Marlin Bay Apartments

Traffic Impact Study

City of Virginia Beach, Virginia

March 25, 2020

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

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TABLE OF CONTENTS

TABLE OF CONTENTS I
APPENDICES II
LIST OF TABLES III
LIST OF FIGURES III
1 EXECUTIVE SUMMARY 1-1
2 BACKGROUND INFORMATION 2-1
2.1 DESCRIPTION OF ON-SITE DEVELOPMENT 2-1
2.2 STUDY LIMITS 2-1
2.3 EXISTING ROADWAYS NETWORK 2-2
2.4 OTHER MODES OF TRANSPORTATION 2-2
3 EXISTING CONDITIONS ANALYSIS 3-1
3.1 EXISTING TRAFFIC VOLUMES 3-1
3.2 CAPACITY ANALYSES 3-1
3.3 2020 EXISTING TRAFFIC CONDITIONS 3-4
4 2025 BACKGROUND CONDITIONS AND ANALYSIS 4-1
4.1 2025 BACKGROUND TRAFFIC GROWTH & FORECASTS 4-1
4.2 2023 BACKGROUND TRAFFIC VOLUME CAPACITY ANALYSIS 4-1
5 SITE TRIP GENERATION AND DISTRIBUTION 5-1
5.1 TRIP GENERATION 5-1
5.2 BY-RIGHT COMPARISON 5-2
5.3 TRIP DISTRIBUTIONS 5-2
5.4 SITE TRIP ASSIGNMENTS 5-2
6 ANALYSIS OF 2025 CONDITIONS WITH DEVELOPMENT 6-1
6.1 2025 TOTAL TRAFFIC VOLUMES 6-1
6.2 CAPACITY ANALYSES 6-1
7 CONCLUSIONS AND RECOMMENDATIONS 7-1

APPENDICES

Appendix A – Scoping Correspondence

Appendix B – Traffic Counts

Appendix C – Existing Signal Timings

Appendix D – SYNCHRO Analysis of 2020 Existing Conditions

Appendix E – SYNCHRO Analysis of 2025 Background Conditions

Appendix F – SYNCHRO Analysis of 2025 Total Future Conditions

LIST OF TABLES

TABLE 3-1: LEVEL OF SERVICE DEFINITIONS 3-2
TABLE 3-2: SIGNALIZED AND UNSIGNALIZED INTERSECTION LEVEL OF SERVICE CRITERIA 3-3
TABLE 3-3: INTERSECTION LEVEL OF SERVICE, DELAY, AND QUEUE SUMMARY 2020 EXISTING CONDITIONS 3-5
TABLE 5-1: TRIP GENERATION SUMMARY 5-2
TABLE 6-1: INTERSECTION LEVEL OF SERVICE, DELAY, AND QUEUE SUMMARY 2025 TOTAL FUTURE CONDITIONS 6-2

LIST OF FIGURES

FIGURE 1-1: SITE LOCATION MAP
FIGURE 1-2: CONCEPTUAL SITE LAYOUT
FIGURE 2-1: EXISTING LANE USE AND TRAFFIC CONTROL
FIGURE 3-1: 2020 EXISTING PEAK HOUR VOLUMES
FIGURE 4-1: 2025 BACKGROUND PEAK HOUR VOLUMES
FIGURE 5-1: FUTURE LANE USE AND TRAFFIC CONTROL
FIGURE 5-2: SITE TRIP DISTRIBUTIONS
FIGURE 5-3: SITE GENERATED TRIPS
FIGURE 6-1: 2025 TOTAL FUTURE PEAK HOUR VOLUMES

1 EXECUTIVE SUMMARY

This report presents the findings of the traffic impact study prepared for the proposed Marlin Bay Apartment development in the City of Virginia Beach, Virginia. The proposed development is located in the southeast quadrant of the US Route 60 (Shore Drive) at Marlin Bay Drive/Shady Oaks Drive intersection as shown in Figure 1-1 (all figures are located at the end of their respective chapter).

The site is currently occupied by a retail boat sales business with three (3) access points on US Route 60 (Shore Drive) and one (1) access point on Ocean Tides Drive. The access point on Ocean Tides Drive is located approximately 20 feet from US Route 60 (Shore Drive).

The proposed project will redevelop the site with 227 multi-family residential dwelling units and will be constructed in one (1) phase. Figure 1-2 shows the proposed conceptual plan for the site.

With the proposed development, all three (3) access points to US Route 60 (Shore Drive) will be removed and the existing access point on Ocean Tides Drive closed. Additionally, the existing crossover on Marlin Bay Drive, located approximately 350 feet from US Route 60 (Shore Drive), will be closed.

Access to the site will be provided via two (2) access points on Ocean Tides Drive, which will have termini on both US Route 60 (Shore Drive) and Marlin Bay Drive. The closest access point on Ocean Tides Drive will be located approximately 160 feet from the intersection with US Route 60 (Shore Drive). Ocean Tides Drive will be extended through the site and connect with Marlin Bay Drive at a new crossover approximately 200 feet south of the existing (to be closed) crossover.

The proposed development will result in three (3) *fewer* entrances on US Route 60 (Shore Drive). In addition, the entrances on Ocean Tides Drive will be located further away from the intersection with US Route 60 (Shore Drive).

For the purposes of this analysis, the development was assumed to be complete and occupied by 2025.

When complete, the proposed development will generate a total of 104 AM peak hour trips (24 in and 80 out), 123 PM peak hour trips (77 in and 46 out), and 1,675 average weekday daily trips.

The purpose of this analysis is to determine the impact of the proposed development on the surrounding roadway network. The scope of this study was developed in conjunction with the City of Virginia Beach and a copy of the correspondence is included in Appendix A.

As agreed upon with the City, the study limits include the following intersections (see Figure 1-1):

1. US Route 60 (Shore Drive) at Marlin Bay Drive/Shady Oaks Drive (signalized);
2. US Route 60 (Shore Drive) at Ocean Tides Drive/Powhatan Avenue (unsignalized); and
3. Marlin Bay Drive/Site Entrance.

In accordance with the scoping correspondence, analyses were completed for the following scenarios:

1. 2020 Existing Traffic Conditions;
2. 2025 Background Traffic Conditions (without development of the site); and
3. 2025 Future Traffic Conditions (with development of the site).

The following steps were taken to determine the potential traffic impacts associated with this project:

1. Data Collection – AM (7:00 – 9:00) and PM (4:00 – 6:00) peak hour turning movement counts were collected at the two (2) existing intersections within the study area. The counts were conducted on a typical weekday (Wednesday February 5, 2020) when public schools were in session.

2. Other Development – No approved background developments were noted within the study limits.

3. Traffic Growth – In order to account for development outside the study area, a 0.5% annual growth rate was applied to all movements at the existing study intersections.

4. Trip Generation – Traffic generated by the proposed development was estimated using the 10th edition of the Institute of Transportation Engineers' *Trip Generation Manual*.

5. Traffic Distributions – The distribution of trips generated by the proposed developed was based on the existing traffic volumes, the nature of the use, and local knowledge.

6. Traffic Projections – Future traffic volumes were determined using the existing traffic counts, a 0.5% annual growth rate, and the trips generated by the site.

7. Traffic Capacity Analysis – Level of service calculations for existing, background, and future conditions were performed using SYNCHRO Version 10.3 with SimTraffic for signalized and unsignalized intersections.

8. Queuing Analysis – The 95th percentile queue lengths (Synchro) and maximum queues (SimTraffic) were reviewed at the intersections listed above.

This traffic impact analysis (TIA) has been prepared in accordance with (1) VDOT's *Traffic Operations and Safety Analysis Manual (TOSAM)*, and (2) the Scope of Study agreed upon between the City of Virginia Beach and Timmons Group.

Based on the operational analyses the following is offered:

- The proposed development will result in three (3) *fewer* entrances on US Route 60 (Shore Drive). The entrances on Ocean Tides Drive will be located further back from the intersection with US Route 60 (Shore Drive).

- Under 2020 existing conditions:

    - The signalized intersection of US Route 60 (Shore Drive)/Marlin Bay Drive/Shady Oaks Drive currently operates at an overall level of service (LOS) B or better during the AM and PM peak hours. The side streets operate at LOS E/F during both the AM/PM peak hour. Adequate turn bay storage exists to handle all 95th percentile and maximum queue lengths.
    - Each of the movements at the unsignalized intersection of US Route 60 (Shore Drive)/Ocean Tides Drive/Powhatan Avenue intersection operates at LOS B or better during both peak hours except for the southbound approach operates at LOS E in the AM peak hour and LOS D in the PM peak hour. Adequate turn bay storage exists to handle all 95th percentile and maximum queue lengths.

- Under 2025 background conditions with the 0.5% annual growth, the study intersections will operate at comparable LOS and queuing to existing conditions.

- When complete, the proposed development will generate a total of 104 AM peak hour trips (24 in and 80 out), 123 PM peak hour trips (77 in and 46 out), and 1,675 average weekday daily trips.

- Under 2025 total future conditions with the traffic from the proposed Marlin Bay Apartments project:

    - The study intersections will operate at comparable LOS to background conditions. All intersections will operate at the same LOS with a modest increase in delay/queuing.
    - All queue will be contained within the available storage and will not spillback into the adjacent travel lanes.
    - The site entrance on Marlin Bay Drive will operate at LOS A in both peak hours with a maximum queue of 25 feet (one vehicle) on Marlin Bay Drive.
    - Relocating the median break approximately 200 feet south will not adversely impact the adjacent crossover to the south.

- Should the City allow, the traffic signal timings could be adjusted to provide more green time to the side streets which would reduce the delay for those approaches.

- At the US Route 60 (Shore Drive)/Ocean Tides Drive/Powhatan Avenue intersection, the westbound through-left shared lane can accommodate the site traffic turning left (maximum of 19 vehicles in either peak hour) into the site without the need for a left turn lane.

- When compared to the permitted uses within the B-2 district (restaurants, office, medical office, retail, etc.) the proposed 227 apartments will generate significantly less traffic and less impact to the surrounding roadway network.

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Site Location Map and Study Intersections
Marlin Bay Apartments
City of Virginia Beach, VA

Figure
1-1

MARLIN BAY - VIRGINIA BEACH, VA

Conceptual Layout - March 25, 2020

TIMMONS GROUP YOUR VISION ACHIEVED THROUGH OURS.	Conceptual Site Layout Marlin Bay Apartments City of Virginia Beach, VA	Figure 1-2

2 BACKGROUND INFORMATION

2.1 DESCRIPTION OF ON-SITE DEVELOPMENT

The proposed development is located in the southeast quadrant of the US Route 60 (Shore Drive) at Marlin Bay Drive/Shady Oaks Drive intersection as shown in Figure 1-1 (all figures are located at the end of their respective chapter).

The site is currently occupied by a retail boat sales business with three (3) access points on US Route 60 (Shore Drive) and one (1) access point on Ocean Tides Drive. The access point on Ocean Tides Drive is located approximately 20 feet from US Route 60 (Shore Drive).

The proposed project will redevelop the site with 227 multi-family residential dwelling units and will be constructed in one (1) phase. Figure 1-2 shows the proposed conceptual plan for the site.

With the proposed development, all access points to US Route 60 (Shore Drive) will be removed and the existing access point on Ocean Tides Drive closed. Additionally, the existing crossover on Marlin Bay Drive, located approximately 350 feet from US Route 60 (Shore Drive), will be closed.

Access to the site will be provided via two (2) access points on Ocean Tides Drive, which will have termini on both US Route 60 (Shore Drive) and Marlin Bay Drive. The closest access point on Ocean Tides Drive will be located approximately 160 feet from the intersection with US Route 60 (Shore Drive). Ocean Tides Drive will be extended through the site and connect with Marlin Bay Drive at a new crossover approximately 200 feet south of the existing (to be closed) crossover.

The proposed development will result in three (3) *fewer* entrances on US Route 60 (Shore Drive). The entrances on Ocean Tides Drive will be located further away from the intersection with US Route 60 (Shore Drive).

2.2 STUDY LIMITS

As agreed upon with the City, the study limits include the following existing intersections:

1. US Route 60 (Shore Drive) at Marlin Bay Drive/Shady Oaks Drive (signalized);
2. US Route 60 (Shore Drive) at Ocean Tides Drive/Powhatan Avenue (unsignalized); and
3. Marlin Bay Drive/Site Entrance.

2.3 EXISTING ROADWAYS NETWORK

US Route 60 (Shore Drive) is a 4-lane, median divided, mid arterial roadway (per the City Major Street Network) with a posted speed limit of 35 mph. The roadway carries approximately 35,500 vpd (vehicles per day) in the vicinity of the site per the most recent City traffic counts (2018). US Route 60 was assumed to run east-west through the study area.

Marlin Bay Drive is a 2-lane, median divided, local street with a posted speed limit of 25 mph that has no available traffic data. The road connects US Route 60 (Shore Drive) to the north with Mystic Cove Road to the southeast. Marlin Bay Drive was assumed to run north-south through the study area.

Ocean Tides Drive is a 2-lane, undivided, local street with no posted speed limit or available traffic data. The road connects US Route 60 (Shore Drive) to the north with commercial with commercial businesses to the south before terminating approximately 225 feet south of US Route 60 (Shore Drive). Ocean Tides Drive was assumed to run north-south through the study area.

The existing lane use and traffic control at the study intersections is shown on Figure 2-1.

2.4 OTHER MODES OF TRANSPORTATION

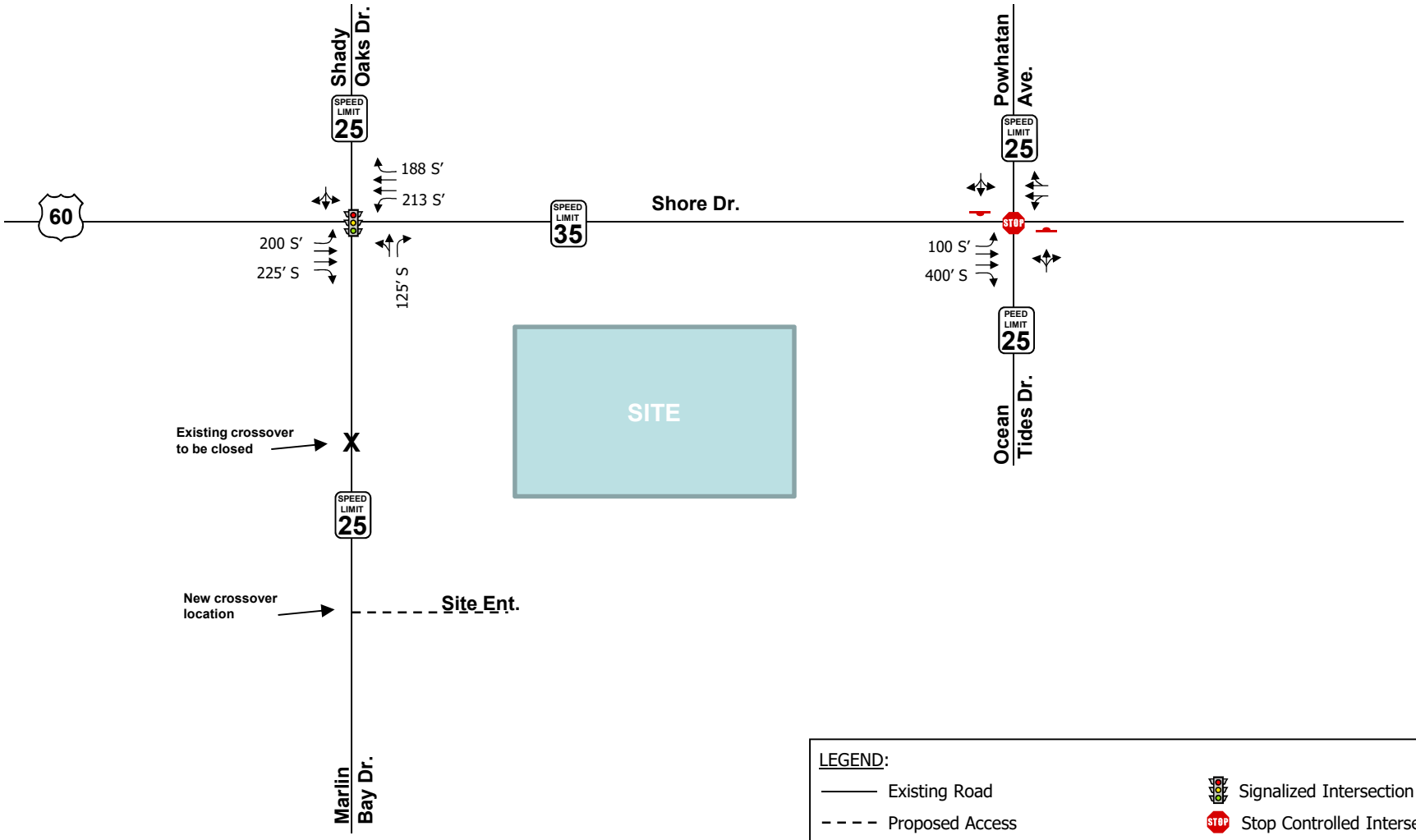
This study also reviews the potential for walking, bicycling, and transit trips to and from the area.

Currently, there is a sidewalk on the north side of US Route 60 (Shore Drive) but no sidewalk on the south side in the vicinity of the site. The US Route 60 (Shore Drive)/Marlin Bay Drive/Shady Oaks Drive signalized intersection has crosswalks on all four approaches with pedestrian pushbuttons and countdown heads.

With the development of the site, the Applicant is proposing construct a sidewalk on the southern side of US Route 60 (Shore Drive) across the frontage of the site.

It is possible that some site trips may be made via walking/biking; however, based on the proposed land use (residential) and lack of walkable attractions (retail/schools/employment) it is unlikely that a significant portion of trips from outside the site would be made via walking or bicycle. Therefore, no reduction in vehicle trips was taken for walking or bicycling.

The Hampton Roads Transit (HRT) Bus Route 29 runs along US Route 60 (Shore Drive) with eastbound and westbound stops at the intersection with Marlin Bay Drive/Shady Oaks Drive. Bus Route 29 runs from Lynnhaven Mall to Pleasure House Road with a 60-minute headway. Given the proximity to transit and the residential nature of the us, it is possible that some site trips may be made via transit. However, to be conservative, no reduction in vehicle trips was taken for transit.



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Existing Lane Use & Traffic Control
Marlin Bay Apartments
City of Virginia Beach, VA

Figure 2-1

3 EXISTING CONDITIONS ANALYSIS

3.1 EXISTING TRAFFIC VOLUMES

Existing peak hour turning movement counts were conducted at each of the study intersections during the AM (7:00 – 9:00) and PM (4:00 – 6:00) peak hour timeframes. The counts were conducted on a typical weekday (Wednesday February 5, 2020) when public schools were in session. The counts included heavy vehicles by movement and pedestrian counts.

The counts indicate the AM peak hour occurs from 7:30 to 8:30 AM and the PM peak hour occurs from 4:45 to 5:45 PM.

The existing traffic data is summarized on Figure 3-1 and the complete traffic data is included in Appendix B.

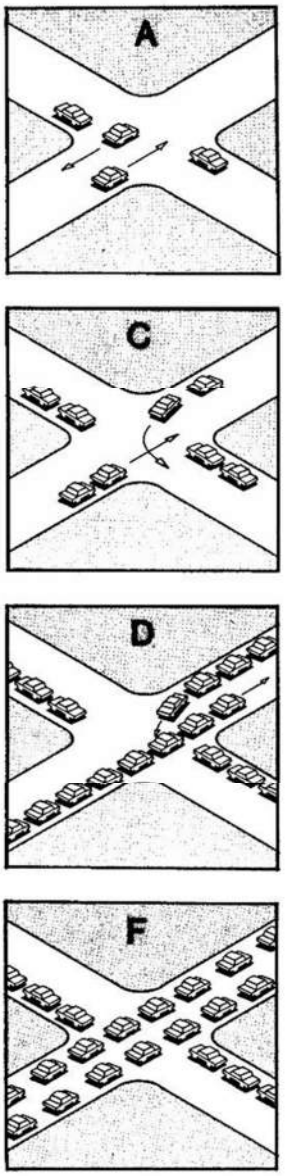
3.2 CAPACITY ANALYSES

Capacity analysis allows traffic engineers to determine the impacts of traffic on the surrounding roadway network. The Transportation Research Board's (TRB) *Highway Capacity Manual* (HCM) methodologies govern how the capacity analyses are conducted and how the results are interpreted. There are six letter grades of Levels of Service (LOS) from A to F, with LOS A representing the best operating conditions and LOS F the worst operating conditions. Table 3-1 shows in detail how each of these levels of service are interpreted.

