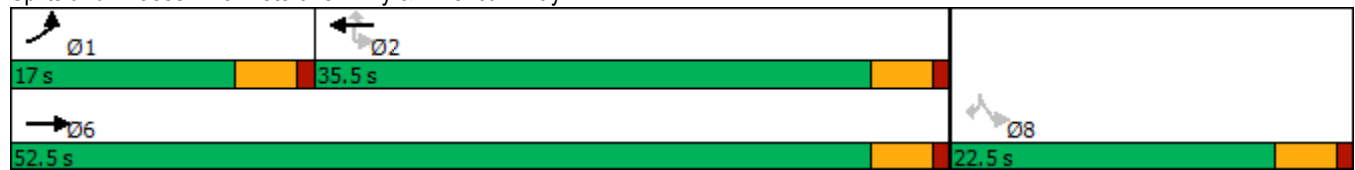


Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Reduced v/c Ratio	0.71	0.39	0.07	0.76	0.10	0.15	0.57

Intersection Summary

Area Type: Other  
 Cycle Length: 75  
 Actuated Cycle Length: 64.8  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.82  
 Intersection Signal Delay: 17.7  
 Intersection LOS: B  
 Intersection Capacity Utilization 60.5%  
 ICU Level of Service B  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 3: Veterans Pkwy & American Way



Intersection												
Int Delay, s/veh	2.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗	↗	↘	↗	↗		↘	↗		↔	
Traffic Vol, veh/h	8	466	21	15	917	5	49	0	31	13	0	19
Future Vol, veh/h	8	466	21	15	917	5	49	0	31	13	0	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	None
Storage Length	335	-	250	475	-	175	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	0	3	10	0	0	0	0	0	7	0	0	0
Mvmt Flow	9	536	24	17	1054	6	56	0	36	15	0	22

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1060	0	0	560	0	0	1115	1648	268	1374	1666	527
Stage 1	-	-	-	-	-	-	554	554	-	1088	1088	-
Stage 2	-	-	-	-	-	-	561	1094	-	286	578	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	7.04	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.37	3.5	4	3.3
Pot Cap-1 Maneuver	665	-	-	1021	-	-	165	100	715	106	98	501
Stage 1	-	-	-	-	-	-	489	517	-	234	294	-
Stage 2	-	-	-	-	-	-	485	292	-	703	504	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	665	-	-	1021	-	-	154	97	715	98	95	501
Mov Cap-2 Maneuver	-	-	-	-	-	-	154	97	-	98	95	-
Stage 1	-	-	-	-	-	-	482	510	-	231	289	-
Stage 2	-	-	-	-	-	-	456	287	-	659	497	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.1			29.3			28.7		
HCM LOS							D			D		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	154	715	665	-	-	1021	-	-	188
HCM Lane V/C Ratio	0.366	0.05	0.014	-	-	0.017	-	-	0.196
HCM Control Delay (s)	41.3	10.3	10.5	-	-	8.6	-	-	28.7
HCM Lane LOS	E	B	B	-	-	A	-	-	D
HCM 95th %tile Q(veh)	1.5	0.2	0	-	-	0.1	-	-	0.7

HCM Unsignalized Intersection Capacity Analysis  
5: Veterans Pkwy & C2

Projected Conditions  
AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↗		↗
Traffic Volume (veh/h)	0	523	996	58	0	31
Future Volume (Veh/h)	0	523	996	58	0	31
Sign Control		Free	Free		Yield	
Grade		0%	0%		0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	0	615	1172	68	0	36
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		661				
pX, platoon unblocked					0.99	
vC, conflicting volume	1240				1480	586
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1240				1459	586
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	92
cM capacity (veh/h)	569				121	459
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1
Volume Total	308	308	586	586	68	36
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	68	36
cSH	1700	1700	1700	1700	1700	459
Volume to Capacity	0.18	0.18	0.34	0.34	0.04	0.08
Queue Length 95th (ft)	0	0	0	0	0	6
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	13.5
Lane LOS						B
Approach Delay (s)	0.0		0.0			13.5
Approach LOS						B
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			37.5%		ICU Level of Service	A
Analysis Period (min)			15			

