Appendices

Traffic Impact Analysis

Environmental Assessment

Archeological and Historic Assessment (TBD)

Site Photos

Orange County Public Schools Informal School Capacity Determination

Appendix C. Traffic Study

Traffic Impact and Capacity Study

Town of Oakland - State Route 50/W Colonial Drive

Feb 6, 2019

Notice

This document and its contents have been prepared and are intended solely as information for and use in relation to identifying the potential impacts of the proposed development on the Town of Oakland's transportation system, specifically State Route 50/W Colonial Drive. Identifying the potential impacts of the proposed development on the Town of Oakland's transportation system, specifically SR-50.

Atkins North America, Inc. assumes no responsibility to any other party in respect of or arising out of or in connection with this document and/or its contents.

This document has 34 pages including the cover.

Document history

Revision	Purpose description	Origin-ated	Checked	Reviewed	Author-ised	Date
Rev 1.0	Initial Study Submission	CSR	KJB	CSR	WW	07/26/2018
Rev 2.0	Revised Study Submission	CSR	KJB	CSR	WW	09/07/2018
Rev 3.0	Revised Study based on development size	CSR	TS	CSR	WW	02/06/201

Client signoff

Client	LIV
Project	Traffic Impact and Capacity Study
Job number	
Client signature / date	

Contents

Tables

Figures

Executive Summary

The purpose of this traffic impact and capacity study is to identify the potential impacts of the proposed development on the Town of Oakland transportation system, specifically the development's adjacent roadway, SR-50/W Colonial Drive and nearby signalized intersections.

The proposed 242-unit multi-family residential development will be located south of SR-50 between the signalized intersections of Lake Boulevard and Oakland Avenue/Deer Isle Drive and east of unsignalized Orange Avenue. Access to the development will be provided via a full driveway connection along Orange Avenue and a right-in/right-out connection along SR-50.

The project location is currently a vacant lot and was recently annexed into the Town of Oakland's boundaries.

Based on the annexation, this assessment of the traffic impacts associated with the project was performed in accordance with the requirements and methodology approved by the Town of Oakland. The analysis identified the development traffic volume generated by the development and how that additional volume affects the surrounding roadway network

The Town of Oakland development trip generation was evaluated using the Institute of Transportation Engineers (ITE) Trip Generation Manual 10th Edition and follows the methodologies prescribed in the ITE Trip Generation Handbook 3rd Edition. The trips were distributed and applied to SR-50 roadway network using a manual distribution method based on the 2025 background traffic volume distribution.

Existing traffic counts indicate that portions of SR-50 already exceed the Town's acceptable LOS standards for the overall daily, eastbound direction in the AM, and westbound direction in the PM. The results of the analysis show that while the project generates traffic along SR-50 it does not adversely affect the resulting LOS. The following lists provide a summary of the segment analysis.

- Segments with traffic volumes exceeding the Town's LOS standards before project trips are applied:
    - SR-50 between Lake Avenue and Oakland Avenue
    - SR-50 between Oakland Avenue and Turnpike Ramps
- Segments with traffic volumes within the Town's LOS standards with trips applied:
    - SR-50 west of Lake Boulevard
    - SR-50 east of the Turnpike to Tubb Street
    - Oakland Avenue from SR-50 to Tubb Street

The intersection analysis showed that in both background and build scenarios the overall intersection LOS for the following intersections is within the Town's LOS standards.

- SR-50 and Lake Boulevard (signalized)
- SR-50 and Oakland Avenue/Deer Isle Drive (signalized)
- Orange Avenue and Proposed West Access Driveway (unsignalized)

Driveways and queuing analysis was performed for all locations which project trips were assigned. Right-turn warrant analysis showed that the peak hour project trips do not exceed the recommended guidelines for exclusive right turn use.

Analysis of existing left turn storage lengths was conducted to determine if the available storage and queue length remained serviceable in the future conditions. The westbound left turn along SR-50 at Orange Avenue was calculated sufficient, while the eastbound left turn lane along SR-50 at Oakland Avenue is estimated to be insufficient by 220 feet in the PM analysis.

In summary, the segment of SR-50 is already over capacity and thus the impacts introduced by the trips associated with this project are not significant in the degradation of SR-50 or adjacent intersections.