Table 3-1: Level of Service Definitions

Level of Service	Roadway Segments or Controlled Access Highways	Intersections
A	Free flow, low traffic density.	No vehicle waits longer than one signal indication.
B	Delay is not unreasonable, stable traffic flow.	On a rare occasion motorists wait through more than one signal indication.
C	Stable condition, movements somewhat restricted due to higher volumes, but not objectionable for motorists.	Intermittently drivers wait through more than one signal indication, and occasionally backups may develop behind left turning vehicles, traffic flow still stable and acceptable.
D	Movements more restricted, queues and delays may occur during short peaks, but lower demands occur often enough to permit clearing, thus preventing excessive backups.	Delays at intersections may become extensive with some, especially left-turning vehicles waiting two or more signal indications, but enough cycles with lower demand occur to permit periodic clearance, thus preventing excessive backups.
E	Actual capacity of the roadway invloves delay to all motorists due to congestion.	Very long queues may create lengthly delays, especially for left-turning vehicles.
F	Forced flow with demand volumes greater than capacity resulting in complete congestion. Volumes drop to zero in extreme cases.	Backups from locations downstream restrict or prevent movement of vehicles out of approach creating a storage ares during part or all of an hour.

SOURCE: *"A Policy on Design of Design of Urban Highways and Arterial Streets"* - AASHTO, 1973 based upon material published in *"Highway Capacity Manual"*, National Academy of Sciences, 1965.



For signalized and unsignalized intersections, level of service is defined in terms of **delay**, a measure of driver discomfort, frustration, fuel consumption and lost travel time. Table 3-2 summarizes the delay associated with each LOS category:

Table 3-2: Signalized and Unsignalized Intersection Level of Service Criteria

Signalized Intersections		Unsignalized Intersections	
Level of Service	Control Delay per Vehicle (sec/veh)	Level of Service	Average Control Delay (sec/veh)
A	≤ 10	A	0 to 10
B	> 10 to ≤ 20	B	> 10 to ≤ 15
C	> 20 to ≤ 35	C	> 15 to ≤ 25
D	> 35 to ≤ 55	D	> 25 to ≤ 35
E	> 55 to ≤ 80	E	> 35 to ≤ 50
F	> 80	F	> 50

Source: Exhibit 16-2 and Exhibit 17-2 from TRB's "Highway Capacity Manual 2000"

Capacity analyses were performed to assess existing (2020), background (2025), and future (2025) operational conditions. The signalized and unsignalized intersections were analyzed using SYNCHRO Version 10.3 based on HCM 2000 methodologies with the following assumptions:

- Level terrain;
- 12-foot lane widths;
- No parking activity or bus stops;
- Existing peak hour factor as determined by the traffic counts (by intersection) for existing scenario;
- Future peak hour factor as the higher of the existing peak hour factor as determined by traffic counts (by intersection) or a peak hour factor of 0.92;
- Heavy vehicle percentage as determined by the traffic counts (by movement);
- Traffic signals timing data provided by the City of Virginia Beach (included in Appendix C); and
- For SimTraffic, the reported maximum queues are the average maximum queues after 10 runs of 60 minutes each.

3.3 2020 EXISTING TRAFFIC CONDITIONS

Table 3-3 summarizes the 2020 existing intersection LOS, delay, 95th percentile (Synchro) queue lengths, and maximum (SimTraffic) queue lengths based on the 2020 existing peak hour traffic volumes shown on Figure 3-1, the existing lane geometry shown on Figure 2-1, and the existing traffic signal timings. The corresponding SYNCHRO worksheets are included in Appendix D.

As shown in Table 3-3, the signalized intersection of US Route 60 (Shore Drive)/Marlin Bay Drive/Shady Oaks Drive currently operates at an overall level of service (LOS) B or better during the AM and PM peak hours. The side streets operate at LOS E/ F during both the AM/ PM peak hour with a maximum delay of 87.7 seconds/vehicle. It is noted the AM cycle length is 120 seconds and the PM cycle length is 160 seconds; this indicates that despite the LOS E/ F grade, the average vehicle is clearing the intersection within one (1) cycle.

Adequate turn bay storage exists to handle all 95th percentile and maximum queue lengths. The eastbound left has a maximum queue of 142 feet in the PM peak hour with 200 feet of effective storage provided. The westbound left has a maximum queue of 24 feet in the AM peak hour with 213 feet of effective storage provided.

Each of the movements at the unsignalized intersection of US Route 60 (Shore Drive)/Ocean Tides Drive/Powhatan Avenue intersection operates at LOS B or better during both peak hours with the exception of the southbound approach which operates at LOS E in the AM peak hour and LOS D in the PM peak hour.

Adequate turn bay storage exists to handle all 95th percentile and maximum queue lengths. The eastbound left has a maximum queue of 50 feet in the PM peak hour with 100 feet of effective storage provided.

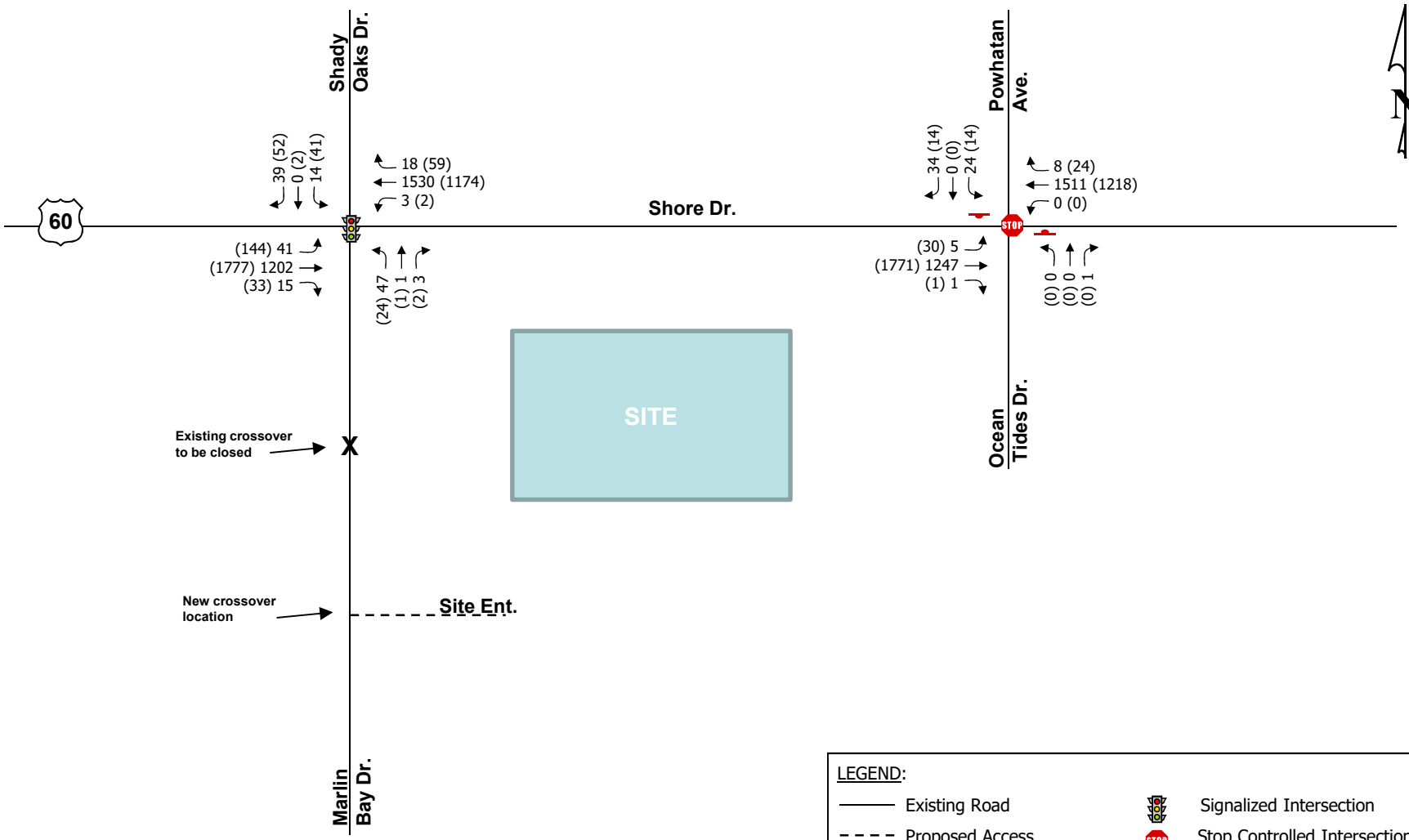
Table 3-3: Intersection Level of Service, Delay, and Queue Summary
2020 Existing Conditions

Intersection and Type of Control	Movement and Approach	Turn Lane Storage (ft)	AM PEAK HOUR				PM PEAK HOUR			
			Delay [1] (sec/veh)	LOS [1]	HCS 95th Percentile Queue Length (ft)	Simulated Maximum Queue Length (ft)	Delay [1] (sec/veh)	LOS [1]	HCS 95th Percentile Queue Length (ft)	Simulated Maximum Queue Length (ft)
1. Shore Drive (E-W) at	EB Left	200	6.4	A	14	61	6.0	A	39	142
Marlin Bay Drive (S)/	EB Thru		5.8	A	292	162	8.5	A	615	234
Shady Oaks Drive (N)	EB Right	225	3.3	A	0	20	3.3	A	3	65
Signalized	*EB Approach*		*5.8*	*A*	--	--	*8.3*	*A*	--	--
	WB Left	213	4.2	A	2	24	7.4	A	2	19
	WB Thru		9.0	A	442	243	8.0	A	321	225
	WB Right	188	4.3	A	0	24	4.9	A	14	72
	WB Approach		*8.9*	*A*	--	--	*7.9*	*A*	--	--
	NB Thru-Left		57.1	E	79	114	73.2	E	64	92
	NB Right	125	51.8	D	0	43	68.1	E	0	36
	NB Approach		*56.8*	*E*	--	--	*72.9*	*E*	--	--
	SB L-T-R		52.1	D	20	90	87.7	F	#150	182
	SB Approach		*52.1*	*D*	--	--	*87.7*	*F*	--	--
	Overall		9.2	A	--	--	10.9	B	--	--
2. Shore Drive (E-W) at	EB Left	100	13.6	B	1	28	12.3	B	5	50
Ocean Tides Drive (S)/	EB Thru		†	†	†	2	†	†	†	5
Powhatan Avenue (N)	EB Right	400	†	†	†	0	†	†	†	0
Unsignalized	*EB Approach*		*0.1*	*A*	--	--	*0.2*	*A*	--	--
	WB Thru-Left		0.0	A	0	2	0.0	A	0	0
	WB Thru-Right		†	†	†	0	†	†	†	3
	WB Approach		*0.0*	*A*	--	--	*0.0*	*A*	--	--
	NB L-T-R		10.6	B	0	20	0.0	A	0	0
	NB Approach		*10.6*	*B*	--	--	*0.0*	*A*	--	--
	SB L-T-R		41.0	E	40	393	28.0	D	14	125
	SB Approach		*41.0*	*E*	--	--	*28.0*	*D*	--	--

[1] *Overall intersection LOS and delay reported for signalized intersections and roundabouts only.*

† SYNCHRO does not provide level of service or delay for unsignalized movements with no conflicting volumes.

- 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.



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2020 Existing Peak Hour Volumes
Marlin Bay Apartments
City of Virginia Beach, VA

Figure 3-1

4 2025 BACKGROUND CONDITIONS AND ANALYSIS

The background 2025 volumes were analyzed assuming existing intersection geometry in conjunction with projected background traffic volumes.

4.1 2025 BACKGROUND TRAFFIC GROWTH & FORECASTS

As noted above, no background developments were identified in the study area. In order to account for development outside the study area, a 0.5% annual growth rate was assumed for all movements at the study intersections.

The 0.5% annual growth rate was compounded annually for the 5-year period from 2020 to 2025. The 2025 background traffic growth was added to the 2020 existing volumes to yield the total 2025 background traffic forecasts which are shown on Figure 4-1.

4.2 2023 BACKGROUND TRAFFIC VOLUME CAPACITY ANALYSIS

Table 4-1 summarizes the 2023 background intersection LOS, delay, 95th percentile (Synchro) and maximum (SimTraffic) queue lengths based on the 2025 background peak hour volumes shown on Figure 4-1, the existing lane geometry (Figure 2-1), and the existing signal timings at the traffic signal. The corresponding SYNCHRO worksheets are included in Appendix E.

As shown in Table 4-1, with the 0.5% growth and the existing signal timings, the signalized intersection of US Route 60 (Shore Drive)/Marlin Bay Drive/Shady Oaks Drive will continue to operate at an overall level of service (LOS) B or better during the AM and PM peak hours. The side streets will continue to operate at LOS E/F during both the AM/PM peak hour with a maximum delay of 88.8 seconds/vehicle. It is noted the AM cycle length is 120 seconds and the PM cycle length is 160 seconds; this indicates that despite the LOS E or F grade, the average vehicle is clearing the intersection within one (1) cycle.

Adequate turn bay storage exists to handle all 95th percentile and maximum queue lengths. The eastbound left will have a maximum queue of 159 feet in the PM peak hour with 200 feet of effective storage provided. The westbound left will have a maximum queue of 20 feet in the PM peak hour with 213 feet of effective storage provided.

Each of the movements at the unsignalized intersection of US Route 60 (Shore Drive)/Ocean Tides Drive/Powhatan Avenue intersection will continue to operate at LOS B or better during both peak hours with the exception of the southbound approach which will continue to operate at LOS E in the AM peak hour and LOS D in the PM peak hour.

Adequate turn bay storage exists to handle all 95th percentile and maximum queue lengths. The eastbound left has a maximum queue of 56 feet in the PM peak hour with 100 feet of effective storage provided.

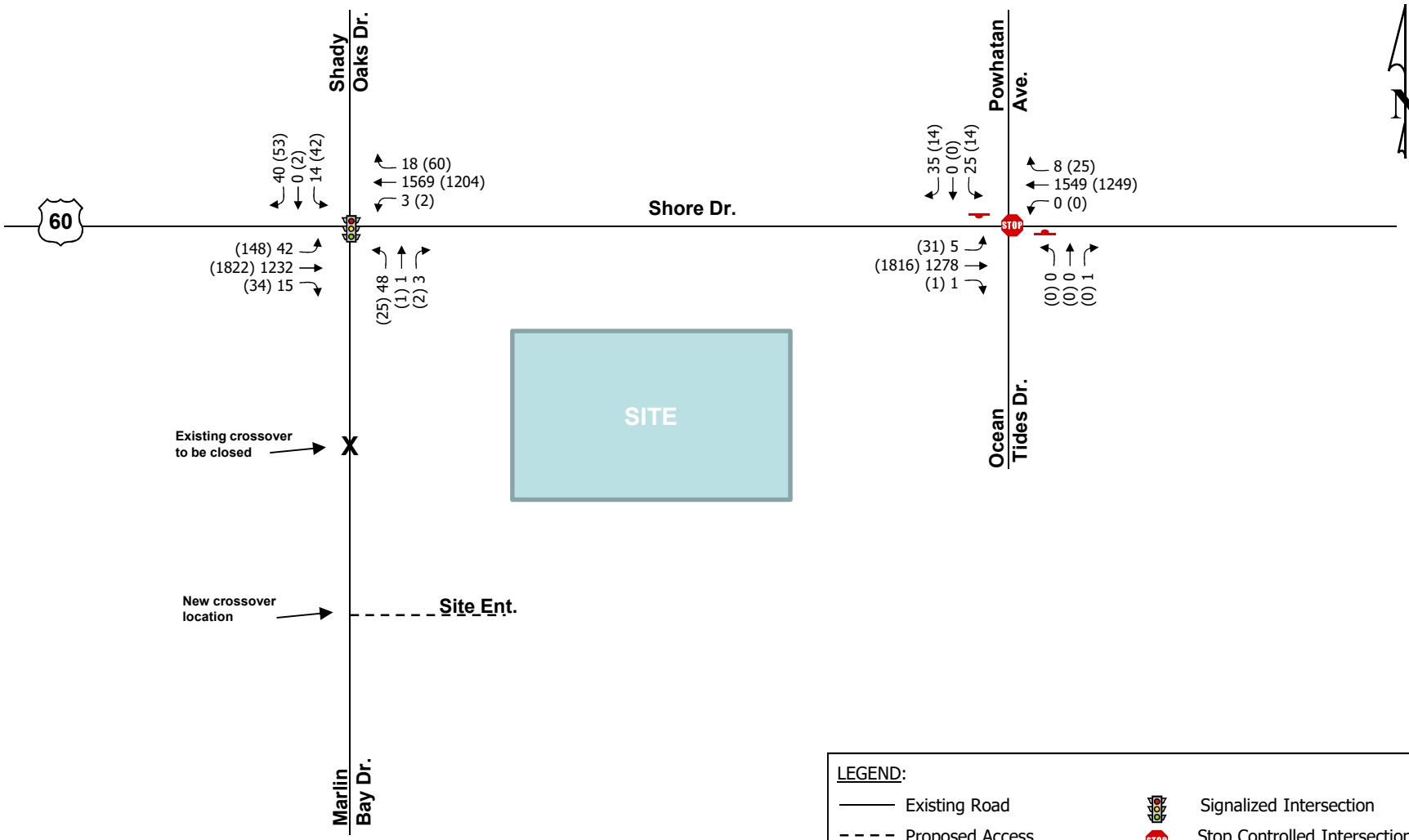
Table 4-1: Intersection Level of Service, Delay, and Queue Summary
2025 Background Conditions

Intersection and Type of Control	Movement and Approach	Turn Lane Storage (ft)	AM PEAK HOUR				PM PEAK HOUR			
			Delay [1] (sec/veh)	LOS [1]	HCS 95th Percentile Queue Length (ft)	Simulated Maximum Queue Length (ft)	Delay [1] (sec/veh)	LOS [1]	HCS 95th Percentile Queue Length (ft)	Simulated Maximum Queue Length (ft)
1. Shore Drive (E-W) at	EB Left	200	6.9	A	14	68	6.6	A	40	159
Marlin Bay Drive (S)/	EB Thru		6.0	A	304	161	8.9	A	650	245
Shady Oaks Drive (N)	EB Right	225	3.4	A	0	25	3.3	A	3	26
Signalized	*EB Approach*		*6.0*	*A*	--	--	*8.7*	*A*	--	--
	WB Left	213	4.2	A	2	14	8.1	A	2	20
	WB Thru		9.3	A	465	223	8.3	A	335	233
	WB Right	188	4.3	A	0	88	5.0	A	15	93
	WB Approach		*9.3*	*A*	--	--	*8.1*	*A*	--	--
	NB Thru-Left		57.2	E	80	105	73.4	E	66	78
	NB Right	125	51.7	D	0	31	68.0	E	0	46
	NB Approach		*56.9*	*E*	--	--	*73.0*	*E*	--	--
	SB L-T-R		52.0	D	21	107	88.8	F	#159	193
	SB Approach		*52.0*	*D*	--	--	*88.8*	*F*	--	--
	Overall		9.4	A	--	--	11.3	B	--	--
2. Shore Drive (E-W) at	EB Left	100	14.0	B	1	32	12.6	B	5	56
Ocean Tides Drive (S)/	EB Thru		†	†	†	0	†	†	†	0
Powhatan Avenue (N)	EB Right	400	†	†	†	0	†	†	†	0
Unsignalized	*EB Approach*		*0.1*	*A*	--	--	*0.2*	*A*	--	--
	WB Thru-Left		0.0	A	0	0	0.0	A	0	0
	WB Thru-Right		†	†	†	2	†	†	†	3
	WB Approach		*0.0*	*A*	--	--	*0.0*	*A*	--	--
	NB L-T-R		10.6	B	0	22	0.0	A	0	0
	NB Approach		*10.6*	*B*	--	--	*0.0*	*A*	--	--
	SB L-T-R		44.8	E	45	391	28.9	D	15	186
	SB Approach		*44.8*	*E*	--	--	*28.9*	*D*	--	--

[1] *Overall intersection LOS and delay reported for signalized intersections and roundabouts only.*

† SYNCHRO does not provide level of service or delay for unsignalized movements with no conflicting volumes.

- 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.



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2025 Background Peak Hour Volumes
Marlin Bay Apartments
City of Virginia Beach, VA

Figure 4-1

5 SITE TRIP GENERATION AND DISTRIBUTION

Site traffic for the proposed development was estimated based on the proposed land use and subsequently distributed to the surrounding roadway network.

The site is currently occupied by a retail boat sales business with three (3) access points on US Route 60 (Shore Drive) and one (1) access point on Ocean Tides Drive. The access point on Ocean Tides Drive is located approximately 20 feet from US Route 60 (Shore Drive).

The proposed project will redevelop the site with 227 multi-family residential dwelling units and will be constructed in one (1) phase. Figure 1-2 shows the proposed conceptual plan for the site.

With the proposed development, all access points to US Route 60 (Shore Drive) will be removed and the existing access point on Ocean Tides Drive closed. Additionally, the existing crossover location on Marlin Bay Drive located approximately 350 feet from US Route 60 (Shore Drive) will be closed.

Access to the site will be provided via two (2) access points on Ocean Tides Drive, which will have termini on both US Route 60 (Shore Drive) and Marlin Bay Drive. The closest access point on Ocean Tides Drive will be located approximately 160 feet from the intersection with US Route 60 (Shore Drive). Ocean Tides Drive will be extended through the site and connect with Marlin Bay Drive at a new crossover approximately 200 feet south of the existing (to be closed) crossover.