Intersection						
Int Delay, s/veh	3.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑↑	↑	↑	↑↑
Traffic Vol, veh/h	93	1	826	73	1	401
Future Vol, veh/h	93	1	826	73	1	401
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	100	25	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	68	68	68	68	68	68
Heavy Vehicles, %	0	0	1	0	0	1
Mvmt Flow	137	1	1215	107	1	590

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1512	608	0	0	1322
Stage 1	1215	-	-	-	-
Stage 2	297	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1
Critical Hdwy Stg 1	5.8	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	~ 113	444	-	-	529
Stage 1	248	-	-	-	-
Stage 2	734	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	~ 113	444	-	-	529
Mov Cap-2 Maneuver	204	-	-	-	-
Stage 1	248	-	-	-	-
Stage 2	733	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	52.7	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	205	529
HCM Lane V/C Ratio	-	-	0.674	0.003
HCM Control Delay (s)	-	-	52.7	11.8
HCM Lane LOS	-	-	F	B
HCM 95th %tile Q(veh)	-	-	4.1	0

Notes  
 ~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon



Intersection						
Int Delay, s/veh	0.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	19	3	501	7	1	402
Future Vol, veh/h	19	3	501	7	1	402
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	25	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	68	68	68	68	68	68
Heavy Vehicles, %	0	0	1	0	0	1
Mvmt Flow	28	4	737	10	1	591























Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1335	742	0	0	747
Stage 1	742	-	-	-	-
Stage 2	593	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	171	419	-	-	870
Stage 1	474	-	-	-	-
Stage 2	556	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	171	419	-	-	870
Mov Cap-2 Maneuver	311	-	-	-	-
Stage 1	474	-	-	-	-
Stage 2	555	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.4	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	322	870
HCM Lane V/C Ratio	-	-	0.1	0.002
HCM Control Delay (s)	-	-	17.4	9.1
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.3	0

Lanes, Volumes, Timings  
1: Veterans Pkwy & Old Guard Rd

Projected Conditions  
PM Peak Hour

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	46	255	655	95	23	494	86	65	17	20	199	30
Future Volume (vph)	46	255	655	95	23	494	86	65	17	20	199	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		630		220	420		380	160		0	130	
Storage Lanes		2		1	1		1	1		0	1	
Taper Length (ft)		125			100			50			75	
Satd. Flow (prot)	0	3333	3471	1583	1805	3471	1583	1770	1671	0	1752	1900
Flt Permitted		0.950			0.378			0.736			0.730	
Satd. Flow (perm)	0	3333	3471	1583	718	3471	1583	1371	1671	0	1347	1900
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)				104			109		22			
Link Speed (mph)			45			45			35			35
Link Distance (ft)			1844			661			500			435
Travel Time (s)			27.9			10.0			9.7			8.5
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	6%	4%	2%	0%	4%	2%	2%	10%	0%	3%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	331	720	104	25	543	95	71	41	0	219	33
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			24			24			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			16			16			16			16
Two way Left Turn Lane												Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Turn Type	Prot	Prot	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA
Protected Phases	1	1	6			2			4			8
Permitted Phases				6	2		2	4				8
Total Split (s)	14.0	14.0	37.5	37.5	23.5	23.5	23.5	22.5	22.5		22.5	22.5
Total Lost Time (s)		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5
Act Effct Green (s)		9.0	27.3	27.3	13.7	13.7	13.7	13.3	13.3		13.3	13.3
Actuated g/C Ratio		0.18	0.55	0.55	0.27	0.27	0.27	0.27	0.27		0.27	0.27
v/c Ratio		0.55	0.38	0.11	0.13	0.57	0.19	0.20	0.09		0.61	0.07
Control Delay		24.5	7.6	2.1	16.6	18.7	4.2	16.5	10.2		25.1	14.9
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay		24.5	7.6	2.1	16.6	18.7	4.2	16.5	10.2		25.1	14.9
LOS		C	A	A	B	B	A	B	B		C	B
Approach Delay			11.9			16.5			14.2			14.0
Approach LOS			B			B			B			B
Queue Length 50th (ft)		46	57	0	6	73	0	16	4		56	7
Queue Length 95th (ft)		95	101	17	22	123	23	45	23		126	25
Internal Link Dist (ft)			1764			581			420			355
Turn Bay Length (ft)		630		220	420		380	160			130	
Base Capacity (vph)		657	2377	1117	283	1369	690	512	638		503	709
Starvation Cap Reductn		0	0	0	0	0	0	0	0		0	0
Spillback Cap Reductn		0	0	0	0	0	0	0	0		0	0
Storage Cap Reductn		0	0	0	0	0	0	0	0		0	0