1. Introduction

Atkins has prepared the following report to examine the relationship between land use and transportation to determine the traffic impacts associated with the planned development of the LIV Oakland apartment complex containing 242 multi-family residential units. The development will be located south of SR-50 between the signalized intersections of Lake Boulevard and Oakland Avenue/Deer Isle Drive and east of unsignalized Orange Avenue. Access to the development will be provided via a full driveway connection along Orange Avenue and a right-in/right-out connection along SR-50.

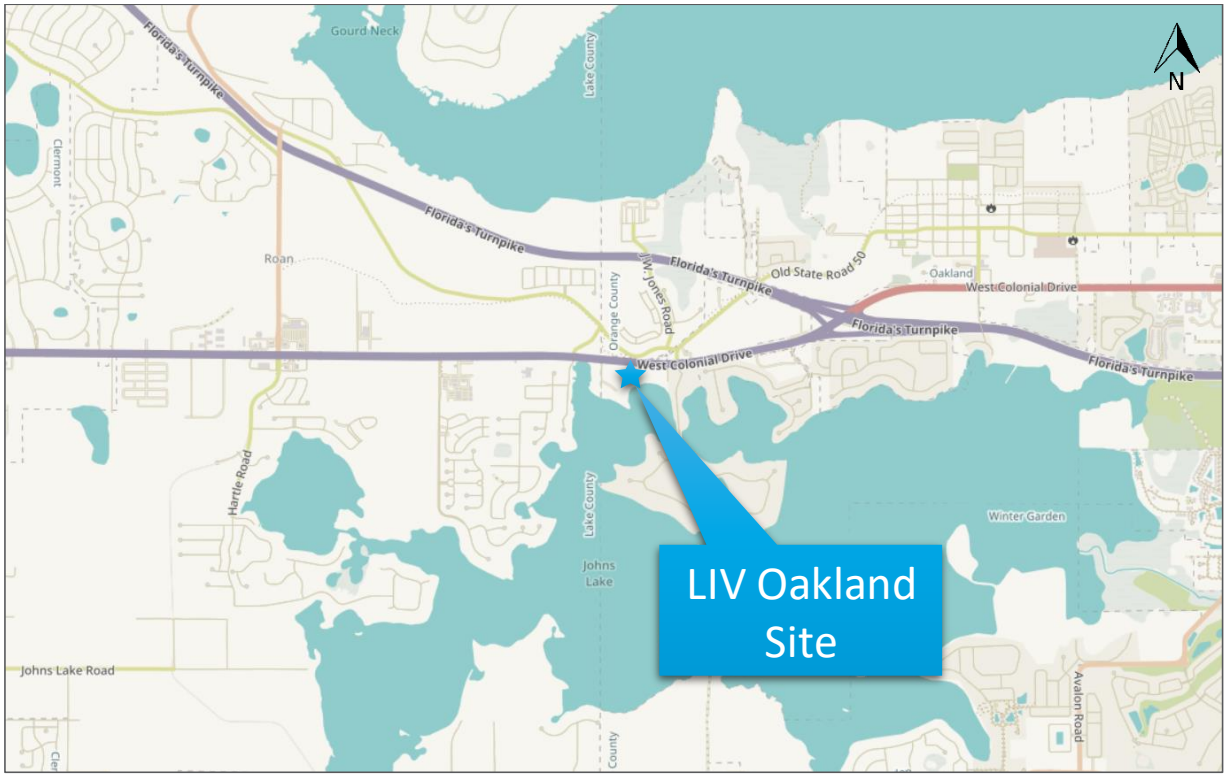
The anticipated full build-out year is 2025.

The project location is currently a vacant lot and was recently annexed into the Town of Oakland's boundaries.

Based on the annexation this assessment of the traffic impacts associated with the project was performed in accordance with the requirements and methodology approved by the Town of Oakland; provided in Appendix A. The analysis identified the development traffic volume generated by the development and how that additional volume affects the surrounding roadway network. The latest concept of the development can be found in Appendix B.

Below is a figure summarizing the proposed development location, data collection locations, and study area extents.