The proposed development will result in three (3) *fewer* entrances on US Route 60 (Shore Drive). The entrances on Ocean Tides Drive will be located further back from the intersection with US Route 60 (Shore Drive).

The future lane use and traffic control is shown on Figure 5-1.

5.1 TRIP GENERATION

The site-generated traffic volumes shown in Table 5-1 was estimated using the 10th edition of the Institute of Transportation Engineers' (ITE) *Trip Generation Manual* and was calculated using the number of dwelling units as the independent variable.

As shown in Table 5-1, when complete, the proposed development will generate a total of 104 AM peak hour trips (24 in and 80 out), 123 PM peak hour trips (77 in and 46 out), and 1,675 average weekday daily trips.

Table 5-1: Trip Generation Summary

Buildout				Weekday						
			Land Use	AM Peak Hour			PM Peak Hour			Average
Land Use	Size	Units	Code	In	Out	Total	In	Out	Total	Daily Trips
ITE Trip Generation[(1)]										
Marlin Drive Apartments										
Multi-family Housing (Low-Rise)	227	DU	220	24	80	104	77	46	123	1,675
Total ITE Generated Trips	**227**	**DU**		**24**	**80**	**104**	**77**	**46**	**123**	**1,675**

Notes: (1) Based on the Institute of Transportation Engineers Trip Generation, 10th Edition. Assumes General Urban/Suburban land use category.

5.2 BY-RIGHT COMPARISON

The site is currently split zoned with 1.9 acres zoned PDH-1 and 2.1 acres zoned B-2. When compared to the permitted uses within the B-2 district (restaurants, office, medical office, retail, etc.) the proposed 227 apartments will generate significantly less traffic and less impact to the surrounding roadway network.

5.3 TRIP DISTRIBUTIONS

The distribution of trips generated by the development was based on existing travel patterns, the nature of the use, and local knowledge. Specifically, the overall distributions were based on the residential travel patterns for the developments across US Route 60 (Shore Drive).

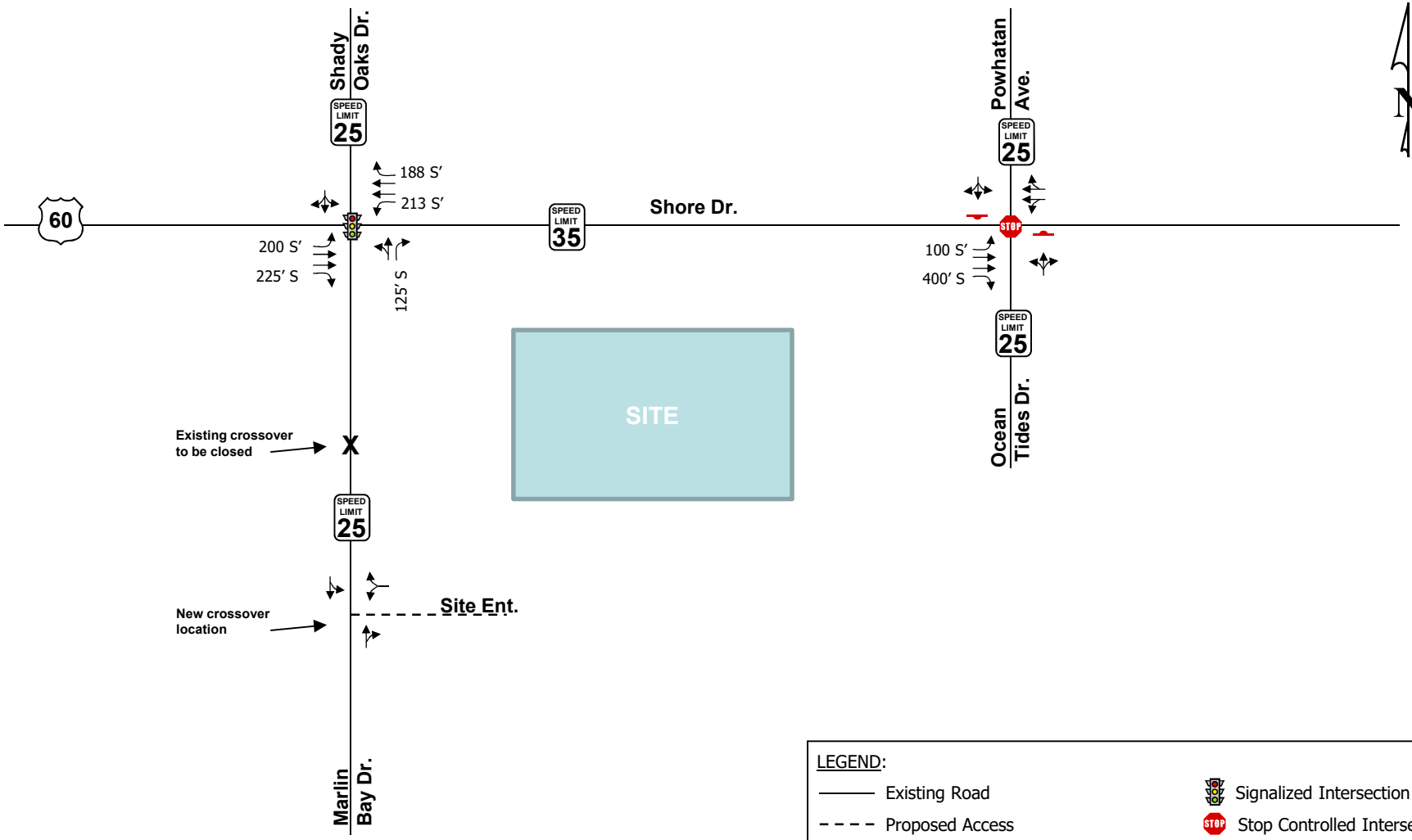
Therefore, the following directional distributions were assumed:

- To/From the East on US Route 60 (Shore Drive) – 35%
- To/From the West on US Route 60 (Shore Drive) – 65%

The directional distributions were applied to the study intersections and site entrances as shown on Figure 5-2.

5.4 SITE TRIP ASSIGNMENTS

The trip distribution percentages shown on Figure 5-2 were applied to the trip generation shown in Table 5-1 to distribute the site trips to the surrounding roadway network. The resulting site generated trips are shown on Figure 5-3.



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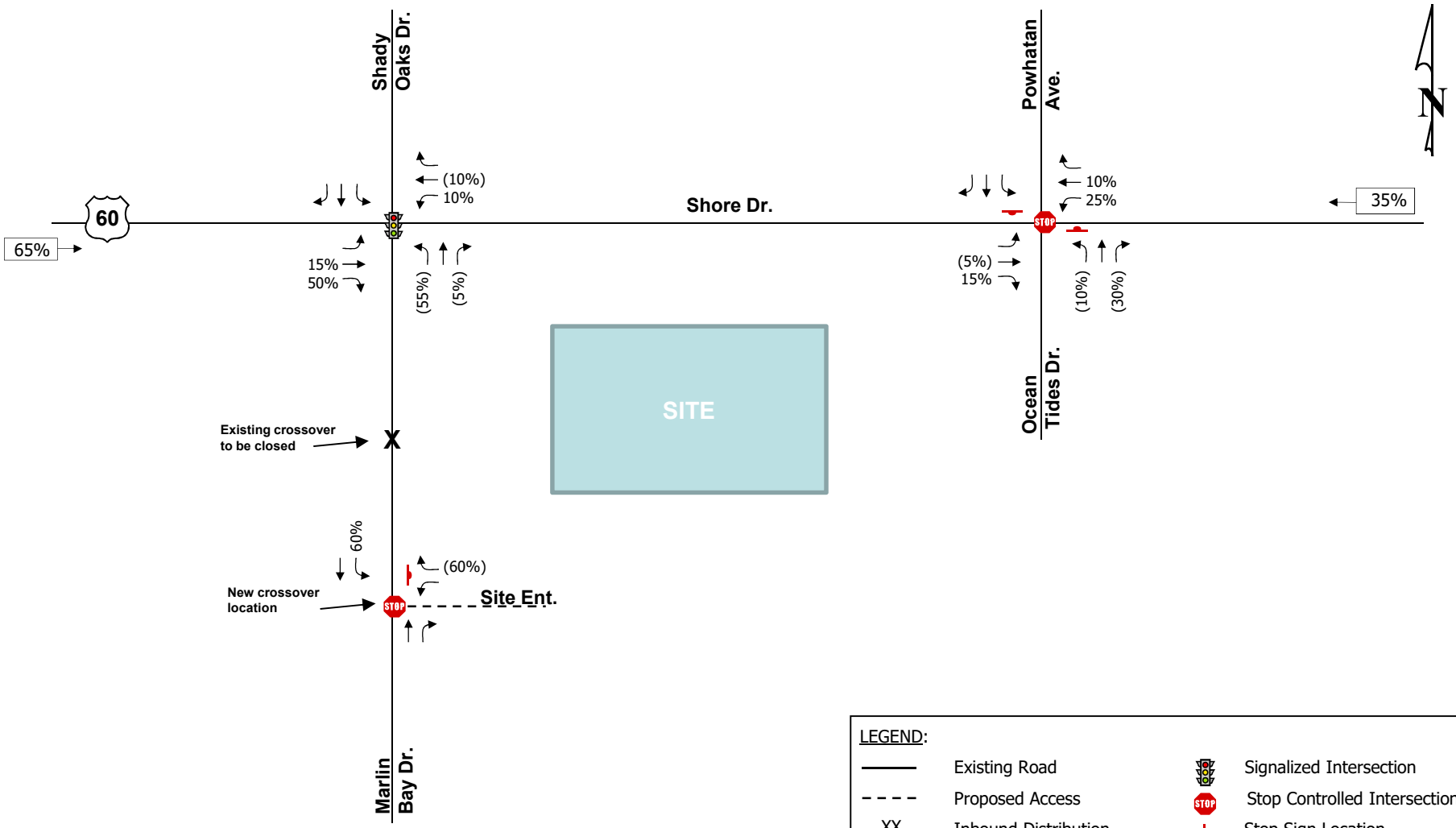
Future Lane Use & Traffic Control
Marlin Bay Apartments
City of Virginia Beach, VA

Figure 5-1



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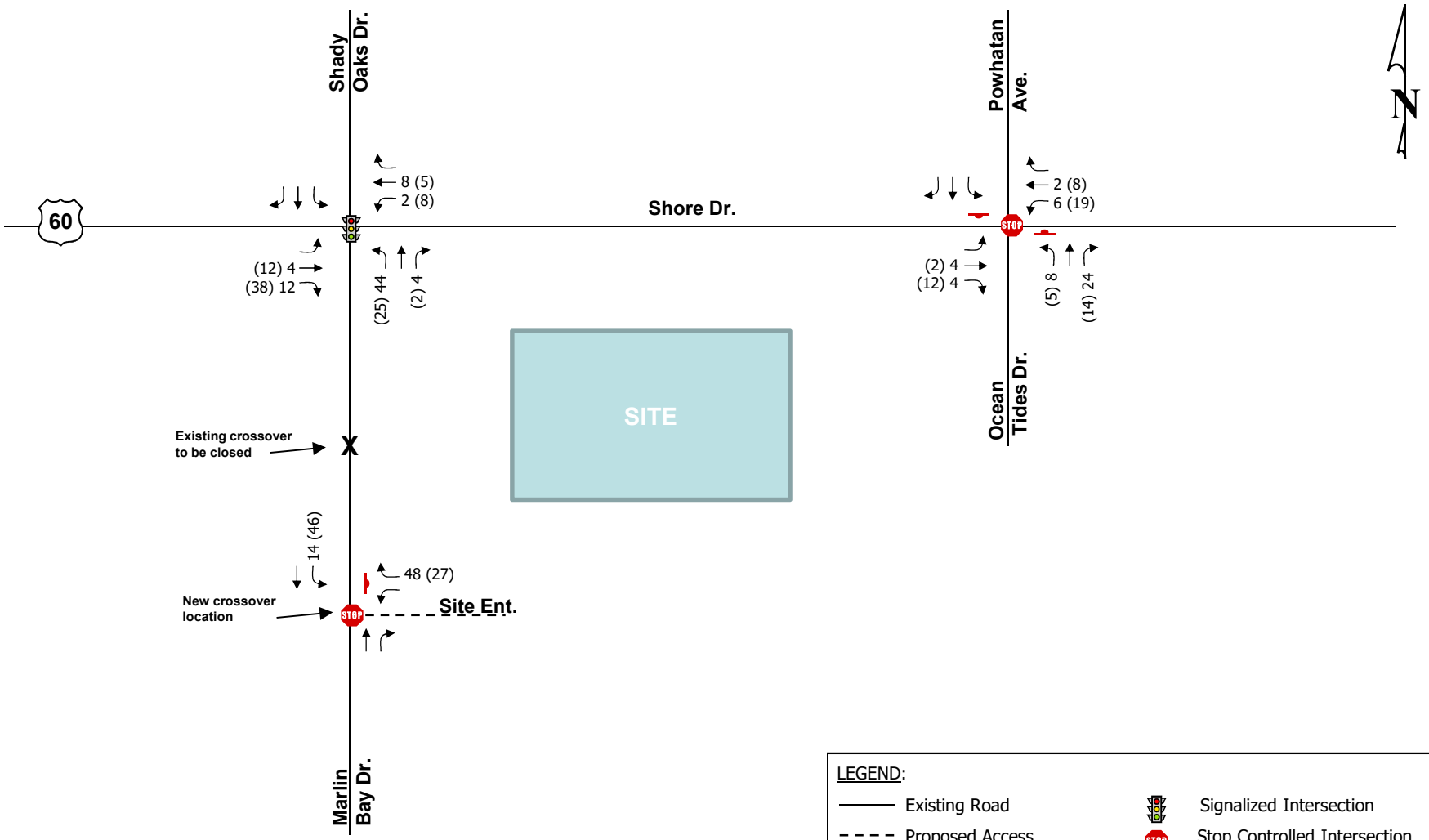
Site Trip Distributions
Marlin Bay Apartments
City of Virginia Beach, VA

Figure
5-2



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Site Generated Trips
Marlin Bay Apartments
City of Virginia Beach, VA

Figure
5-3

6 ANALYSIS OF 2025 CONDITIONS WITH DEVELOPMENT

To complete the analysis of the 2025 total conditions (with the proposed development), the estimated site trips were added to the background 2025 volumes. The projected volumes were then used to complete the capacity analysis.

6.1 2025 TOTAL TRAFFIC VOLUMES

To generate the 2025 total future traffic volumes, the site trips shown in Figure 5-3 were added to the background 2025 traffic volumes shown in Figure 4-1. The resulting 2025 future traffic volumes are shown on Figure 6-1.

6.2 CAPACITY ANALYSES

Table 6-1 summarizes the 2025 total future intersection LOS, delay, 95th percentile (Synchro) queue lengths, and the maximum (SimTraffic) queue lengths based on the 2025 future peak hour traffic volumes shown on Figure 6-1, the future lane geometry (Figure 5-1), and the existing traffic signal timings. The corresponding SYNCHRO and HCS worksheets are included in Appendix E.

As shown in Table 6-1, with the traffic from the proposed Marlin Bay Apartments, the signalized intersection of US Route 60 (Shore Drive)/Marlin Bay Drive/Shady Oaks Drive will continue to operate at an overall level of service (LOS) B or better during the AM and PM peak hours. The side streets will continue to operate at LOS E/F during both the AM/PM peak hour with a maximum delay of 105.5 seconds/vehicle. It is noted the AM cycle length is 120 seconds and the PM cycle length is 160 seconds; this indicates that despite the LOS E or F grade, the average vehicle is clearing the intersection within one (1) cycle.

Should the City allow, the traffic signal timings could be adjusted to provide more green time to the side streets which would reduce the delay for those approaches.

Adequate turn bay storage exists to handle all 95th percentile and maximum queue lengths. The eastbound left will have a maximum queue of 171 feet in the PM peak hour with 200 feet of effective storage provided. The westbound left will have a maximum queue of 60 feet in the PM peak hour with 213 feet of effective storage provided.

Each of the movements at the unsignalized intersection of US Route 60 (Shore Drive)/Ocean Tides Drive/Powhatan Avenue intersection will continue to operate at LOS B or better during both peak hours with the exception of the southbound approach which will continue to operate at LOS E in the AM peak hour and LOS D in the PM peak hour.

Adequate turn bay storage exists to handle all 95th percentile and maximum queue lengths. The eastbound left has a maximum queue of 51 feet in the PM peak hour with 100 feet of effective storage provided.

The westbound through-left approach will operate at a LOS A with less than 2.5 seconds per vehicle delay in both peak hours. The analysis indicates the shared through-left lane can accommodate the site traffic turning left (maximum of 19 vehicles in either peak hour) into the site without the need for a left turn lane.

Table 6-1: Intersection Level of Service, Delay, and Queue Summary
2025 Total Future Conditions

Intersection and Type of Control	Movement and Approach	Turn Lane Storage (ft)	AM PEAK HOUR				PM PEAK HOUR			
			Delay [1] (sec/veh)	LOS [1]	HCS 95th Percentile Queue Length (ft)	Simulated Maximum Queue Length (ft)	Delay [1] (sec/veh)	LOS [1]	HCS 95th Percentile Queue Length (ft)	Simulated Maximum Queue Length (ft)
1. Shore Drive (E-W) at	EB Left	200	9.0	A	14	61	6.7	A	40	171
Marlin Bay Drive (S)/	EB Thru		7.5	A	307	185	9.8	A	660	301
Shady Oaks Drive (N)	EB Right	225	4.3	A	0	26	3.7	A	18	109
Signalized	*EB Approach*		*7.5*	*A*	--	--	*9.4*	*A*	--	--
	WB Left	213	5.4	A	3	60	9.2	A	5	29
	WB Thru		11.5	B	472	280	8.4	A	337	258
	WB Right	188	5.4	A	0	71	5.0	A	15	121
	WB Approach		*11.4*	*B*	--	--	*8.2*	*A*	--	--
	NB Thru-Left		64.3	E	#135	174	105.5	F	#127	132
	NB Right	125	48.5	D	0	60	67.8	E	0	82
	NB Approach		*63.1*	*E*	--	--	*103.0*	*F*	--	--
	SB L-T-R		48.8	D	21	111	88.7	F	#162	178
	SB Approach		*48.8*	*D*	--	--	*88.7*	*F*	--	--
	Overall		12.1	B	--	--	12.6	B	--	--
2. Shore Drive (E-W) at	EB Left	100	14.0	B	1	28	12.7	B	5	51
Ocean Tides Drive (S)/	EB Thru		†	†	†	0	†	†	†	0
Powhatan Avenue (N)	EB Right	400	†	†	†	0	†	†	†	0
Unsignalized	*EB Approach*		*0.1*	*A*	--	--	*0.2*	*A*	--	--
	WB Thru-Left		0.3	A	1	133	2.3	A	5	212
	WB Thru-Right		†	†	†	93	†	†	†	216
	WB Approach		*0.2*	*A*	--	--	*1.1*	*A*	--	--
	NB L-T-R		17.2	C	9	98	26.6	D	9	106
	NB Approach		*17.2*	*C*	--	--	*26.6*	*D*	--	--
	SB L-T-R		46.6	E	47	410	32.2	D	16	215
	SB Approach		*46.6*	*E*	--	--	*32.2*	*D*	--	--
3. Marlin Bay Drive (N-S) at	WB Left-Right		8.8	A	4	58	9.7	A	3	46
Site Entrance (E)	*WB Approach*		*8.8*	*A*	--	--	*9.7*	*A*	--	--
Unsignalized	NB Thru-Right		†	†	†	0	†	†	†	0
	WB Approach		*†*	*†*	--	--	*†*	*†*	--	--
	SB Thru-Left		3.2	A	1	24	4.1	A	2	25
	SB Approach		*3.2*	*A*	--	--	*4.1*	*A*	--	--

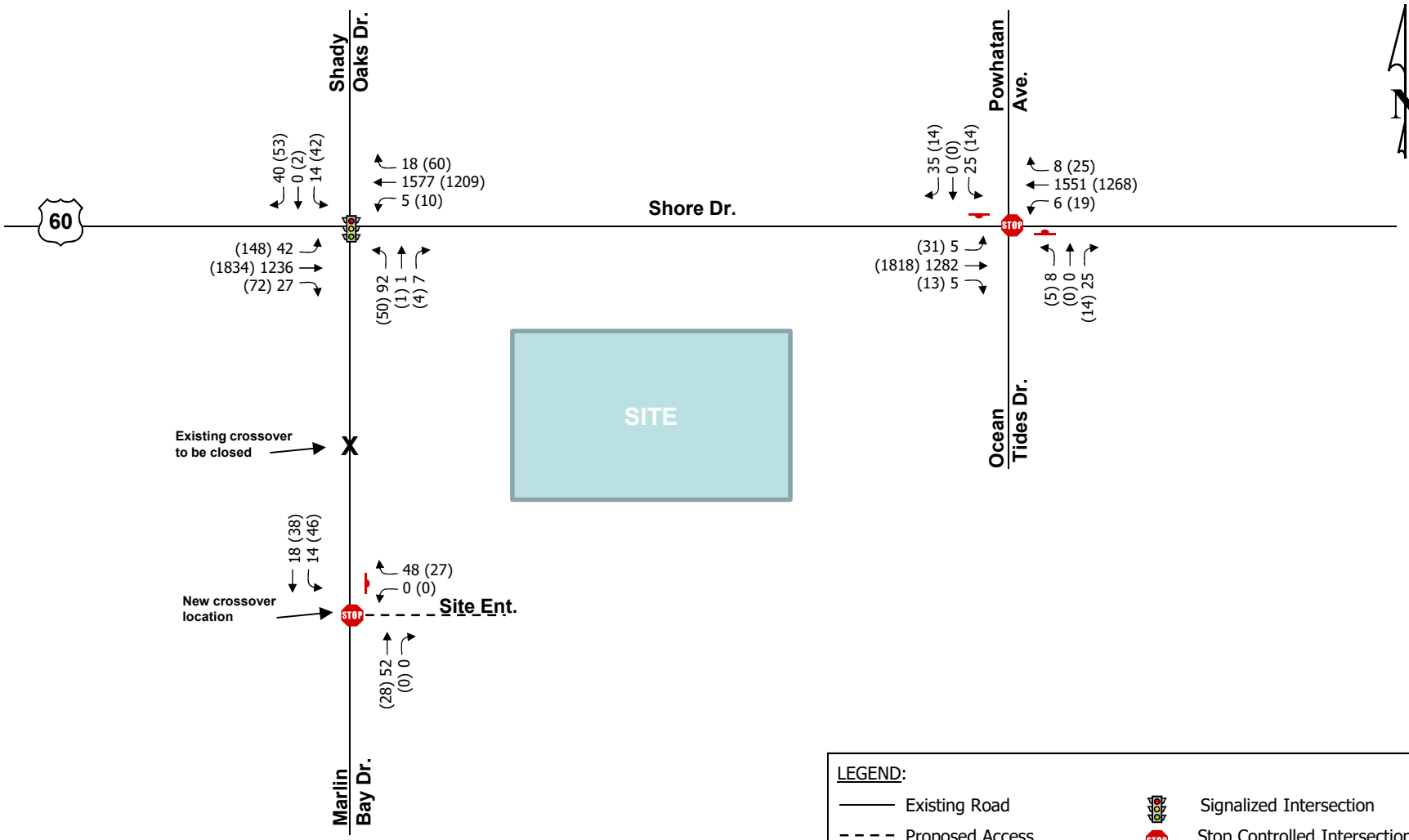
[1] *Overall intersection LOS and delay reported for signalized intersections and roundabouts only.*

† SYNCHRO does not provide level of service or delay for unsignalized movements with no conflicting volumes.