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Synchro 10 Report

Lanes, Volumes, Timings  
1: Veterans Pkwy & Old Guard Rd

Projected Conditions  
PM Peak Hour

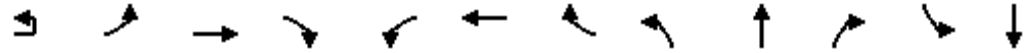
Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	327
Future Volume (vph)	327
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	1
Taper Length (ft)	
Satd. Flow (prot)	1568
Flt Permitted	
Satd. Flow (perm)	1568
Right Turn on Red	Yes
Satd. Flow (RTOR)	316
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.91
Heavy Vehicles (%)	3%
Shared Lane Traffic (%)	
Lane Group Flow (vph)	359
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Turn Type	Perm
Protected Phases	
Permitted Phases	8
Total Split (s)	22.5
Total Lost Time (s)	4.5
Act Effct Green (s)	13.3
Actuated g/C Ratio	0.27
v/c Ratio	0.55
Control Delay	7.2
Queue Delay	0.0
Total Delay	7.2
LOS	A
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	10
Queue Length 95th (ft)	66
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	783
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0

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Synchro 10 Report

Lanes, Volumes, Timings  
 1: Veterans Pkwy & Old Guard Rd

Projected Conditions  
 PM Peak Hour

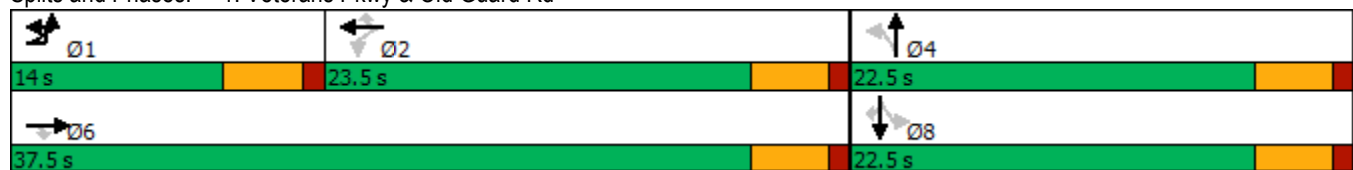


Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Reduced v/c Ratio		0.50	0.30	0.09	0.09	0.40	0.14	0.14	0.06		0.44	0.05

Intersection Summary

Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	49.9
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.61
Intersection Signal Delay:	13.7
Intersection LOS:	B
Intersection Capacity Utilization	61.7%
ICU Level of Service	B
Analysis Period (min)	15

Splits and Phases: 1: Veterans Pkwy & Old Guard Rd





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Lane Group	SBR
Reduced v/c Ratio	0.46
Intersection Summary	

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Intersection						
Int Delay, s/veh	3.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↙	↗	↙	↑↑	↑↑	
Traffic Vol, veh/h	27	154	50	208	297	14
Future Vol, veh/h	27	154	50	208	297	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	140	0	160	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	6	5	0
Mvmt Flow	33	186	60	251	358	17

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	613	188	375	0	-	0
Stage 1	367	-	-	-	-	-
Stage 2	246	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	429	828	1195	-	-	-
Stage 1	677	-	-	-	-	-
Stage 2	778	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	408	828	1195	-	-	-
Mov Cap-2 Maneuver	504	-	-	-	-	-
Stage 1	643	-	-	-	-	-
Stage 2	778	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.9	1.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1195	-	504	828	-	-
HCM Lane V/C Ratio	0.05	-	0.065	0.224	-	-
HCM Control Delay (s)	8.2	-	12.6	10.6	-	-
HCM Lane LOS	A	-	B	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.2	0.9	-	-