- 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

The site entrance on Marlin Bay Drive will operate at LOS A in both peak hours with a maximum queue of 25 feet (one vehicle) on Marlin Bay Drive.

Since all site traffic is oriented to US Route 60 (Shore Drive), relocating the median break approximately 200 feet south will not adversely impact the adjacent crossover to the south.



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2025 Future Peak Hour Volumes
Marlin Bay Apartments
City of Virginia Beach, VA

Figure 6-1

7 CONCLUSIONS AND RECOMMENDATIONS

Based on the operational analyses the following is offered:

- The proposed development will result in three (3) *fewer* entrances on US Route 60 (Shore Drive). The entrances on Ocean Tides Drive will be located further back from the intersection with US Route 60 (Shore Drive).

- Under 2020 existing conditions:

    - The signalized intersection of US Route 60 (Shore Drive)/Marlin Bay Drive/Shady Oaks Drive currently operates at an overall level of service (LOS) B or better during the AM and PM peak hours. The side streets operate at LOS E/F during both the AM/PM peak hour. Adequate turn bay storage exists to handle all 95th percentile and maximum queue lengths.
    - Each of the movements at the unsignalized intersection of US Route 60 (Shore Drive)/Ocean Tides Drive/Powhatan Avenue intersection operates at LOS B or better during both peak hours with the exception of the southbound approach operates at LOS E in the AM peak hour and LOS D in the PM peak hour. Adequate turn bay storage exists to handle all 95th percentile and maximum queue lengths.

- Under 2025 background conditions with the 0.5% annual growth the study intersections will operate at comparable LOS and queuing to existing conditions.

- When complete, the proposed development will generate a total of 104 AM peak hour trips (24 in and 80 out), 123 PM peak hour trips (77 in and 46 out), and 1,675 average weekday daily trips.

- Under 2025 total future conditions with the traffic from the proposed Marlin Bay Apartments project:

    - The study intersections will operate at comparable LOS to background conditions. All intersections will operate at the same LOS with a modest increase in delay/queuing.
    - All queue will be contained within the available storage and will not spillback into the adjacent travel lanes.
    - The site entrance on Marlin Bay Drive will operate at LOS A in both peak hours with a maximum queue of 25 feet (one vehicle) on Marlin Bay Drive.
    - Relocating the median break approximately 200 feet south will not adversely impact the adjacent crossover to the south.

- Should the City allow, the traffic signal timings could be adjusted to provide more green time to the side streets which would reduce the delay for those approaches.

- At the US Route 60 (Shore Drive)/Ocean Tides Drive/Powhatan Avenue intersection, the westbound through-left shared lane can accommodate the site traffic turning left (maximum of 19 vehicles in either peak hour) into the site without the need for a left turn lane.

- When compared to the permitted uses within the B-2 district (restaurants, office, medical office, retail, etc.) the proposed 227 apartments will generate significantly less traffic and less impact on the surrounding roadway network.

Appendix A
Scoping Correspondence

Steve Schmidt

From: Steve Schmidt
Sent: Thursday, March 12, 2020 4:01 PM
To: Richard T. Lowman
Cc: Scott Dunn
Subject: Marlin Bay Traffic Study
Attachments: Marlin Bay Scoping Figures.pdf; Marlin Bay Trip Generation.pdf

Ric,

I wanted to follow up with you on a conversation you had with Scott Dunn about the TIA for the Marlin Bay Apartment project located near the Shore Drive/Marlin Bay Drive intersection (see Figure 1).

We have conducted AM/PM counts at the Shore Drive/Marlin Bay Drive and Shore Drive/Ocean Tides Drive intersection (see Figure 2) and have prepared trip generation and distribution for your review (see Table 1).

Given the residential nature of the proposed use, we based the trip distribution off of the residential traffic patterns into/out of Shady Oaks Drive and Powhatan Avenue and the neighborhoods on the north side of Shore Drive. The existing counts indicate 65% of the existing residential traffic is oriented to/from the west on Shore Drive and 35% is oriented to/from the east on Shore Drive. We propose to follow the same pattern with the Marlin Bay traffic (see Figure 3).

We assumed the inbound traffic would be distributed between the entrances on Marlin Bay Drive and Oceans Tides Drive. The outbound traffic would be consolidated more due to the challenge of making a unsignalized left turn onto Shore Drive.

Can you please review the trip generation and distribution and let us know if you have any questions or comments?

Also, per your conversation with Scott, can you please provide the growth rate for Shore Drive for us to use in the analysis?

Thank you,
Steve

Steve Schmidt, PE, PTOE
Senior Project Manager

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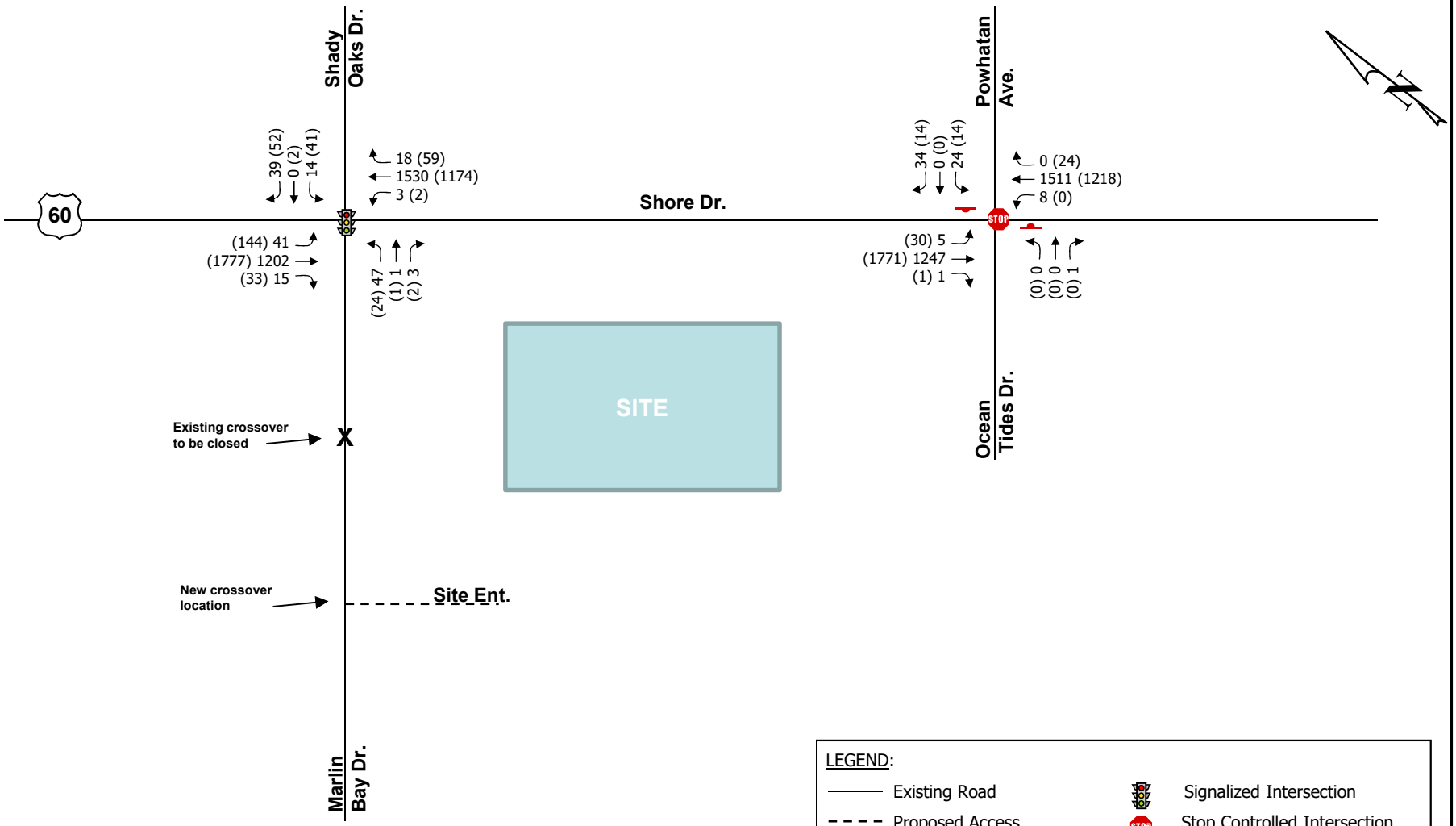
Site Location Map and Study Intersections
Marlin Bay Apartments
City of Virginia Beach, VA

Figure
1



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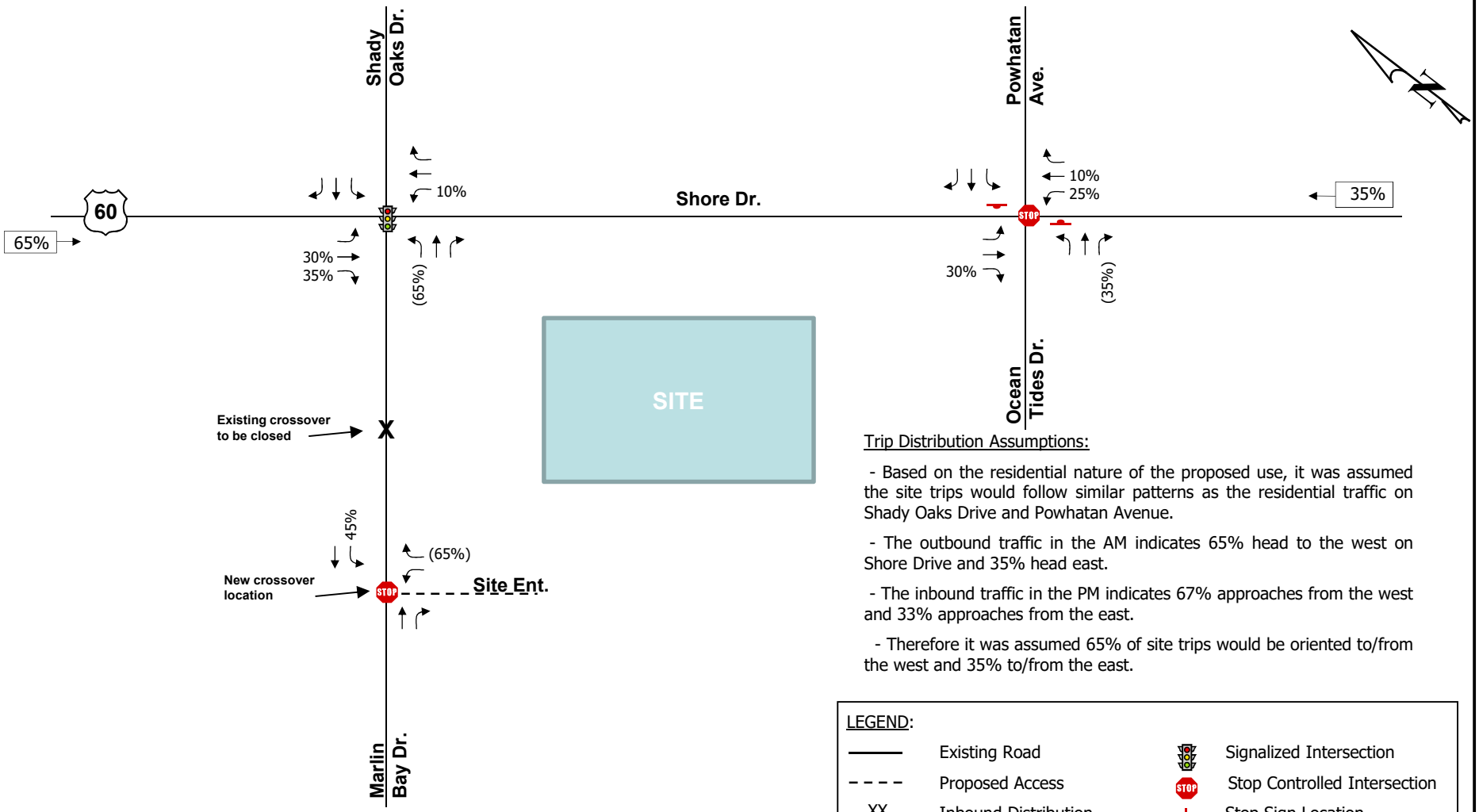
2020 Existing Peak Hour Volumes
Marlin Bay Apartments
City of Virginia Beach, VA

Figure 2



Trip Distribution Assumptions:

- Based on the residential nature of the proposed use, it was assumed the site trips would follow similar patterns as the residential traffic on Shady Oaks Drive and Powhatan Avenue.

- The outbound traffic in the AM indicates 65% head to the west on Shore Drive and 35% head east.

- The inbound traffic in the PM indicates 67% approaches from the west and 33% approaches from the east.

- Therefore it was assumed 65% of site trips would be oriented to/from the west and 35% to/from the east.

LEGEND:

———	Existing Road		Signalized Intersection
- - - -	Proposed Access	STOP	Stop Controlled Intersection
XX	Inbound Distribution		Stop Sign Location
(XX)	Outbound Distribution		Lane Configuration
XX →	Overall (PM) AM Site Distribution %		

NOT TO SCALE

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Site Trip Distributions
Marlin Bay Apartments
City of Virginia Beach, VA

Figure 3

Steve Schmidt

From: Scott Dunn
Sent: Tuesday, March 24, 2020 12:26 PM
To: Steve Schmidt
Subject: FW: Marlin bay

Give me a call when you have a chance and we can discuss this.

Scott Dunn, AICP, PTP

TIMMONS GROUP
Office: 804.200.6955 | Mobile: 804.402.0830

From: Richard T. Lowman [mailto:rlowman@vbgov.com]
Sent: Monday, March 23, 2020 4:31 PM
To: Scott Dunn <scott.dunn@timmons.com>
Subject: Marlin bay

Sent from my Verizon, Samsung Galaxy smartphone
Get Outlook for Android

Appendix B
Traffic Counts

Peggy Malone & Associates, Inc.
(888) 247-8602

File Name : 1-Shady Oaks Dr_Marlin Bay Dr & Shore Dr AM
Site Code :
Start Date : 2/5/2020
Page No : 1

Groups Printed- Cars

	Shady Oaks Dr Southbound					Shore Dr Westbound					Marlin Bay Dr Northbound					Shore Dr Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	28	0	14	0	42	6	285	0	0	291	0	0	6	1	7	1	199	6	0	206	546
07:15 AM	22	0	7	0	29	5	368	1	0	374	1	0	12	0	13	1	275	4	0	280	696
07:30 AM	38	0	13	0	51	3	393	1	0	397	1	0	18	0	19	3	258	7	0	268	735
07:45 AM	34	0	13	0	47	2	417	0	0	419	1	0	12	0	13	2	305	9	0	316	795
Total	122	0	47	0	169	16	1463	2	0	1481	3	0	48	1	52	7	1037	26	0	1070	2772
08:00 AM	29	0	14	0	43	3	339	1	0	343	1	1	11	0	13	4	259	16	2	281	680
08:15 AM	26	0	10	0	36	4	360	1	0	365	0	0	6	1	7	6	340	8	1	355	763
08:30 AM	38	0	13	1	52	6	299	1	1	307	0	0	7	0	7	5	294	13	1	313	679
08:45 AM	27	0	10	0	37	4	282	0	0	286	0	0	9	0	9	2	250	8	0	260	592
Total	120	0	47	1	168	17	1280	3	1	1301	1	1	33	1	36	17	1143	45	4	1209	2714
Grand Total	242	0	94	1	337	33	2743	5	1	2782	4	1	81	2	88	24	2180	71	4	2279	5486
Apprch %	71.8	0	27.9	0.3		1.2	98.6	0.2	0		4.5	1.1	92	2.3		1.1	95.7	3.1	0.2		
Total %	4.4	0	1.7	0	6.1	0.6	50	0.1	0	50.7	0.1	0	1.5	0	1.6	0.4	39.7	1.3	0.1	41.5	

	Shady Oaks Dr Southbound				Shore Dr Westbound				Marlin Bay Dr Northbound				Shore Dr Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	**38**	0	13	**51**	3	393	**1**	397	**1**	0	**18**	**19**	3	258	7	268	735
07:45 AM	34	0	13	47	2	**417**	0	**419**	1	0	12	13	2	305	9	316	**795**
08:00 AM	29	0	**14**	43	3	339	1	343	1	**1**	11	13	4	259	**16**	279	678
08:15 AM	26	0	10	36	**4**	360	1	365	0	0	6	6	**6**	**340**	8	**354**	761
Total Volume	127	0	50	177	12	1509	3	1524	3	1	47	51	15	1162	40	1217	2969
% App. Total	71.8	0	28.2		0.8	99	0.2		5.9	2	92.2		1.2	95.5	3.3		
PHF	.836	.000	.893	.868	.750	.905	.750	.909	.750	.250	.653	.671	.625	.854	.625	.859	.934

Peggy Malone & Associates, Inc.
(888) 247-8602

File Name : 1-Shady Oaks Dr_Marlin Bay Dr & Shore Dr AM
Site Code :
Start Date : 2/5/2020
Page No : 1

Groups Printed- Trucks

	Shady Oaks Dr Southbound					Shore Dr Westbound					Marlin Bay Dr Northbound					Shore Dr Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	8	0	0	8	9
07:15 AM	0	0	1	0	1	0	7	0	0	7	0	0	0	0	0	1	4	0	0	5	13
07:30 AM	1	0	1	0	2	2	3	0	0	5	0	0	0	0	0	0	9	0	0	9	16
07:45 AM	2	0	1	0	3	1	6	0	0	7	0	0	0	0	0	0	11	1	0	12	22
Total	3	0	3	0	6	3	17	0	0	20	0	0	0	0	0	1	32	1	0	34	60
08:00 AM	0	0	0	0	0	2	7	0	0	9	0	0	0	0	0	0	8	0	0	8	17
08:15 AM	1	0	0	0	1	1	5	0	0	6	0	0	0	0	0	0	12	0	0	12	19
08:30 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	7	0	0	7	11
08:45 AM	0	0	1	0	1	0	3	0	0	3	1	0	0	0	1	1	19	0	0	20	25
Total	1	0	1	0	2	3	19	0	0	22	1	0	0	0	1	1	46	0	0	47	72
Grand Total	4	0	4	0	8	6	36	0	0	42	1	0	0	0	1	2	78	1	0	81	132
Apprch %	50	0	50	0		14.3	85.7	0	0		100	0	0	0		2.5	96.3	1.2	0		
Total %	3	0	3	0	6.1	4.5	27.3	0	0	31.8	0.8	0	0	0	0.8	1.5	59.1	0.8	0	61.4	

	Shady Oaks Dr Southbound				Shore Dr Westbound				Marlin Bay Dr Northbound				Shore Dr Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	1	0	**1**	2	**2**	3	0	5	0	0	0	0	0	9	0	9	16
07:45 AM	**2**	0	1	**3**	1	6	0	7	0	0	0	0	0	11	**1**	**12**	**22**
08:00 AM	0	0	0	0	2	**7**	0	**9**	0	0	0	0	0	8	0	8	17
08:15 AM	1	0	0	1	1	5	0	6	0	0	0	0	0	**12**	0	12	19
Total Volume	4	0	2	6	6	21	0	27	0	0	0	0	0	40	1	41	74
% App. Total	66.7	0	33.3		22.2	77.8	0		0	0	0		0	97.6	2.4		
PHF	.500	.000	.500	.500	.750	.750	.000	.750	.000	.000	.000	.000	.000	.833	.250	.854	.841

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File Name : 1-Shady Oaks Dr_Marlin Bay Dr & Shore Dr AM
Site Code :
Start Date : 2/5/2020
Page No : 1

Groups Printed- Combined

	Shady Oaks Dr Southbound					Shore Dr Westbound					Marlin Bay Dr Northbound					Shore Dr Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	28	0	14	0	42	6	286	0	0	292	0	0	6	1	7	1	207	6	0	214	555
07:15 AM	22	0	8	0	30	5	375	1	0	381	1	0	12	0	13	2	279	4	0	285	709
07:30 AM	39	0	14	0	53	5	396	1	0	402	1	0	18	0	19	3	267	7	0	277	751
07:45 AM	36	0	14	0	50	3	423	0	0	426	1	0	12	0	13	2	316	10	0	328	817
Total	125	0	50	0	175	19	1480	2	0	1501	3	0	48	1	52	8	1069	27	0	1104	2832
08:00 AM	29	0	14	0	43	5	346	1	0	352	1	1	11	0	13	4	267	16	2	289	697
08:15 AM	27	0	10	0	37	5	365	1	0	371	0	0	6	1	7	6	352	8	1	367	782
08:30 AM	38	0	13	1	52	6	303	1	1	311	0	0	7	0	7	5	301	13	1	320	690
08:45 AM	27	0	11	0	38	4	285	0	0	289	1	0	9	0	10	3	269	8	0	280	617
Total	121	0	48	1	170	20	1299	3	1	1323	2	1	33	1	37	18	1189	45	4	1256	2786
Grand Total	246	0	98	1	345	39	2779	5	1	2824	5	1	81	2	89	26	2258	72	4	2360	5618
Apprch %	71.3	0	28.4	0.3		1.4	98.4	0.2	0		5.6	1.1	91	2.2		1.1	95.7	3.1	0.2		
Total %	4.4	0	1.7	0	6.1	0.7	49.5	0.1	0	50.3	0.1	0	1.4	0	1.6	0.5	40.2	1.3	0.1	42	

	Shady Oaks Dr Southbound				Shore Dr Westbound				Marlin Bay Dr Northbound				Shore Dr Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	**39**	0	**14**	**53**	**5**	396	**1**	402	**1**	0	**18**	**19**	3	267	7	277	751
07:45 AM	36	0	14	50	3	**423**	0	**426**	1	0	12	13	2	316	10	328	**817**
08:00 AM	29	0	14	43	5	346	1	352	1	**1**	11	13	4	267	**16**	287	695
08:15 AM	27	0	10	37	5	365	1	371	0	0	6	6	**6**	**352**	8	**366**	780
Total Volume	131	0	52	183	18	1530	3	1551	3	1	47	51	15	1202	41	1258	3043
% App. Total	71.6	0	28.4		1.2	98.6	0.2		5.9	2	92.2		1.2	95.5	3.3		
PHF	.840	.000	.929	.863	.900	.904	.750	.910	.750	.250	.653	.671	.625	.854	.641	.859	.931

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File Name : 1-Shady Oaks Dr_Marlin Bay Dr & Shore Dr PM
Site Code :
Start Date : 2/5/2020
Page No : 1

Groups Printed- Cars

	Shady Oaks Dr Southbound					Shore Dr Westbound					Marlin Bay Dr Northbound					Shore Dr Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	7	1	2	0	10	7	246	2	0	255	0	0	9	0	9	9	377	27	1	414	688
04:15 PM	11	0	3	0	14	8	253	0	0	261	0	0	4	2	6	8	381	27	0	416	697
04:30 PM	9	0	5	0	14	19	263	1	0	283	0	0	5	0	5	8	404	22	0	434	736
04:45 PM	19	0	7	0	26	16	276	0	0	292	1	1	3	0	5	11	437	31	1	480	803
Total	46	1	17	0	64	50	1038	3	0	1091	1	1	21	2	25	36	1599	107	2	1744	2924
05:00 PM	12	1	5	0	18	17	288	1	0	306	0	0	3	0	3	4	426	28	1	459	786
05:15 PM	6	1	11	0	18	12	318	0	0	330	0	0	7	0	7	13	499	52	0	564	919
05:30 PM	14	0	18	0	32	13	283	1	0	297	0	0	10	0	10	5	404	32	0	441	780
05:45 PM	9	0	17	0	26	15	279	0	1	295	0	0	7	0	7	8	388	23	2	421	749
Total	41	2	51	0	94	57	1168	2	1	1228	0	0	27	0	27	30	1717	135	3	1885	3234
Grand Total	87	3	68	0	158	107	2206	5	1	2319	1	1	48	2	52	66	3316	242	5	3629	6158
Apprch %	55.1	1.9	43	0		4.6	95.1	0.2	0		1.9	1.9	92.3	3.8		1.8	91.4	6.7	0.1		
Total %	1.4	0	1.1	0	2.6	1.7	35.8	0.1	0	37.7	0	0	0.8	0	0.8	1.1	53.8	3.9	0.1	58.9	

	Shady Oaks Dr Southbound				Shore Dr Westbound				Marlin Bay Dr Northbound				Shore Dr Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	**19**	0	7	26	16	276	0	292	**1**	**1**	3	5	11	437	31	479	802
05:00 PM	12	**1**	5	18	**17**	288	**1**	306	0	0	3	3	4	426	28	458	785
05:15 PM	6	1	11	18	12	**318**	0	**330**	0	0	7	7	**13**	**499**	**52**	**564**	**919**
05:30 PM	14	0	**18**	**32**	13	283	1	297	0	0	**10**	**10**	5	404	32	441	780
Total Volume	51	2	41	94	58	1165	2	1225	1	1	23	25	33	1766	143	1942	3286
% App. Total	54.3	2.1	43.6		4.7	95.1	0.2		4	4	92		1.7	90.9	7.4		
PHF	.671	.500	.569	.734	.853	.916	.500	.928	.250	.250	.575	.625	.635	.885	.688	.861	.894

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File Name : 1-Shady Oaks Dr_Marlin Bay Dr & Shore Dr PM
Site Code :
Start Date : 2/5/2020
Page No : 1

Groups Printed- Trucks

	Shady Oaks Dr Southbound					Shore Dr Westbound					Marlin Bay Dr Northbound					Shore Dr Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	1	0	0	0	1	0	4	0	0	4	0	0	0	0	0	0	4	0	0	4	9
04:15 PM	1	0	0	0	1	0	11	0	0	11	0	0	1	0	1	0	6	0	0	6	19
04:30 PM	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	0	4	1	0	5	12
04:45 PM	0	0	0	0	0	1	4	0	0	5	1	0	0	0	1	0	3	0	0	3	9
Total	2	0	0	0	2	1	26	0	0	27	1	0	1	0	2	0	17	1	0	18	49
05:00 PM	1	0	0	0	1	0	3	0	0	3	0	0	1	0	1	0	4	0	0	4	9
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	1	0	5	5
05:30 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
05:45 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	5	0	0	5	8
Total	1	0	0	0	1	0	8	0	0	8	0	0	1	0	1	0	13	1	0	14	24
Grand Total	3	0	0	0	3	1	34	0	0	35	1	0	2	0	3	0	30	2	0	32	73
Apprch %	100	0	0	0		2.9	97.1	0	0		33.3	0	66.7	0		0	93.8	6.2	0		
Total %	4.1	0	0	0	4.1	1.4	46.6	0	0	47.9	1.4	0	2.7	0	4.1	0	41.1	2.7	0	43.8	

	Shady Oaks Dr Southbound				Shore Dr Westbound				Marlin Bay Dr Northbound				Shore Dr Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	**1**	0	0	**1**	0	4	0	4	0	0	0	0	0	4	0	4	9
04:15 PM	1	0	0	1	0	**11**	0	**11**	0	0	**1**	**1**	0	**6**	0	**6**	**19**
04:30 PM	0	0	0	0	0	7	0	7	0	0	0	0	0	4	**1**	5	12
04:45 PM	0	0	0	0	**1**	4	0	5	**1**	0	0	1	0	3	0	3	9
Total Volume	2	0	0	2	1	26	0	27	1	0	1	2	0	17	1	18	49
% App. Total	100	0	0		3.7	96.3	0		50	0	50		0	94.4	5.6		
PHF	.500	.000	.000	.500	.250	.591	.000	.614	.250	.000	.250	.500	.000	.708	.250	.750	.645

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File Name : 1-Shady Oaks Dr_Marlin Bay Dr & Shore Dr PM
Site Code :
Start Date : 2/5/2020

Groups Printed- Combined

	Shady Oaks Dr Southbound					Shore Dr Westbound					Marlin Bay Dr Northbound					Shore Dr Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	8	1	2	0	11	7	250	2	0	259	0	0	9	0	9	9	381	27	1	418	697
04:15 PM	12	0	3	0	15	8	264	0	0	272	0	0	5	2	7	8	387	27	0	422	716
04:30 PM	9	0	5	0	14	19	270	1	0	290	0	0	5	0	5	8	408	23	0	439	748
04:45 PM	19	0	7	0	26	17	280	0	0	297	2	1	3	0	6	11	440	31	1	483	812
Total	48	1	17	0	66	51	1064	3	0	1118	2	1	22	2	27	36	1616	108	2	1762	2973
05:00 PM	13	1	5	0	19	17	291	1	0	309	0	0	4	0	4	4	430	28	1	463	795
05:15 PM	6	1	11	0	18	12	318	0	0	330	0	0	7	0	7	13	503	53	0	569	924
05:30 PM	14	0	18	0	32	13	285	1	0	299	0	0	10	0	10	5	404	32	0	441	782
05:45 PM	9	0	17	0	26	15	282	0	1	298	0	0	7	0	7	8	393	23	2	426	757
Total	42	2	51	0	95	57	1176	2	1	1236	0	0	28	0	28	30	1730	136	3	1899	3258
Grand Total	90	3	68	0	161	108	2240	5	1	2354	2	1	50	2	55	66	3346	244	5	3661	6231
Apprch %	55.9	1.9	42.2	0		4.6	95.2	0.2	0		3.6	1.8	90.9	3.6		1.8	91.4	6.7	0.1		
Total %	1.4	0	1.1	0	2.6	1.7	35.9	0.1	0	37.8	0	0	0.8	0	0.9	1.1	53.7	3.9	0.1	58.8	

	Shady Oaks Dr Southbound				Shore Dr Westbound				Marlin Bay Dr Northbound				Shore Dr Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	**19**	0	7	26	**17**	280	0	297	**2**	**1**	3	6	11	440	31	482	811
05:00 PM	13	**1**	5	19	17	291	**1**	309	0	0	4	4	4	430	28	462	794
05:15 PM	6	1	11	18	12	**318**	0	**330**	0	0	7	7	**13**	**503**	**53**	**569**	**924**
05:30 PM	14	0	**18**	**32**	13	285	1	299	0	0	**10**	**10**	5	404	32	441	782
Total Volume	52	2	41	95	59	1174	2	1235	2	1	24	27	33	1777	144	1954	3311
% App. Total	54.7	2.1	43.2		4.8	95.1	0.2		7.4	3.7	88.9		1.7	90.9	7.4		
PHF	.684	.500	.569	.742	.868	.923	.500	.936	.250	.250	.600	.675	.635	.883	.679	.859	.896

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File Name : 2-Ocean Tides Dr_Powhatan Ave & Shore Dr AM
Site Code :
Start Date : 2/5/2020
Page No : 1

Groups Printed- Cars

	Powhatan Ave Southbound					Shore Dr Westbound					Ocean Tides Dr Northbound					Shore Dr Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	3	0	7	0	10	0	294	0	0	294	0	0	0	0	0	0	223	1	0	224	528
07:15 AM	9	0	5	0	14	0	385	0	0	385	0	0	0	0	0	0	271	2	0	273	672
07:30 AM	10	0	4	0	14	3	393	0	0	396	1	0	0	0	1	0	279	0	0	279	690
07:45 AM	7	0	6	0	13	0	399	0	0	399	0	0	0	0	0	1	303	0	0	304	716
Total	29	0	22	0	51	3	1471	0	0	1474	1	0	0	0	1	1	1076	3	0	1080	2606
08:00 AM	8	0	8	0	16	2	339	0	0	341	0	0	0	0	0	0	281	3	0	284	641
08:15 AM	8	0	5	0	13	1	356	0	1	358	0	0	0	0	0	0	342	2	0	344	715
08:30 AM	7	0	3	0	10	1	315	2	0	318	0	0	0	0	0	0	299	5	0	304	632
08:45 AM	7	0	7	0	14	0	265	0	0	265	0	0	0	0	0	0	265	3	0	268	547
Total	30	0	23	0	53	4	1275	2	1	1282	0	0	0	0	0	0	1187	13	0	1200	2535
Grand Total	59	0	45	0	104	7	2746	2	1	2756	1	0	0	0	1	1	2263	16	0	2280	5141
Apprch %	56.7	0	43.3	0		0.3	99.6	0.1	0		100	0	0	0		0	99.3	0.7	0		
Total %	1.1	0	0.9	0	2	0.1	53.4	0	0	53.6	0	0	0	0	0	0	44	0.3	0	44.3	

	Powhatan Ave Southbound				Shore Dr Westbound				Ocean Tides Dr Northbound				Shore Dr Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	**10**	0	4	14	**3**	393	0	396	**1**	0	0	**1**	0	279	0	279	690
07:45 AM	7	0	6	13	0	**399**	0	**399**	0	0	0	0	**1**	303	0	304	**716**
08:00 AM	8	0	**8**	**16**	2	339	0	341	0	0	0	0	0	281	**3**	284	641
08:15 AM	8	0	5	13	1	356	0	357	0	0	0	0	0	**342**	2	**344**	714
Total Volume	33	0	23	56	6	1487	0	1493	1	0	0	1	1	1205	5	1211	2761
% App. Total	58.9	0	41.1		0.4	99.6	0		100	0	0		0.1	99.5	0.4		
PHF	.825	.000	.719	.875	.500	.932	.000	.935	.250	.000	.000	.250	.250	.881	.417	.880	.964

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File Name : 2-Ocean Tides Dr_Powhatan Ave & Shore Dr AM
Site Code :
Start Date : 2/5/2020
Page No : 1

Groups Printed- Trucks

	Powhatan Ave Southbound					Shore Dr Westbound					Ocean Tides Dr Northbound					Shore Dr Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	8	8
07:15 AM	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	0	5	0	0	5	13
07:30 AM	0	0	0	0	0	2	5	0	0	7	0	0	0	0	0	0	12	0	0	12	19
07:45 AM	1	0	1	0	2	0	9	0	0	9	0	0	0	0	0	0	10	0	0	10	21
Total	1	0	1	0	2	2	22	0	0	24	0	0	0	0	0	0	35	0	0	35	61
08:00 AM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	8	0	0	8	13
08:15 AM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	12	0	0	12	17
08:30 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	7	0	0	7	11
08:45 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	20	0	0	20	24
Total	0	0	0	0	0	0	18	0	0	18	0	0	0	0	0	0	47	0	0	47	65
Grand Total	1	0	1	0	2	2	40	0	0	42	0	0	0	0	0	0	82	0	0	82	126
Apprch %	50	0	50	0		4.8	95.2	0	0		0	0	0	0		0	100	0	0		
Total %	0.8	0	0.8	0	1.6	1.6	31.7	0	0	33.3	0	0	0	0	0	0	65.1	0	0	65.1	

	Powhatan Ave Southbound				Shore Dr Westbound				Ocean Tides Dr Northbound				Shore Dr Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	**2**	5	0	7	0	0	0	0	0	**12**	0	**12**	19
07:45 AM	**1**	0	**1**	**2**	0	**9**	0	**9**	0	0	0	0	0	10	0	10	**21**
08:00 AM	0	0	0	0	0	5	0	5	0	0	0	0	0	8	0	8	13
08:15 AM	0	0	0	0	0	5	0	5	0	0	0	0	0	12	0	12	17
Total Volume	1	0	1	2	2	24	0	26	0	0	0	0	0	42	0	42	70
% App. Total	50	0	50		7.7	92.3	0		0	0	0		0	100	0		
PHF	.250	.000	.250	.250	.250	.667	.000	.722	.000	.000	.000	.000	.000	.875	.000	.875	.833

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File Name : 2-Ocean Tides Dr_Powhatan Ave & Shore Dr AM
Site Code :
Start Date : 2/5/2020
Page No : 1

Groups Printed- Combined

	Powhatan Ave Southbound					Shore Dr Westbound					Ocean Tides Dr Northbound					Shore Dr Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	3	0	7	0	10	0	294	0	0	294	0	0	0	0	0	0	231	1	0	232	536
07:15 AM	9	0	5	0	14	0	393	0	0	393	0	0	0	0	0	0	276	2	0	278	685
07:30 AM	10	0	4	0	14	5	398	0	0	403	1	0	0	0	1	0	291	0	0	291	709
07:45 AM	8	0	7	0	15	0	408	0	0	408	0	0	0	0	0	1	313	0	0	314	737
Total	30	0	23	0	53	5	1493	0	0	1498	1	0	0	0	1	1	1111	3	0	1115	2667
08:00 AM	8	0	8	0	16	2	344	0	0	346	0	0	0	0	0	0	289	3	0	292	654
08:15 AM	8	0	5	0	13	1	361	0	1	363	0	0	0	0	0	0	354	2	0	356	732
08:30 AM	7	0	3	0	10	1	319	2	0	322	0	0	0	0	0	0	306	5	0	311	643
08:45 AM	7	0	7	0	14	0	269	0	0	269	0	0	0	0	0	0	285	3	0	288	571
Total	30	0	23	0	53	4	1293	2	1	1300	0	0	0	0	0	0	1234	13	0	1247	2600
Grand Total	60	0	46	0	106	9	2786	2	1	2798	1	0	0	0	1	1	2345	16	0	2362	5267
Apprch %	56.6	0	43.4	0		0.3	99.6	0.1	0		100	0	0	0		0	99.3	0.7	0		
Total %	1.1	0	0.9	0	2	0.2	52.9	0	0	53.1	0	0	0	0	0	0	44.5	0.3	0	44.8	

	Powhatan Ave Southbound				Shore Dr Westbound				Ocean Tides Dr Northbound				Shore Dr Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	**10**	0	4	14	**5**	398	0	403	**1**	0	0	**1**	0	291	0	291	709
07:45 AM	8	0	7	15	0	**408**	0	**408**	0	0	0	0	**1**	313	0	314	**737**
08:00 AM	8	0	**8**	**16**	2	344	0	346	0	0	0	0	0	289	**3**	292	654
08:15 AM	8	0	5	13	1	361	0	362	0	0	0	0	0	**354**	2	**356**	731
Total Volume	34	0	24	58	8	1511	0	1519	1	0	0	1	1	1247	5	1253	2831
% App. Total	58.6	0	41.4		0.5	99.5	0		100	0	0		0.1	99.5	0.4		
PHF	.850	.000	.750	.906	.400	.926	.000	.931	.250	.000	.000	.250	.250	.881	.417	.880	.960

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File Name : 2-Ocean Tides Dr_Powhatan Ave & Shore Dr PM
Site Code :
Start Date : 2/5/2020
Page No : 1

Groups Printed- Cars

	Powhatan Ave Southbound					Shore Dr Westbound					Ocean Tides Dr Northbound					Shore Dr Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	2	0	3	0	5	4	249	0	0	253	0	0	0	0	0	0	391	4	0	395	653
04:15 PM	4	0	6	0	10	3	273	1	0	277	1	0	0	0	1	0	378	7	0	385	673
04:30 PM	4	0	0	0	4	3	274	1	0	278	0	0	0	0	0	0	395	5	0	400	682
04:45 PM	2	0	2	0	4	6	290	0	0	296	0	0	0	0	0	1	449	9	0	459	759
Total	12	0	11	0	23	16	1086	2	0	1104	1	0	0	0	1	1	1613	25	0	1639	2767
05:00 PM	4	0	3	0	7	8	305	0	0	313	0	0	0	0	0	0	414	8	0	422	742
05:15 PM	3	0	1	0	4	4	324	0	0	328	0	0	0	0	0	0	486	5	0	491	823
05:30 PM	4	0	8	0	12	6	288	0	0	294	0	0	0	0	0	0	410	8	0	418	724
05:45 PM	5	0	1	0	6	2	253	0	0	255	0	0	0	0	0	0	404	6	0	410	671
Total	16	0	13	0	29	20	1170	0	0	1190	0	0	0	0	0	0	1714	27	0	1741	2960
Grand Total	28	0	24	0	52	36	2256	2	0	2294	1	0	0	0	1	1	3327	52	0	3380	5727
Apprch %	53.8	0	46.2	0		1.6	98.3	0.1	0		100	0	0	0		0	98.4	1.5	0		
Total %	0.5	0	0.4	0	0.9	0.6	39.4	0	0	40.1	0	0	0	0	0	0	58.1	0.9	0	59	