Lanes, Volumes, Timings  
3: Veterans Pkwy & American Way

Projected Conditions  
PM Peak Hour



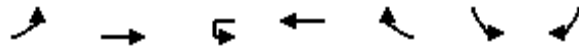
Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	147	1010	25	888	8	48	379
Future Volume (vph)	147	1010	25	888	8	48	379
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	650		515		415	360	0
Storage Lanes	2		1		1	1	1
Taper Length (ft)	125		125			50	
Satd. Flow (prot)	3367	3505	1805	3505	1442	1703	1568
Flt Permitted	0.950		0.244			0.950	
Satd. Flow (perm)	3367	3505	464	3505	1442	1703	1568
Right Turn on Red					Yes		Yes
Satd. Flow (RTOR)					9		234
Link Speed (mph)		45		45		30	
Link Distance (ft)		863		1844		2275	
Travel Time (s)		13.1		27.9		51.7	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	4%	3%	0%	3%	12%	6%	3%
Shared Lane Traffic (%)							
Lane Group Flow (vph)	169	1161	29	1021	9	55	436
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Left	R NA	Left	Right	Left	Right
Median Width(ft)		24		24		12	
Link Offset(ft)		0		0		0	
Crosswalk Width(ft)		16		16		16	
Two way Left Turn Lane						Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9		9	15	9
Turn Type	Prot	NA	Perm	NA	Perm	Perm	Perm
Protected Phases	1	6		2			
Permitted Phases			2		2	8	8
Total Split (s)	10.0	37.5	27.5	27.5	27.5	22.5	22.5
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Act Effct Green (s)	6.0	27.5	20.2	20.2	20.2	12.5	12.5
Actuated g/C Ratio	0.12	0.55	0.41	0.41	0.41	0.25	0.25
v/c Ratio	0.42	0.60	0.15	0.72	0.02	0.13	0.77
Control Delay	27.9	9.3	14.5	17.3	7.1	16.4	18.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.9	9.3	14.5	17.3	7.1	16.4	18.9
LOS	C	A	B	B	A	B	B
Approach Delay		11.7		17.1		18.6	
Approach LOS		B		B		B	
Queue Length 50th (ft)	27	105	6	140	0	14	58
Queue Length 95th (ft)	55	176	22	217	7	35	139
Internal Link Dist (ft)		783		1764		2195	
Turn Bay Length (ft)	650		515		415	360	
Base Capacity (vph)	405	2387	233	1765	731	671	760
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0

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Synchro 10 Report

Lanes, Volumes, Timings  
 3: Veterans Pkwy & American Way

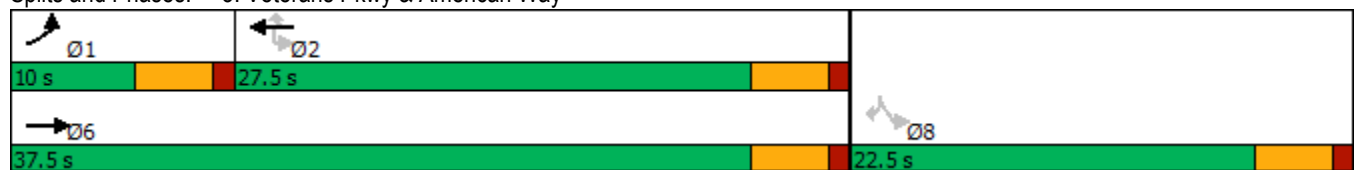
Projected Conditions  
 PM Peak Hour



Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Reduced v/c Ratio	0.42	0.49	0.12	0.58	0.01	0.08	0.57

Intersection Summary	
Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	49.8
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.77
Intersection Signal Delay:	14.9
Intersection LOS:	B
Intersection Capacity Utilization	55.5%
ICU Level of Service	B
Analysis Period (min)	15

Splits and Phases: 3: Veterans Pkwy & American Way





Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗	↗	↘	↗	↗		↘	↗		↔	
Traffic Vol, veh/h	24	798	49	16	586	15	22	0	9	12	0	17
Future Vol, veh/h	24	798	49	16	586	15	22	0	9	12	0	17
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	None
Storage Length	335	-	250	475	-	175	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	1	2	0	2	0	0	0	11	0	0	0
Mvmt Flow	26	877	54	18	644	16	24	0	10	13	0	19