	Powhatan Ave Southbound				Shore Dr Westbound				Ocean Tides Dr Northbound				Shore Dr Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	2	0	2	4	6	290	0	296	0	0	0	0	**1**	449	**9**	459	759
05:00 PM	**4**	0	3	7	**8**	305	0	313	0	0	0	0	0	414	8	422	742
05:15 PM	3	0	1	4	4	**324**	0	**328**	0	0	0	0	0	**486**	5	**491**	**823**
05:30 PM	4	0	**8**	**12**	6	288	0	294	0	0	0	0	0	410	8	418	724
Total Volume	13	0	14	27	24	1207	0	1231	0	0	0	0	1	1759	30	1790	3048
% App. Total	48.1	0	51.9		1.9	98.1	0		0	0	0		0.1	98.3	1.7		
PHF	.813	.000	.438	.563	.750	.931	.000	.938	.000	.000	.000	.000	.250	.905	.833	.911	.926

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File Name : 2-Ocean Tides Dr_Powhatan Ave & Shore Dr PM
Site Code :
Start Date : 2/5/2020
Page No : 1

Groups Printed- Trucks

	Powhatan Ave Southbound					Shore Dr Westbound					Ocean Tides Dr Northbound					Shore Dr Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	0	0	0	0	0	1	5	0	0	6	0	0	0	0	0	0	4	0	0	4	10
04:15 PM	1	0	0	0	1	0	11	0	0	11	0	0	0	0	0	0	5	0	0	5	17
04:30 PM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	5	0	0	5	10
04:45 PM	1	0	0	0	1	0	6	0	0	6	0	0	0	0	0	0	4	0	0	4	11
Total	2	0	0	0	2	1	27	0	0	28	0	0	0	0	0	0	18	0	0	18	48
05:00 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	4	0	0	4	7
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	4
05:30 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
05:45 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	5	0	0	5	8
Total	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	0	13	0	0	13	21
Grand Total	2	0	0	0	2	1	35	0	0	36	0	0	0	0	0	0	31	0	0	31	69
Apprch %	100	0	0	0		2.8	97.2	0	0		0	0	0	0		0	100	0	0		
Total %	2.9	0	0	0	2.9	1.4	50.7	0	0	52.2	0	0	0	0	0	0	44.9	0	0	44.9	

	Powhatan Ave Southbound				Shore Dr Westbound				Ocean Tides Dr Northbound				Shore Dr Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	**1**	5	0	6	0	0	0	0	0	4	0	4	10
04:15 PM	**1**	0	0	**1**	0	**11**	0	**11**	0	0	0	0	0	**5**	0	**5**	**17**
04:30 PM	0	0	0	0	0	5	0	5	0	0	0	0	0	5	0	5	10
04:45 PM	1	0	0	1	0	6	0	6	0	0	0	0	0	4	0	4	11
Total Volume	2	0	0	2	1	27	0	28	0	0	0	0	0	18	0	18	48
% App. Total	100	0	0		3.6	96.4	0		0	0	0		0	100	0		
PHF	.500	.000	.000	.500	.250	.614	.000	.636	.000	.000	.000	.000	.000	.900	.000	.900	.706

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File Name : 2-Ocean Tides Dr_Powhatan Ave & Shore Dr PM
Site Code :
Start Date : 2/5/2020
Page No : 1

Groups Printed- Combined

	Powhatan Ave Southbound					Shore Dr Westbound					Ocean Tides Dr Northbound					Shore Dr Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	2	0	3	0	5	5	254	0	0	259	0	0	0	0	0	0	395	4	0	399	663
04:15 PM	5	0	6	0	11	3	284	1	0	288	1	0	0	0	1	0	383	7	0	390	690
04:30 PM	4	0	0	0	4	3	279	1	0	283	0	0	0	0	0	0	400	5	0	405	692
04:45 PM	3	0	2	0	5	6	296	0	0	302	0	0	0	0	0	1	453	9	0	463	770
Total	14	0	11	0	25	17	1113	2	0	1132	1	0	0	0	1	1	1631	25	0	1657	2815
05:00 PM	4	0	3	0	7	8	308	0	0	316	0	0	0	0	0	0	418	8	0	426	749
05:15 PM	3	0	1	0	4	4	324	0	0	328	0	0	0	0	0	0	490	5	0	495	827
05:30 PM	4	0	8	0	12	6	290	0	0	296	0	0	0	0	0	0	410	8	0	418	726
05:45 PM	5	0	1	0	6	2	256	0	0	258	0	0	0	0	0	0	409	6	0	415	679
Total	16	0	13	0	29	20	1178	0	0	1198	0	0	0	0	0	0	1727	27	0	1754	2981
Grand Total	30	0	24	0	54	37	2291	2	0	2330	1	0	0	0	1	1	3358	52	0	3411	5796
Apprch %	55.6	0	44.4	0		1.6	98.3	0.1	0		100	0	0	0		0	98.4	1.5	0		
Total %	0.5	0	0.4	0	0.9	0.6	39.5	0	0	40.2	0	0	0	0	0	0	57.9	0.9	0	58.9	

	Powhatan Ave Southbound				Shore Dr Westbound				Ocean Tides Dr Northbound				Shore Dr Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	3	0	2	5	6	296	0	302	0	0	0	0	**1**	453	**9**	463	770
05:00 PM	**4**	0	3	7	**8**	308	0	316	0	0	0	0	0	418	8	426	749
05:15 PM	3	0	1	4	4	**324**	0	**328**	0	0	0	0	0	**490**	5	**495**	**827**
05:30 PM	4	0	**8**	**12**	6	290	0	296	0	0	0	0	0	410	8	418	726
Total Volume	14	0	14	28	24	1218	0	1242	0	0	0	0	1	1771	30	1802	3072
% App. Total	50	0	50		1.9	98.1	0		0	0	0		0.1	98.3	1.7		
PHF	.875	.000	.438	.583	.750	.940	.000	.947	.000	.000	.000	.000	.250	.904	.833	.910	.929

Appendix C
Existing Signal Timings

Station : 60 - Shore Dr & Marlin Bay Ln & Shady Oaks (Upload File)

Phase [1.1.1]

	1 (WL)	2 (ET)	3	4 (ST)	5 (EL)	6 (WT)	7	8 (NT)	9	10	11	12	13	14	15	16
Walk	0	5	0	6	0	5	0	8	0	0	0	0	0	0	0	0
Ped Clearance	0	24	0	35	0	19	0	32	0	0	0	0	0	0	0	0
Min Green	6	20	0	6	6	20	0	6	0	0	0	0	0	0	0	0
Passage	3	4	0	3	3	4	0	3	0	0	0	0	0	0	0	0
Max1	10	60	0	20	15	60	0	20	0	0	0	0	0	0	0	0
Max2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yellow	3.6	3.6	6	3	3.6	3.6	6	3	6	6	6	6	6	6	6	6
Red	2.6	2.6	0	3	2.6	2.6	0	3	0	0	0	0	0	0	0	0
Red Revert	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Added Initial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Max Initial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time Before Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars Before Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time To Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reduce By	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dynamic Max Limit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dynamic Max Step	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Auto Exit		ON				ON										
Rest In Walk																

Phase Option [1.1.2]

	1 (WL)	2 (ET)	3	4 (ST)	5 (EL)	6 (WT)	7	8 (NT)	9	10	11	12	13	14	15	16
Enable	ON	ON		ON	ON	ON		ON								
Auto Entry				ON												
Non Act1																
Non Act2																
Lock Call		ON				ON										
Min Recall																
Max Recall		ON				ON										
Ped Recall																
Soft Recall																
Dual Entry				ON				ON								
Sim Gap Enable																
Guar Passage																
Cond Service																
Add Init Calc																

Alternate Phase Program 1, Calls and Redirection [1.1.6.3]

Entry	Call Phases				From	To	From	To	From	To	From	To	Assigned Ph
1	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0

Alternate Phase Program 2, Calls and Redirection [1.1.6.3]

Entry	Call Phases				From	To	From	To	From	To	From	To	Assigned Ph
1	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0

Alternate Phase Program 1, Interval Times [1.1.6.1]

Phase	Walk	Ped Clear	Min Green	Passage	Max1	Max2	Yellow	Red Clear	Assign Ph	Bike Clear
1	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0

Alternate Phase Program 2, Interval Times [1.1.6.1]

Phase	Walk	Ped Clear	Min Green	Passage	Max1	Max2	Yellow	Red Clear	Assign Ph	Bike Clear
1	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0

Virginia Beach Timing Sheet 3/11/2020 2:40:39 PM

Station : 60 - Shore Dr & Marlin Bay Ln & Shady Oaks (Upload File)

Unit Parameters [1.2.1]

StartUp Flash	Auto Ped Clear	Backup Time	Red Revert	Console Timeout	Tone Disable	Feature Profile	Phase Mode	Diamond Mode	SDLC Retry Time	TS2 Det Faults	Cycle Fault Action	Max Cycle Time	Max Seek Track Time	Max Seek Dwell Time	Enable Run	Local Flash Start	Start Red Time	Disable Init Ped	Yellow 3 Second Disable	Omit Yellow Enable	Free Ring Sequence

	ON	900	3	20	OFF		STD8	4PH		OFF	ALARM				ON	OFF		OFF	OFF	OFF	1

Comm, General Comm Parameters [6.1]

Station ID	Master Station ID	Fallback time	Allow Pencil	Port	System-Up	Sys-Down	PC/Print	Aux 232
60			OFF					

Port Parameters [6.2]

Comm	Mode	Baud	MsgTime	Duplex	Enable	DialTime	Modem	ModemTime	Tel#1	Tel#2
System Up(P-A)										
System Down(P-B)										
PC/Print(P-2)										

Overlap General Parameters [1.5.1]

Conflict Lock	Lock Inhibit	Program Card	Use Parent	Canadian Fast Flash
OFF	OFF	OFF	ON	OFF

Overlap Program Parameters [1.5.2.1]

Overlap	Included Phases								Modifer Phases								Type	Green	Yellow	Red
Overlap 1																	NORMAL		3.5	1.5
Overlap 2																	NORMAL		3.5	1.5
Overlap 3																	NORMAL		3.5	1.5
Overlap 4																	NORMAL		3.5	1.5
Overlap 5																	NORMAL		3.5	1.5
Overlap 6																	NORMAL		3.5	1.5
Overlap 7																	NORMAL		3.5	1.5
Overlap 8																	NORMAL		3.5	1.5

Overlap Conflict Parameters+ [1.5.2.2]

Overlap	Conflicting Phases								Conflicting Overlaps								Conflicting Peds									
Overlap 1																									OFF	OFF
Overlap 2																									OFF	OFF
Overlap 3																									OFF	OFF
Overlap 4																									OFF	OFF
Overlap 5																									OFF	OFF
Overlap 6																									OFF	OFF
Overlap 7																									OFF	OFF
Overlap 8																									OFF	OFF

Detector, Vehicle Parameters 1-16 [5.1]

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Call Phase	1	0	0	0	0	0	0	4	5	0	0	0	0	0	8	8
Switch Phase	6	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
Delay Time	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10

Detector, Vehicle Parameters 17-32 [5.1]

	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Call Phase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Switch Phase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Station : 60 - Shore Dr & Marlin Bay Ln & Shady Oaks (Upload File)

Detector Alternate Program 1, Vehicle Parameters [5.5.1]

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Call Phase	1	2	3	4	5	6	7	8	0	0	0	0	0	0	0	0
Switch Phase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Channels/SDLC, Assign to Phases [1.3.1]

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
PH/OLP #	1	2	3	4	5	6	7	8	1	2	3	4	2	4	6	8								
Type	VEH	VEH	VEH	VEH	VEH	VEH	VEH	VEH	OLP	OLP	OLP	OLP	PED	PED	PED	PED								
Flash	RED	YEL	RED	RED	RED	YEL	RED	RED	RED	RED	RED	RED	DRK	DRK	DRK	DRK	DRK	DRK	DRK	DRK	DRK	DRK	DRK	DRK
Flash 1-2 Hertz																								
Dimming Green																								
Dimming Yellow																								
Dimming Red																								
Alt Cyc	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

Channel/SDLC, Parameters [1.3.3]

TOD Dim Enable	Extra Maps Enable	D Connector Enable	Single BIU Map	IO Mode	Preempt or Ext Output
OFF	DEFAULT	TX2_V14	ON	AUTO	EXT

Channel/SDLC, MMU Map [1.3.5]

MMU-to-Controller Channel Map

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Channel/SDLC, Permissive [1.3.4]

Channel	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2
1		1									1	1			
2		1		1							1	1			
3															
4	1		1						1						
5				1											
6		1		1											
7															
8	1		1												
9															
10															
11															
12															
13		1													
14	1														
15															

Channel/SDLC, Permissive [1.3.7]

SDLC Device	Term/Fac								Detector								MMU	Diag
BIU#	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8		
Present	ON	ON							ON								ON	
Peer to Peer																		

Ring Sequence [1.2.4]

Ring	P1	P2	P3	P4	P5	P6	P7	P8
Ring 1	1	2	3	4				
Ring 2	5	6	7	8				
Ring 3								
Ring 4								

Station : 60 - Shore Dr & Marlin Bay Ln & Shady Oaks (Upload File)

Alarms, Enable Events [1.6.1]

Event#	Event Enable
1	ON
2	ON
3	ON
4	ON
5	ON
6	
7	ON
8	ON
9	
10	ON
11	
12	ON
13	
14	ON
15	
16	ON
17	ON
18	ON
19	ON
20	ON
21	
22	
23	
24	
25	
26	ON
27	ON
28	
29	
30	
31	
32	
33	
34	
35	ON
36	
37	
38	
39	
40	
41	
42	
43	
44	
45	
46	
47	
48	
49	ON
50	ON
51	ON
52	ON
53	ON
54	ON
55	ON
56	ON
57	ON
58	ON
59	
60	
61	
62	
63	
64	

Alarms, Enable Alarms [1.6.4]

Alarm#	Alarm Enable
1	ON
2	ON
3	ON
4	ON
5	ON
6	ON
7	ON
8	ON
9	
10	ON
11	
12	ON
13	
14	ON
15	
16	ON
17	ON
18	ON
19	ON
20	ON
21	
22	
23	
24	
25	
26	ON
27	ON
28	
29	
30	
31	
32	
33	
34	
35	ON
36	
37	
38	
39	
40	
41	
42	
43	
44	
45	
46	
47	
48	
49	
50	
51	
52	
53	
54	
55	ON
56	ON
57	ON
58	ON
59	
60	
61	
62	
63	
64	

Preemption Times[3.1]/Phases[3.2]/Options[3.3]

Channel	1	2	3	4	5	6
Lock Input	ON		ON	ON	ON	ON
Override Flash	ON					
Override Higher	ON					
Flash Dwell						
Link						
Delay						
Min Duration						
Min Green						
Min Walk						
Ped Clear						
Track Green						
Min Dwell			5	5	5	5
Max Presence		90	90	60	90	90
Track R1						
Track R2						
Track R3						
Track R4						
Dwell P1			1	2	8	4
Dwell P2			6	5		
Dwell P3						
Dwell P4						
Dwell P5						
Dwell P6						
Dwell P7						
Dwell P8						
Dwell P9						
Dwell P10						
Dwell P11						
Dwell P12						
Dwell Ped1						
Dwell Ped2						
Dwell Ped3						
Dwell Ped4						
Dwell Ped5						
Dwell Ped6						
Dwell Ped7						
Dwell Ped8						
Exit R1			2	6		2
Exit R2						
Exit R3						
Exit R4						

Alarms, Parameters [1.4.1]

Auto Flash Parameter

Yellow	Red	Mode	Source
45	30	CHANNEL	D-CONN

Alarms, Parameters [1.6.7]

Preempt Event Enabled	Pattern Event Enabled
ON	ON

Alarms, Phases/Overlaps [1.4.2]

Auto Flash	1	2	3	4	5	6	7	8	9	10	11	12
Phases	2	6										
Overlaps												

Station : 60 - Shore Dr & Marlin Bay Ln & Shady Oaks (Upload File)

Preemption Times+[3.4]/Overlaps+[3.5]/Options+[3.6]

Preempt	1	2	3	4	5	6
Enable			ON	ON	ON	ON
Type	RAIL	EMERG	EMERG	EMERG	EMERG	EMERG
Skip Track						
Volt Mon Flash						
Coord in Preempt	ON	ON	ON	ON	ON	ON
Max2						
Return Max/Min	MAX	MAX	MAX	MAX	MAX	MAX
Extend Dwell						
Pattern						
Output Mode	TS2	TS2	TS2	TS2	TS2	TS2
Track Over 1						
Track Over 2						
Track Over 3						
Track Over 4						
Track Over 5						
Track Over 6						
Track Over 7						
Track Over 8						
Track Over 9						
Track Over 10						
Track Over 11						
Track Over 12						
Dwell Over 1						
Dwell Over 2						
Dwell Over 3						
Dwell Over 4						
Dwell Over 5						
Dwell Over 6						
Dwell Over 7						
Dwell Over 8						
Dwell Over 9						
Dwell Over 10						
Dwell Over 11						
Dwell Over 12						
Ped Clear						
Yellow		4	4	4	4	4
Red		2	2	2	2	2
Return Min/Max						
Delay Inh						
Exit Time						
All Red B4						

Coordination, Modes,+ [2.1]

Modes

Operational	Correct	Maximum	Force-Off
	SHRT/LNG	MAX INH	FLOAT

Modes+

Mode	Leave Before	Leave After	Recycle	Stop In Walk	External	Auto Reset	Latch Sec Foff	Coord Easy Float	Yield Value	Coord NTCIP Yield Sign	Closed Loop Active	
FRC	TIMED	TIMED	P3478_INH	ON	OFF	ON	OFF	OFF	0	+	OFF	OFF

Coordination, Pattern 1-16 [2.1]

Pattern	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Cycle Time	120	110	110		160	110	110	110	110							
Offset Time	88	80	45		107	45	73	74	73							
Split Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Seq Number	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Offset	beggrn	beggrn	beggrn	beggrn	beggrn	beggrn	beggrn	beggrn	beggrn	beggrn	beggrn	beggrn	beggrn	beggrn	beggrn	beggrn

Coordination, Pattern 17-32 [2.1]

Pattern	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Cycle Time																
Offset Time																
Split Number	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Seq Number	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Offset	beggrn	beggrn	beggrn	beggrn	beggrn	beggrn	beggrn	beggrn	beggrn	beggrn	beggrn	beggrn	beggrn	beggrn	beggrn	beggrn

Station : 60 - Shore Dr & Marlin Bay Ln & Shady Oaks (Upload File)

Coordination, Splits [2.7.1]

Split Table 1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time	16	84		20	16	84		20								
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time	17	67		26	18	66		26								
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time	16	73		21	18	71		21								
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 5	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time	16	123		21	21	118		21								
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time	16	73		21	18	71		21								
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 7	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time	16	64		30	18	62		30								
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time	16	73		21	16	73		21								
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time	16	64		30	18	62		30								
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 11	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Station : 60 - Shore Dr & Marlin Bay Ln & Shady Oaks (Upload File)

Split Table 13	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 14	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 15	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 16	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 17	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 18	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 19	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 20	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 21	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 22	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 23	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 24	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 25	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 26	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 27	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 28	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 29	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 30	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 32	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Station : 60 - Shore Dr & Marlin Bay Ln & Shady Oaks (Upload File)

TB Coor, Advanced Scheduler [4.3]

	Month												Day of Week							Day of Month									1									2									3		
Plan	J	F	M	A	M	J	J	A	S	O	N	D	S	M	T	W	T	F	S	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	Day Plan
1	1	1	1	1	1	1	1	1	1	1	1	1	1							1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	1	1	1	1	1	1	1	1	1	1	1	1		1						1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
3	1	1	1	1	1	1	1	1	1	1	1	1			1					1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3
4	1	1	1	1	1	1	1	1	1	1	1	1				1				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4
5	1	1	1	1	1	1	1	1	1	1	1	1					1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5
6	1	1	1	1	1	1	1	1	1	1	1	1						1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	6
7	1	1	1	1	1	1	1	1	1	1	1	1							1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	7
8																																																	1
9																																																		1
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30																																																		1
31																																																		1
32																																																		1

TB Coor, Day Plan [4.4]

Day Plan Table 1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour		8	11	17	20											
Minute		30	30	30												
Action	100	7	8	9	100											

Day Plan Table 2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour		6	9	11	14	18	21									
Minute			30	30	30	45										
Action	100	1	2	3	5	6	100									

Day Plan Table 3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour		6	9	11	14	18	21									
Minute			30	30	30	45										
Action	100	1	2	3	5	6	100									

Day Plan Table 4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour		6	9	11	14	18	21									
Minute			30	30	30	45										
Action	100	1	2	3	5	6	100									

Day Plan Table 5	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour		6	9	11	14	18	21									
Minute			30	30	30	45										
Action	100	1	2	3	5	6	100									

Day Plan Table 6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour		6	9	11	14	18	21									
Minute			30	30	30	45										
Action	100	1	2	3	5	6	100									

Station : 60 - Shore Dr & Marlin Bay Ln & Shady Oaks (Upload File)

Day Plan Table 7	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
Hour		8	10	18	23											
Minute			30													
Action	100	7	8	9	100											

Day Plan Table 8	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
Hour																
Minute																
Action																

Day Plan Table 9	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
Hour																
Minute																
Action																

Day Plan Table 10	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
Hour																
Minute																
Action																

Day Plan Table 11	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
Hour																
Minute																
Action																

Day Plan Table 12	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
Hour																
Minute																
Action																

Station : 60 - Shore Dr & Marlin Bay Ln & Shady Oaks (Upload File)

TB Coor, Action Table [4.5]

Action	Pattern	Aux 1	Aux 2	Aux 3	Special 1	Special 2	Special 3	Special 4	Special 5	Special 6	Special 7	Special 8
1	1											
2	2											
3	3											
4	4											
5	5											
6	6											
7	7											
8	8											
9	9											
10	10											
11	11											
12	12											
13	13											
14	14											
15	15											
16	16											
17	17											
18	18											
19	19											
20	20											
21	21											
22	22											
23	23											
24	24											
25	25											
26	26											
27	27											
28	28											
29	29											
30	30											
31	31											
32	32											
33												
34												
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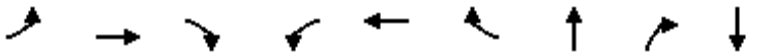
36												
37												
38												
39												
40												
41												
42												
43												
44												
45												
46												
47												
48												
49												
50												
51												
52												
53												
54	254											
55	255											
56												
57												
58												
59												
60												
61												
62												
63												
64												
99												
100	254											

Appendix D
SYNCHRO Analysis Worksheets Sheets For 2020 Existing Conditions

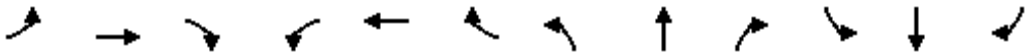
1: Marlin Bay Drive/Shady Oaks Drive & Shore Drive

03/25/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	44	1292	16	3	1645	19	52	3	57
v/c Ratio	0.18	0.45	0.01	0.01	0.60	0.02	0.43	0.01	0.30
Control Delay	4.2	5.0	0.0	2.7	9.7	0.1	62.2	0.0	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.2	5.0	0.0	2.7	9.7	0.1	62.2	0.0	8.3
Queue Length 50th (ft)	5	118	0	0	312	0	39	0	0
Queue Length 95th (ft)	14	292	0	2	442	0	79	0	20
Internal Link Dist (ft)		999			623		557		653
Turn Bay Length (ft)	200		225	213		188		125	
Base Capacity (vph)	291	2900	1350	423	2732	947	176	263	235
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.45	0.01	0.01	0.60	0.02	0.30	0.01	0.24

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	1202	15	3	1530	18	47	1	3	14	0	39
Future Volume (vph)	41	1202	15	3	1530	18	47	1	3	14	0	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	6.2	6.2	6.2	6.2	6.2		6.0	6.0		6.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.90	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.99	
Satd. Flow (prot)	1770	3505	1615	1805	3574	1214		1811	1615		1521	
Flt Permitted	0.11	1.00	1.00	0.20	1.00	1.00		0.80	1.00		0.89	
Satd. Flow (perm)	196	3505	1615	374	3574	1214		1511	1615		1376	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	44	1292	16	3	1645	19	51	1	3	15	0	42
RTOR Reduction (vph)	0	0	4	0	0	5	0	0	3	0	53	0
Lane Group Flow (vph)	44	1292	12	3	1645	14	0	52	0	0	4	0
Heavy Vehicles (%)	2%	3%	0%	0%	1%	33%	0%	0%	0%	14%	0%	10%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8		8	4		
Actuated Green, G (s)	96.9	91.9	91.9	89.3	88.1	88.1		8.5	8.5		8.5	
Effective Green, g (s)	96.9	91.9	91.9	89.3	88.1	88.1		8.5	8.5		8.5	
Actuated g/C Ratio	0.81	0.77	0.77	0.74	0.73	0.73		0.07	0.07		0.07	
Clearance Time (s)	6.2	6.2	6.2	6.2	6.2	6.2		6.0	6.0		6.0	
Vehicle Extension (s)	3.0	4.0	4.0	3.0	4.0	4.0		3.0	3.0		3.0	
Lane Grp Cap (vph)	223	2684	1236	292	2623	891		107	114		97	
v/s Ratio Prot	c0.01	c0.37		0.00	c0.46							
v/s Ratio Perm	0.15		0.01	0.01		0.01		c0.03	0.00		0.00	
v/c Ratio	0.20	0.48	0.01	0.01	0.63	0.02		0.49	0.00		0.04	
Uniform Delay, d1	5.9	5.2	3.3	4.1	7.9	4.3		53.6	51.8		52.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	0.4	0.6	0.0	0.0	1.1	0.0		3.4	0.0		0.2	
Delay (s)	6.4	5.8	3.3	4.2	9.0	4.3		57.1	51.8		52.1	
Level of Service	A	A	A	A	A	A		E	D		D	
Approach Delay (s)		5.8			8.9			56.8			52.1	
Approach LOS		A			A			E			D	

Intersection Summary			
HCM 2000 Control Delay	9.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.4
Intersection Capacity Utilization	62.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	1247	1	0	1511	8	0	0	1	24	0	34
Future Volume (Veh/h)	5	1247	1	0	1511	8	0	0	1	24	0	34
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	5	1299	1	0	1574	8	0	0	1	25	0	35
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)		703										
pX, platoon unblocked				0.86			0.86	0.86	0.86	0.86	0.86	
vC, conflicting volume	1582			1300			2131	2891	650	2238	2888	791
vC1, stage 1 conf vol							1309	1309		1578	1578	
vC2, stage 2 conf vol							822	1582		660	1310	
vCu, unblocked vol	1582			1013			1984	2873	252	2110	2869	791
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.6	6.5	7.0
tC, 2 stage (s)							6.5	5.5		6.6	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			100	100	100	73	100	89
cM capacity (veh/h)	421			592			127	99	644	92	101	330

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	NB 1	SB 1
Volume Total	5	650	650	1	787	795	1	60
Volume Left	5	0	0	0	0	0	0	25
Volume Right	0	0	0	1	0	8	1	35
cSH	421	1700	1700	1700	592	1700	644	158
Volume to Capacity	0.01	0.38	0.38	0.00	0.00	0.47	0.00	0.38
Queue Length 95th (ft)	1	0	0	0	0	0	0	40
Control Delay (s)	13.6	0.0	0.0	0.0	0.0	0.0	10.6	41.0
Lane LOS	B						B	E
Approach Delay (s)	0.1				0.0		10.6	41.0
Approach LOS							B	E

Intersection Summary				
Average Delay	0.9			
Intersection Capacity Utilization	58.8%	ICU Level of Service	B	
Analysis Period (min)	15			

Intersection: 1: Marlin Bay Drive/Shady Oaks Drive & Shore Drive

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	R	LT	R	LTR
Maximum Queue (ft)	61	162	133	20	24	222	243	24	114	43	90
Average Queue (ft)	23	68	49	1	2	73	87	2	39	4	35
95th Queue (ft)	52	135	109	8	11	165	184	13	86	25	74
Link Distance (ft)		1048	1048			628	628		551		674
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	200			225	213			188		125	
Storage Blk Time (%)		0				0	1		0	0	
Queuing Penalty (veh)		0				0	0		0	0	

Intersection: 2: Ocean Tides Drive/Powhatan Avenue & Shore Drive

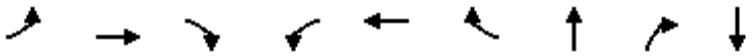
Movement	EB	EB	WB	NB	SB
Directions Served	L	T	LT	LTR	LTR
Maximum Queue (ft)	28	2	2	20	393
Average Queue (ft)	4	0	0	1	176
95th Queue (ft)	18	2	2	7	445
Link Distance (ft)		628	1758	444	627
Upstream Blk Time (%)					1
Queuing Penalty (veh)					0
Storage Bay Dist (ft)	100				
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 0

1: Marlin Bay Drive/Shady Oaks Drive & Shore Drive

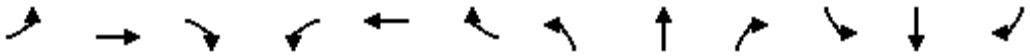
03/25/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	160	1974	37	2	1304	66	28	2	106
v/c Ratio	0.46	0.66	0.03	0.01	0.48	0.05	0.40	0.01	0.75
Control Delay	6.7	7.3	0.3	2.5	8.4	1.5	86.0	0.0	81.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.7	7.3	0.3	2.5	8.4	1.5	86.0	0.0	81.4
Queue Length 50th (ft)	24	322	0	0	256	1	28	0	78
Queue Length 95th (ft)	39	615	3	2	321	14	64	0	#150
Internal Link Dist (ft)		999			623		557		653
Turn Bay Length (ft)	200		225	213		188		125	
Base Capacity (vph)	409	2970	1352	225	2708	1214	91	158	165
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.66	0.03	0.01	0.48	0.05	0.31	0.01	0.64

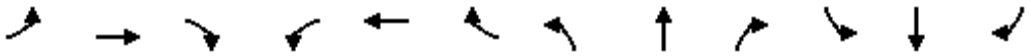
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	144	1777	33	2	1174	59	24	1	2	41	2	52
Future Volume (vph)	144	1777	33	2	1174	59	24	1	2	41	2	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	6.2	6.2	6.2	6.2	6.2		6.0	6.0		6.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.98	
Satd. Flow (prot)	1787	3574	1615	1805	3574	1583		1745	1077		1704	
Flt Permitted	0.17	1.00	1.00	0.08	1.00	1.00		0.53	1.00		0.85	
Satd. Flow (perm)	323	3574	1615	151	3574	1583		975	1077		1474	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	160	1974	37	2	1304	66	27	1	2	46	2	58
RTOR Reduction (vph)	0	0	7	0	0	15	0	0	2	0	28	0
Lane Group Flow (vph)	160	1974	30	2	1304	51	0	28	0	0	78	0
Heavy Vehicles (%)	1%	1%	0%	0%	1%	2%	4%	0%	50%	0%	0%	2%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8		8	4		
Actuated Green, G (s)	135.4	128.0	128.0	122.4	121.2	121.2		12.4	12.4		12.4	
Effective Green, g (s)	135.4	128.0	128.0	122.4	121.2	121.2		12.4	12.4		12.4	
Actuated g/C Ratio	0.85	0.80	0.80	0.77	0.76	0.76		0.08	0.08		0.08	
Clearance Time (s)	6.2	6.2	6.2	6.2	6.2	6.2		6.0	6.0		6.0	
Vehicle Extension (s)	3.0	4.0	4.0	3.0	4.0	4.0		3.0	3.0		3.0	
Lane Grp Cap (vph)	346	2859	1292	127	2707	1199		75	83		114	
v/s Ratio Prot	c0.02	c0.55		0.00	0.36							
v/s Ratio Perm	0.37		0.02	0.01		0.03		0.03	0.00		c0.05	
v/c Ratio	0.46	0.69	0.02	0.02	0.48	0.04		0.37	0.00		0.69	
Uniform Delay, d1	5.1	7.1	3.3	7.4	7.4	4.9		70.1	68.1		71.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	1.0	1.4	0.0	0.0	0.6	0.1		3.1	0.0		15.8	
Delay (s)	6.0	8.5	3.3	7.4	8.0	4.9		73.2	68.1		87.7	
Level of Service	A	A	A	A	A	A		E	E		F	
Approach Delay (s)		8.3			7.9			72.9			87.7	
Approach LOS		A			A			E			F	

Intersection Summary			
HCM 2000 Control Delay	10.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	18.4
Intersection Capacity Utilization	81.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	1771	1	0	1218	24	0	0	0	14	0	14
Future Volume (Veh/h)	30	1771	1	0	1218	24	0	0	0	14	0	14
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	32	1904	1	0	1310	26	0	0	0	15	0	15
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)		703										
pX, platoon unblocked				0.72			0.72	0.72	0.72	0.72	0.72	
vC, conflicting volume	1336			1905			2638	3304	952	2339	3292	668
vC1, stage 1 conf vol							1968	1968		1323	1323	
vC2, stage 2 conf vol							670	1336		1016	1969	
vCu, unblocked vol	1336			1471			2495	3424	141	2077	3408	668
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	7.0
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	94			100			100	100	100	88	100	96
cM capacity (veh/h)	523			333			63	69	636	122	73	389

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	NB 1	SB 1
Volume Total	32	952	952	1	655	681	0	30
Volume Left	32	0	0	0	0	0	0	15
Volume Right	0	0	0	1	0	26	0	15
cSH	523	1700	1700	1700	333	1700	1700	186
Volume to Capacity	0.06	0.56	0.56	0.00	0.00	0.40	0.00	0.16
Queue Length 95th (ft)	5	0	0	0	0	0	0	14
Control Delay (s)	12.3	0.0	0.0	0.0	0.0	0.0	0.0	28.0
Lane LOS	B						A	D
Approach Delay (s)	0.2				0.0		0.0	28.0
Approach LOS							A	D

Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	59.0%	ICU Level of Service	B	
Analysis Period (min)	15			

Intersection: 1: Marlin Bay Drive/Shady Oaks Drive & Shore Drive

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	R	LT	R	LTR
Maximum Queue (ft)	142	234	222	65	19	213	225	72	92	36	182
Average Queue (ft)	53	102	87	4	1	77	87	6	30	3	74
95th Queue (ft)	101	215	194	37	6	172	186	38	72	20	146
Link Distance (ft)		1048	1048			628	628		551		674
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	200			225	213			188		125	
Storage Blk Time (%)	0	1	0	0		0	1	0	0		
Queuing Penalty (veh)	0	1	0	0		0	0	0	0		

Intersection: 2: Ocean Tides Drive/Powhatan Avenue & Shore Drive

Movement	EB	EB	WB	SB
Directions Served	L	T	TR	LTR
Maximum Queue (ft)	50	5	3	125
Average Queue (ft)	16	0	0	50
95th Queue (ft)	41	5	2	134
Link Distance (ft)		628	1758	627
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	100			
Storage Blk Time (%)				
Queuing Penalty (veh)				

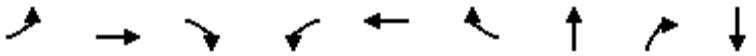
Network Summary

Network wide Queuing Penalty: 1

Appendix E
SYNCHRO Analysis Worksheets Sheets For 2025 Background Conditions

Queues
1: Marlin Bay Drive/Shady Oaks Drive & Shore Drive

03/25/2020

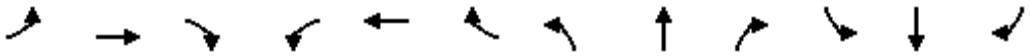


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	45	1325	16	3	1687	19	53	3	58
v/c Ratio	0.19	0.46	0.01	0.01	0.62	0.02	0.43	0.01	0.31
Control Delay	4.4	5.1	0.0	2.7	10.0	0.1	62.6	0.0	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.4	5.1	0.0	2.7	10.0	0.1	62.6	0.0	8.4
Queue Length 50th (ft)	5	124	0	0	328	0	40	0	0
Queue Length 95th (ft)	14	304	0	2	465	0	80	0	21
Internal Link Dist (ft)		999			623		557		653
Turn Bay Length (ft)	200		225	213		188		125	
Base Capacity (vph)	282	2898	1349	412	2730	947	174	263	235
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.46	0.01	0.01	0.62	0.02	0.30	0.01	0.25

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	1232	15	3	1569	18	48	1	3	14	0	40
Future Volume (vph)	42	1232	15	3	1569	18	48	1	3	14	0	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	6.2	6.2	6.2	6.2	6.2		6.0	6.0		6.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.90	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.99	
Satd. Flow (prot)	1770	3505	1615	1805	3574	1214		1811	1615		1520	
Flt Permitted	0.10	1.00	1.00	0.19	1.00	1.00		0.79	1.00		0.89	
Satd. Flow (perm)	183	3505	1615	358	3574	1214		1497	1615		1378	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	45	1325	16	3	1687	19	52	1	3	15	0	43
RTOR Reduction (vph)	0	0	4	0	0	5	0	0	3	0	54	0
Lane Group Flow (vph)	45	1325	12	3	1687	14	0	53	0	0	4	0
Heavy Vehicles (%)	2%	3%	0%	0%	1%	33%	0%	0%	0%	14%	0%	10%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8		8	4		
Actuated Green, G (s)	96.8	91.8	91.8	89.2	88.0	88.0		8.6	8.6		8.6	
Effective Green, g (s)	96.8	91.8	91.8	89.2	88.0	88.0		8.6	8.6		8.6	
Actuated g/C Ratio	0.81	0.76	0.76	0.74	0.73	0.73		0.07	0.07		0.07	
Clearance Time (s)	6.2	6.2	6.2	6.2	6.2	6.2		6.0	6.0		6.0	
Vehicle Extension (s)	3.0	4.0	4.0	3.0	4.0	4.0		3.0	3.0		3.0	
Lane Grp Cap (vph)	213	2681	1235	280	2620	890		107	115		98	
v/s Ratio Prot	c0.01	c0.38		0.00	c0.47							
v/s Ratio Perm	0.16		0.01	0.01		0.01		c0.04	0.00		0.00	
v/c Ratio	0.21	0.49	0.01	0.01	0.64	0.02		0.50	0.00		0.04	
Uniform Delay, d1	6.4	5.3	3.3	4.2	8.1	4.3		53.6	51.7		51.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	0.5	0.7	0.0	0.0	1.2	0.0		3.6	0.0		0.2	
Delay (s)	6.9	6.0	3.4	4.2	9.3	4.3		57.2	51.7		52.0	
Level of Service	A	A	A	A	A	A		E	D		D	
Approach Delay (s)		6.0			9.3			56.9			52.0	
Approach LOS		A			A			E			D	

Intersection Summary			
HCM 2000 Control Delay	9.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.4
Intersection Capacity Utilization	63.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	1278	1	0	1549	8	0	0	1	25	0	35
Future Volume (Veh/h)	5	1278	1	0	1549	8	0	0	1	25	0	35
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	5	1331	1	0	1614	8	0	0	1	26	0	36
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)		703										
pX, platoon unblocked				0.85			0.85	0.85	0.85	0.85	0.85	
vC, conflicting volume	1622			1332			2184	2963	666	2294	2960	811
vC1, stage 1 conf vol							1341	1341		1618	1618	
vC2, stage 2 conf vol							843	1622		676	1342	
vCu, unblocked vol	1622			1034			2038	2956	248	2168	2953	811
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.6	6.5	7.0
tC, 2 stage (s)							6.5	5.5		6.6	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			100	100	100	70	100	89
cM capacity (veh/h)	407			577			121	95	643	87	97	320

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	NB 1	SB 1
Volume Total	5	666	666	1	807	815	1	62
Volume Left	5	0	0	0	0	0	0	26
Volume Right	0	0	0	1	0	8	1	36
cSH	407	1700	1700	1700	577	1700	643	150
Volume to Capacity	0.01	0.39	0.39	0.00	0.00	0.48	0.00	0.41
Queue Length 95th (ft)	1	0	0	0	0	0	0	45
Control Delay (s)	14.0	0.0	0.0	0.0	0.0	0.0	10.6	44.8
Lane LOS	B						B	E
Approach Delay (s)	0.1				0.0		10.6	44.8
Approach LOS							B	E

Intersection Summary				
Average Delay	0.9			
Intersection Capacity Utilization	59.9%	ICU Level of Service	B	
Analysis Period (min)	15			

Intersection: 1: Marlin Bay Drive/Shady Oaks Drive & Shore Drive

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	R	LT	R	LTR
Maximum Queue (ft)	68	161	148	25	14	199	223	88	105	31	107
Average Queue (ft)	25	69	47	2	1	74	85	4	39	3	36
95th Queue (ft)	55	139	113	13	8	166	180	42	84	19	82
Link Distance (ft)		1048	1048			628	628		551		674
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	200			225	213			188		125	
Storage Blk Time (%)		0				0	1	0	0		
Queuing Penalty (veh)		0				0	0	0	0		

Intersection: 2: Ocean Tides Drive/Powhatan Avenue & Shore Drive

Movement	EB	WB	WB	NB	SB
Directions Served	L	LT	TR	LTR	LTR
Maximum Queue (ft)	32	5	2	22	391
Average Queue (ft)	4	0	0	1	201
95th Queue (ft)	21	5	2	8	474
Link Distance (ft)		1758	1758	444	627
Upstream Blk Time (%)					3
Queuing Penalty (veh)					0
Storage Bay Dist (ft)	100				
Storage Blk Time (%)					
Queuing Penalty (veh)					