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	660	0	0	931	0	0	1287	1625	439	1171	1663	322
Stage 1	-	-	-	-	-	-	929	929	-	680	680	-
Stage 2	-	-	-	-	-	-	358	696	-	491	983	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	7.12	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.41	3.5	4	3.3
Pot Cap-1 Maneuver	938	-	-	743	-	-	123	103	542	150	98	680
Stage 1	-	-	-	-	-	-	292	349	-	412	454	-
Stage 2	-	-	-	-	-	-	638	446	-	533	329	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	938	-	-	743	-	-	115	98	542	141	93	680
Mov Cap-2 Maneuver	-	-	-	-	-	-	115	98	-	141	93	-
Stage 1	-	-	-	-	-	-	284	339	-	400	443	-
Stage 2	-	-	-	-	-	-	605	435	-	509	320	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.3			35			20.6		
HCM LOS							E			C		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	115	542	938	-	-	743	-	-	263
HCM Lane V/C Ratio	0.21	0.018	0.028	-	-	0.024	-	-	0.121
HCM Control Delay (s)	44.5	11.8	8.9	-	-	10	-	-	20.6
HCM Lane LOS	E	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.7	0.1	0.1	-	-	0.1	-	-	0.4

HCM Unsignalized Intersection Capacity Analysis  
5: Veterans Pkwy & C2

Projected Conditions  
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↗		↖
Traffic Volume (veh/h)	0	873	556	74	0	42
Future Volume (Veh/h)	0	873	556	74	0	42
Sign Control		Free	Free		Yield	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	959	611	81	0	46
<b>Pedestrians</b>						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		661				
pX, platoon unblocked					0.90	
vC, conflicting volume	692				1090	306
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	692				883	306
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	93
cM capacity (veh/h)	912				261	696
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>WB 1</b>	<b>WB 2</b>	<b>WB 3</b>	<b>SB 1</b>
Volume Total	480	480	306	306	81	46
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	81	46
cSH	1700	1700	1700	1700	1700	696
Volume to Capacity	0.28	0.28	0.18	0.18	0.05	0.07
Queue Length 95th (ft)	0	0	0	0	0	5
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	10.5
Lane LOS						B
Approach Delay (s)	0.0					10.5
Approach LOS						B
<b>Intersection Summary</b>						
Average Delay			0.3			
Intersection Capacity Utilization			27.5%	ICU Level of Service	A	
Analysis Period (min)			15			

Intersection						
Int Delay, s/veh	1.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y <del>Y</del>		↑↑	↑	↑	↑↑
Traffic Vol, veh/h	119	2	258	98	2	443
Future Vol, veh/h	119	2	258	98	2	443
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	100	25	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	0	0	6	0	0	5
Mvmt Flow	143	2	311	118	2	534

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	582	156	0	0	429
Stage 1	311	-	-	-	-
Stage 2	271	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1
Critical Hdwy Stg 1	5.8	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	449	868	-	-	1141
Stage 1	722	-	-	-	-
Stage 2	756	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	448	868	-	-	1141
Mov Cap-2 Maneuver	541	-	-	-	-
Stage 1	722	-	-	-	-
Stage 2	754	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	544	1141
HCM Lane V/C Ratio	-	-	0.268	0.002
HCM Control Delay (s)	-	-	14	8.2
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	1.1	0

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	11	2	217	18	3	300
Future Vol, veh/h	11	2	217	18	3	300
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	25	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	0	0	6	0	0	5
Mvmt Flow	13	2	261	22	4	361

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	641	272	0	0	283
Stage 1	272	-	-	-	-
Stage 2	369	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	442	772	-	-	1291
Stage 1	778	-	-	-	-
Stage 2	704	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	441	772	-	-	1291
Mov Cap-2 Maneuver	537	-	-	-	-
Stage 1	778	-	-	-	-
Stage 2	702	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.6	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	563	1291
HCM Lane V/C Ratio	-	-	0.028	0.003
HCM Control Delay (s)	-	-	11.6	7.8
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0