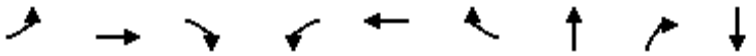
Network Summary

Network wide Queuing Penalty: 0

Queues

1: Marlin Bay Drive/Shady Oaks Drive & Shore Drive

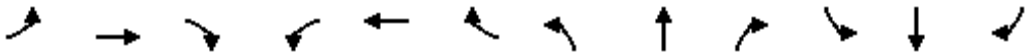
03/25/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	164	2024	38	2	1338	67	29	2	108
v/c Ratio	0.49	0.68	0.03	0.01	0.50	0.06	0.41	0.01	0.76
Control Delay	7.4	7.7	0.4	2.5	8.7	1.5	87.1	0.0	82.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.4	7.7	0.4	2.5	8.7	1.5	87.1	0.0	82.3
Queue Length 50th (ft)	25	346	0	0	270	1	29	0	80
Queue Length 95th (ft)	40	650	3	2	335	15	66	0	#159
Internal Link Dist (ft)		999			623		557		653
Turn Bay Length (ft)	200		225	213		188		125	
Base Capacity (vph)	398	2966	1351	215	2702	1212	90	158	165
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.68	0.03	0.01	0.50	0.06	0.32	0.01	0.65

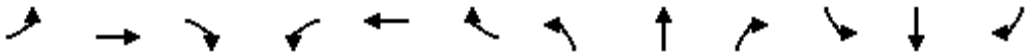
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	148	1822	34	2	1204	60	25	1	2	42	2	53
Future Volume (vph)	148	1822	34	2	1204	60	25	1	2	42	2	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	6.2	6.2	6.2	6.2	6.2		6.0	6.0		6.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.98	
Satd. Flow (prot)	1787	3574	1615	1805	3574	1583		1745	1077		1704	
Flt Permitted	0.16	1.00	1.00	0.07	1.00	1.00		0.53	1.00		0.85	
Satd. Flow (perm)	309	3574	1615	139	3574	1583		969	1077		1473	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	164	2024	38	2	1338	67	28	1	2	47	2	59
RTOR Reduction (vph)	0	0	8	0	0	15	0	0	2	0	28	0
Lane Group Flow (vph)	164	2024	30	2	1338	52	0	29	0	0	80	0
Heavy Vehicles (%)	1%	1%	0%	0%	1%	2%	4%	0%	50%	0%	0%	2%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8		8	4		
Actuated Green, G (s)	135.3	127.9	127.9	122.2	121.0	121.0		12.5	12.5		12.5	
Effective Green, g (s)	135.3	127.9	127.9	122.2	121.0	121.0		12.5	12.5		12.5	
Actuated g/C Ratio	0.85	0.80	0.80	0.76	0.76	0.76		0.08	0.08		0.08	
Clearance Time (s)	6.2	6.2	6.2	6.2	6.2	6.2		6.0	6.0		6.0	
Vehicle Extension (s)	3.0	4.0	4.0	3.0	4.0	4.0		3.0	3.0		3.0	
Lane Grp Cap (vph)	336	2856	1290	118	2702	1197		75	84		115	
v/s Ratio Prot	c0.02	c0.57		0.00	0.37							
v/s Ratio Perm	0.39		0.02	0.01		0.03		0.03	0.00		c0.05	
v/c Ratio	0.49	0.71	0.02	0.02	0.50	0.04		0.39	0.00		0.70	
Uniform Delay, d1	5.5	7.4	3.3	8.0	7.6	4.9		70.1	68.0		71.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	1.1	1.5	0.0	0.1	0.7	0.1		3.3	0.0		16.9	
Delay (s)	6.6	8.9	3.3	8.1	8.3	5.0		73.4	68.0		88.8	
Level of Service	A	A	A	A	A	A		E	E		F	
Approach Delay (s)		8.7			8.1			73.0			88.8	
Approach LOS		A			A			E			F	

Intersection Summary			
HCM 2000 Control Delay	11.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	18.4
Intersection Capacity Utilization	83.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	1816	1	0	1249	25	0	0	0	14	0	14
Future Volume (Veh/h)	31	1816	1	0	1249	25	0	0	0	14	0	14
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	33	1953	1	0	1343	27	0	0	0	15	0	15
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)		703										
pX, platoon unblocked				0.69			0.69	0.69	0.69	0.69	0.69	
vC, conflicting volume	1370			1954			2706	3389	976	2399	3376	685
vC1, stage 1 conf vol							2019	2019		1356	1356	
vC2, stage 2 conf vol							686	1370		1042	2020	
vCu, unblocked vol	1370			1487			2574	3563	73	2131	3545	685
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	7.0
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	93			100			100	100	100	87	100	96
cM capacity (veh/h)	508			317			59	64	678	118	69	379

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	NB 1	SB 1
Volume Total	33	976	976	1	672	698	0	30
Volume Left	33	0	0	0	0	0	0	15
Volume Right	0	0	0	1	0	27	0	15
cSH	508	1700	1700	1700	317	1700	1700	180
Volume to Capacity	0.07	0.57	0.57	0.00	0.00	0.41	0.00	0.17
Queue Length 95th (ft)	5	0	0	0	0	0	0	15
Control Delay (s)	12.6	0.0	0.0	0.0	0.0	0.0	0.0	28.9
Lane LOS	B						A	D
Approach Delay (s)	0.2				0.0		0.0	28.9
Approach LOS							A	D

Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	60.2%	ICU Level of Service	B	
Analysis Period (min)	15			

Intersection: 1: Marlin Bay Drive/Shady Oaks Drive & Shore Drive

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	R	LT	R	LTR
Maximum Queue (ft)	159	240	245	26	20	222	233	93	78	46	193
Average Queue (ft)	55	103	88	3	1	81	91	7	25	5	70
95th Queue (ft)	112	216	200	16	10	185	201	45	61	26	144
Link Distance (ft)		1048	1048			628	628		551		674
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	200			225	213			188		125	
Storage Blk Time (%)	0	1	0			0	1	0			
Queuing Penalty (veh)	0	1	0			0	0	0			

Intersection: 2: Ocean Tides Drive/Powhatan Avenue & Shore Drive

Movement	EB	WB	SB
Directions Served	L	TR	LTR
Maximum Queue (ft)	56	3	186
Average Queue (ft)	17	0	75
95th Queue (ft)	45	2	214
Link Distance (ft)		1758	627
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	100		
Storage Blk Time (%)	0		
Queuing Penalty (veh)	0		

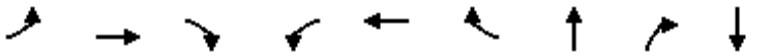
Network Summary

Network wide Queuing Penalty: 2

Appendix F
SYNCHRO Analysis Worksheets Sheets For 2025 Future Conditions

1: Marlin Bay Drive/Shady Oaks Drive & Shore Drive

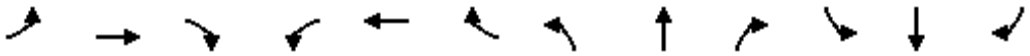
03/26/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	45	1329	29	5	1696	19	100	8	58
v/c Ratio	0.21	0.49	0.02	0.02	0.67	0.02	0.68	0.03	0.28
Control Delay	5.2	6.3	0.0	3.2	12.0	0.1	74.3	0.3	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.2	6.3	0.0	3.2	12.0	0.1	74.3	0.3	7.5
Queue Length 50th (ft)	6	155	0	1	378	0	75	0	0
Queue Length 95th (ft)	14	307	0	3	472	0	#135	0	21
Internal Link Dist (ft)		999			623		557		653
Turn Bay Length (ft)	200		225	213		188		125	
Base Capacity (vph)	262	2722	1273	388	2550	890	170	263	234
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.49	0.02	0.01	0.67	0.02	0.59	0.03	0.25

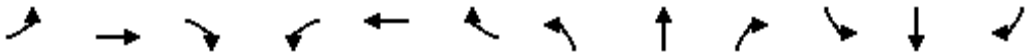
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	1236	27	5	1577	18	92	1	7	14	0	40
Future Volume (vph)	42	1236	27	5	1577	18	92	1	7	14	0	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	6.2	6.2	6.2	6.2	6.2		6.0	6.0		6.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.90	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.99	
Satd. Flow (prot)	1770	3505	1615	1805	3574	1214		1810	1615		1520	
Flt Permitted	0.09	1.00	1.00	0.18	1.00	1.00		0.77	1.00		0.89	
Satd. Flow (perm)	166	3505	1615	345	3574	1214		1460	1615		1369	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	45	1329	29	5	1696	19	99	1	8	15	0	43
RTOR Reduction (vph)	0	0	8	0	0	6	0	0	7	0	52	0
Lane Group Flow (vph)	45	1329	21	5	1696	13	0	100	1	0	6	0
Heavy Vehicles (%)	2%	3%	0%	0%	1%	33%	0%	0%	0%	14%	0%	10%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8		8	4		
Actuated Green, G (s)	93.4	88.3	88.3	85.6	84.4	84.4		12.1	12.1		12.1	
Effective Green, g (s)	93.4	88.3	88.3	85.6	84.4	84.4		12.1	12.1		12.1	
Actuated g/C Ratio	0.78	0.74	0.74	0.71	0.70	0.70		0.10	0.10		0.10	
Clearance Time (s)	6.2	6.2	6.2	6.2	6.2	6.2		6.0	6.0		6.0	
Vehicle Extension (s)	3.0	4.0	4.0	3.0	4.0	4.0		3.0	3.0		3.0	
Lane Grp Cap (vph)	197	2579	1188	260	2513	853		147	162		138	
v/s Ratio Prot	c0.01	c0.38		0.00	c0.47							
v/s Ratio Perm	0.17		0.01	0.01		0.01		c0.07	0.00		0.00	
v/c Ratio	0.23	0.52	0.02	0.02	0.67	0.02		0.68	0.00		0.04	
Uniform Delay, d1	8.4	6.7	4.2	5.4	10.1	5.3		52.1	48.5		48.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	0.6	0.7	0.0	0.0	1.5	0.0		12.2	0.0		0.1	
Delay (s)	9.0	7.5	4.3	5.4	11.5	5.4		64.3	48.5		48.8	
Level of Service	A	A	A	A	B	A		E	D		D	
Approach Delay (s)		7.5			11.4			63.1			48.8	
Approach LOS		A			B			E			D	

Intersection Summary			
HCM 2000 Control Delay	12.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.4
Intersection Capacity Utilization	65.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	1282	5	6	1551	8	8	0	25	25	0	35
Future Volume (Veh/h)	5	1282	5	6	1551	8	8	0	25	25	0	35
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	5	1335	5	6	1616	8	8	0	26	26	0	36
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)		703										
pX, platoon unblocked				0.83			0.83	0.83	0.83	0.83	0.83	
vC, conflicting volume	1624			1340			2201	2981	668	2336	2982	812
vC1, stage 1 conf vol							1345	1345		1632	1632	
vC2, stage 2 conf vol							856	1636		704	1350	
vCu, unblocked vol	1624			1000			2037	2977	189	2199	2978	812
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.6	6.5	7.0
tC, 2 stage (s)							6.5	5.5		6.6	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			99			93	100	96	69	100	89
cM capacity (veh/h)	406			581			122	94	686	84	95	320

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	NB 1	SB 1
Volume Total	5	668	668	5	814	816	34	62
Volume Left	5	0	0	0	6	0	8	26
Volume Right	0	0	0	5	0	8	26	36
cSH	406	1700	1700	1700	581	1700	328	146
Volume to Capacity	0.01	0.39	0.39	0.00	0.01	0.48	0.10	0.42
Queue Length 95th (ft)	1	0	0	0	1	0	9	47
Control Delay (s)	14.0	0.0	0.0	0.0	0.3	0.0	17.2	46.6
Lane LOS	B				A		C	E
Approach Delay (s)	0.1				0.2		17.2	46.6
Approach LOS							C	E

Intersection Summary				
Average Delay	1.2			
Intersection Capacity Utilization	60.2%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	48	52	0	14	18
Future Volume (Veh/h)	0	48	52	0	14	18
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	52	57	0	15	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						637
pX, platoon unblocked						
vC, conflicting volume	107	57			57	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	107	57			57	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	95			99	
cM capacity (veh/h)	882	1009			1547	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	52	57	35
Volume Left	0	0	15
Volume Right	52	0	0
cSH	1009	1700	1547
Volume to Capacity	0.05	0.03	0.01
Queue Length 95th (ft)	4	0	1
Control Delay (s)	8.8	0.0	3.2
Lane LOS	A		A
Approach Delay (s)	8.8	0.0	3.2
Approach LOS	A		

Intersection Summary			
Average Delay	3.9		
Intersection Capacity Utilization	18.4%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection: 1: Marlin Bay Drive/Shady Oaks Drive & Shore Drive

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	R	LT	R	LTR
Maximum Queue (ft)	61	185	174	26	60	272	280	71	174	60	111
Average Queue (ft)	23	89	65	3	5	93	108	4	75	7	34
95th Queue (ft)	53	153	134	17	36	197	210	34	144	35	83
Link Distance (ft)		1048	1048			628	628		555		674
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	200			225	213			188		125	
Storage Blk Time (%)		0	0			1	1	0	3	0	
Queuing Penalty (veh)		0	0			0	0	0	0	0	

Intersection: 2: Ocean Tides Drive/Powhatan Avenue & Shore Drive

Movement	EB	WB	WB	NB	SB
Directions Served	L	LT	TR	LTR	LTR
Maximum Queue (ft)	28	133	93	98	410
Average Queue (ft)	4	10	4	29	212
95th Queue (ft)	18	61	41	72	495
Link Distance (ft)		1758	1758	444	627
Upstream Blk Time (%)					1
Queuing Penalty (veh)					0
Storage Bay Dist (ft)	100				
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 3: Marlin Bay Drive & Site Ent.

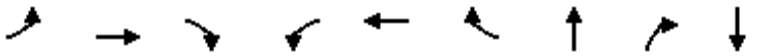
Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	58	24
Average Queue (ft)	27	1
95th Queue (ft)	51	12
Link Distance (ft)	234	555
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 1

1: Marlin Bay Drive/Shady Oaks Drive & Shore Drive

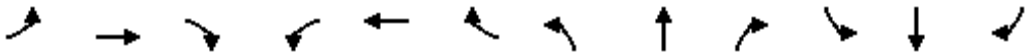
03/26/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	164	2038	80	11	1343	67	57	4	108
v/c Ratio	0.50	0.70	0.06	0.07	0.50	0.06	0.74	0.03	0.76
Control Delay	7.6	9.3	1.6	3.4	8.8	1.5	119.2	0.2	82.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.6	9.3	1.6	3.4	8.8	1.5	119.2	0.2	82.1
Queue Length 50th (ft)	26	362	3	2	277	1	59	0	80
Queue Length 95th (ft)	40	660	18	5	337	15	#127	0	#162
Internal Link Dist (ft)		999			623		557		653
Turn Bay Length (ft)	200		225	213		188		125	
Base Capacity (vph)	396	2907	1325	209	2697	1210	90	158	163
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.70	0.06	0.05	0.50	0.06	0.63	0.03	0.66

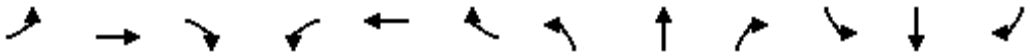
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	148	1834	72	10	1209	60	50	1	4	42	2	53
Future Volume (vph)	148	1834	72	10	1209	60	50	1	4	42	2	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	6.2	6.2	6.2	6.2	6.2		6.0	6.0		6.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.98	
Satd. Flow (prot)	1787	3574	1615	1805	3574	1583		1743	1077		1704	
Flt Permitted	0.16	1.00	1.00	0.07	1.00	1.00		0.53	1.00		0.83	
Satd. Flow (perm)	307	3574	1615	131	3574	1583		965	1077		1450	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	164	2038	80	11	1343	67	56	1	4	47	2	59
RTOR Reduction (vph)	0	0	13	0	0	15	0	0	4	0	28	0
Lane Group Flow (vph)	164	2038	67	11	1343	52	0	57	0	0	80	0
Heavy Vehicles (%)	1%	1%	0%	0%	1%	2%	4%	0%	50%	0%	0%	2%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8		8	4		
Actuated Green, G (s)	134.6	126.5	126.5	123.2	120.8	120.8		12.7	12.7		12.7	
Effective Green, g (s)	134.6	126.5	126.5	123.2	120.8	120.8		12.7	12.7		12.7	
Actuated g/C Ratio	0.84	0.79	0.79	0.77	0.75	0.75		0.08	0.08		0.08	
Clearance Time (s)	6.2	6.2	6.2	6.2	6.2	6.2		6.0	6.0		6.0	
Vehicle Extension (s)	3.0	4.0	4.0	3.0	4.0	4.0		3.0	3.0		3.0	
Lane Grp Cap (vph)	333	2825	1276	125	2698	1195		76	85		115	
v/s Ratio Prot	c0.02	c0.57		0.00	0.38							
v/s Ratio Perm	0.39		0.04	0.07		0.03		c0.06	0.00		0.06	
v/c Ratio	0.49	0.72	0.05	0.09	0.50	0.04		0.75	0.00		0.70	
Uniform Delay, d1	5.6	8.2	3.7	8.9	7.7	5.0		72.1	67.8		71.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	1.1	1.6	0.1	0.3	0.7	0.1		33.4	0.0		16.9	
Delay (s)	6.7	9.8	3.7	9.2	8.4	5.0		105.5	67.8		88.7	
Level of Service	A	A	A	A	A	A		F	E		F	
Approach Delay (s)		9.4			8.2			103.0			88.7	
Approach LOS		A			A			F			F	

Intersection Summary			
HCM 2000 Control Delay	12.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	18.4
Intersection Capacity Utilization	83.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	1818	13	19	1268	25	5	0	14	14	0	14
Future Volume (Veh/h)	31	1818	13	19	1268	25	5	0	14	14	0	14
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	33	1955	14	20	1363	27	5	0	15	15	0	15
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)		703										
pX, platoon unblocked				0.68			0.68	0.68	0.68	0.68	0.68	
vC, conflicting volume	1390			1969			2758	3451	978	2475	3452	695
vC1, stage 1 conf vol							2021	2021		1416	1416	
vC2, stage 2 conf vol							736	1430		1058	2035	
vCu, unblocked vol	1390			1475			2641	3667	9	2223	3668	695
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	7.0
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	93			94			91	100	98	85	100	96
cM capacity (veh/h)	499			313			58	61	728	103	57	373

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	NB 1	SB 1
Volume Total	33	978	978	14	702	708	20	30
Volume Left	33	0	0	0	20	0	5	15
Volume Right	0	0	0	14	0	27	15	15
cSH	499	1700	1700	1700	313	1700	187	162
Volume to Capacity	0.07	0.57	0.57	0.01	0.06	0.42	0.11	0.19
Queue Length 95th (ft)	5	0	0	0	5	0	9	16
Control Delay (s)	12.7	0.0	0.0	0.0	2.3	0.0	26.6	32.2
Lane LOS	B				A		D	D
Approach Delay (s)	0.2				1.1		26.6	32.2
Approach LOS							D	D

Intersection Summary				
Average Delay	1.0			
Intersection Capacity Utilization	60.3%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	27	0	28	0	46	38
Future Volume (Veh/h)	27	0	28	0	46	38
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	0	30	0	50	41
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						637
pX, platoon unblocked						
vC, conflicting volume	171	30			30	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	171	30			30	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	100			97	
cM capacity (veh/h)	793	1044			1583	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	29	30	91
Volume Left	29	0	50
Volume Right	0	0	0
cSH	793	1700	1583
Volume to Capacity	0.04	0.02	0.03
Queue Length 95th (ft)	3	0	2
Control Delay (s)	9.7	0.0	4.1
Lane LOS	A		A
Approach Delay (s)	9.7	0.0	4.1
Approach LOS	A		

Intersection Summary			
Average Delay	4.4		
Intersection Capacity Utilization	21.2%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection: 1: Marlin Bay Drive/Shady Oaks Drive & Shore Drive

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	R	LT	R	LTR
Maximum Queue (ft)	171	301	282	109	29	226	258	121	132	82	178
Average Queue (ft)	61	118	106	9	7	87	103	9	51	7	72
95th Queue (ft)	120	240	226	50	24	190	214	58	108	39	143
Link Distance (ft)		1048	1048			628	628		557		674
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	200			225	213			188		125	
Storage Blk Time (%)	0	1	1	0		0	1	0	1	0	
Queuing Penalty (veh)	0	1	0	0		0	1	0	0	0	

Intersection: 2: Ocean Tides Drive/Powhatan Avenue & Shore Drive

Movement	EB	WB	WB	NB	SB
Directions Served	L	LT	TR	LTR	LTR
Maximum Queue (ft)	51	212	216	106	215
Average Queue (ft)	18	60	34	31	92
95th Queue (ft)	44	175	145	101	283
Link Distance (ft)		1758	1758	444	627
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	100				
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 3: Marlin Bay Drive & Site Ent

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	45	28
Average Queue (ft)	17	2
95th Queue (ft)	41	13
Link Distance (ft)	219	557
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 3