Figure 1-1 - Site Location Summary



2. Background Data Collection

2.1. Study Area Existing Transportation Facilities

The study area extents were determined using the Town of Oakland's Traffic Impact Study Guidelines (2014). The guidelines recommend the roadway network analysis include all roadway links and intersections having 5% or greater project traffic of the Maximum Allowable Volume (MAV) for the roadway link; or in cases where the Average Daily Traffic exceeds the capacity of a corridor, the project traffic shall be analyzed on links and nodes out of the de minims impact of 1% of MAV. Based on existing counts performed by Orange County SR-50 between Lake Boulevard and the Florida Turnpike ramps are currently over capacity. In response, the 1% threshold is applied to this corridor.

The evaluation will include the following intersections:

- SR-50 and Lake Boulevard
- SR-50 and Oakland Avenue/Deer Isle Drive
- SR-50 and Orange Avenue
- SR-50 and Proposed Right-in/Right-out driveway
- Orange Avenue and Proposed West Access Driveway

The evaluation will include the following roadway segments:

- SR-50 – Lake County Line to Tubb Street
- Oakland Avenue (CR 438) – SR-50 to Tubb Street

Provided in the table below is an inventory of the roadway segments within the study area. Throughout the development area, the proposed development site lies in a "Mixed Use – Commercial (Office and Retail)" zone according to the Town of Oakland's Comprehensive Plan.

Table 2-1 - Existing Roadway Segment Characteristics

Roadway	Segment Extents		Speed Limit	Facility Type	Median Type	Functional Class	Pedestrian Facilities
	From	To					
SR-50	Magnolia Pointe Blvd	Lake Blvd	50 MPH	- 6-lane - left turn lanes - right turn lanes	Divided	Urban Principal Arterial	Sidewalks Both Sides
SR-50	Lake Blvd	Oakland Ave	50 MPH	- 6-lane - left turn lanes	Divided	Urban Principal Arterial	Sidewalks Both Sides
SR-50	Oakland Ave	Remington Rd/Turnpike Ramps	50 MPH	- 6-lane - left turn lanes	Divided	Urban Principal Arterial	Sidewalks Both Sides
Lake Blvd	Jefferson St	SR-50	NPSL	- 2-Lane	Undivided	Local Street	None
Lake Blvd	SR-50	SR-438	NPSL	- 2-Lane	Undivided	Local Street	None
Orange Ave	Beginning	SR-50	NPSL	- 2-Lane	Undivided	Local Street	None
Deer Isle	Deer Isle	SR-50	NPSL	- 2-Lane	Undivided	Local Street	None
Oakland Ave / CR-438	SR-50	Tubb St	45 MPH	- 2-Lane	Undivided	Urban Major Collector	Adjacent West Orange Trail

2.2. Adopted LOS

Based on the Town of Oakland's Comprehensive Plan, SR-50 has adopted LOS D per the standard for State maintained roads. All other roads within the city that are not State or County maintained, are classified as local roads with adopted LOS E.

2.3. Traffic Volume Data Collection

Traffic volume turning movement counts capturing the AM and PM peak hours were collected on July 17, 2018, for the analysis periods summarized Table 2-2 below. The Florida Traffic Online 2017 Peak Season Factor Category Reports for Orange County were used to apply a season factor of 1.01 to the collected turning movement counts. The season factor reports, complete turning movement counts and tube counts are located in Appendix C.

Table 2-2 - 2017 Turning Movement Count Collection Summary

Period	Count Collection Period	Peak Hour
AM Peak	7:00 AM – 9:00 AM	7:30 AM – 8:30 AM
PM Peak	4:30 AM – 6:30 AM	5:00 PM - 6:00 PM

2.4. Background Turning Movement Volume Development

Background Growth

The ten most recent years of historical AADT were collected from the Orange County Traffic Counts Online Database. This count station is located along SR-50 approximately 2,000 feet east of the proposed project site. Between 2010-2012 there were no counts collected at this site due to construction. For these three years, linear interpolation between the 2009 and 2013 counts was assumed. The FDOT Trends software resulted in a linear growth rate out to the design year 2025 to be 2.19%. Historical traffic Trends Analysis can be found in Appendix C.

Vested Trips

Vested Trips within the area of influence were not applied to the project impact analysis.

The following figures provide the existing 2018 and 2025 background peak hour volumes of the external network.

Figure 2-1 - 2018 Existing Peak Hour Volumes

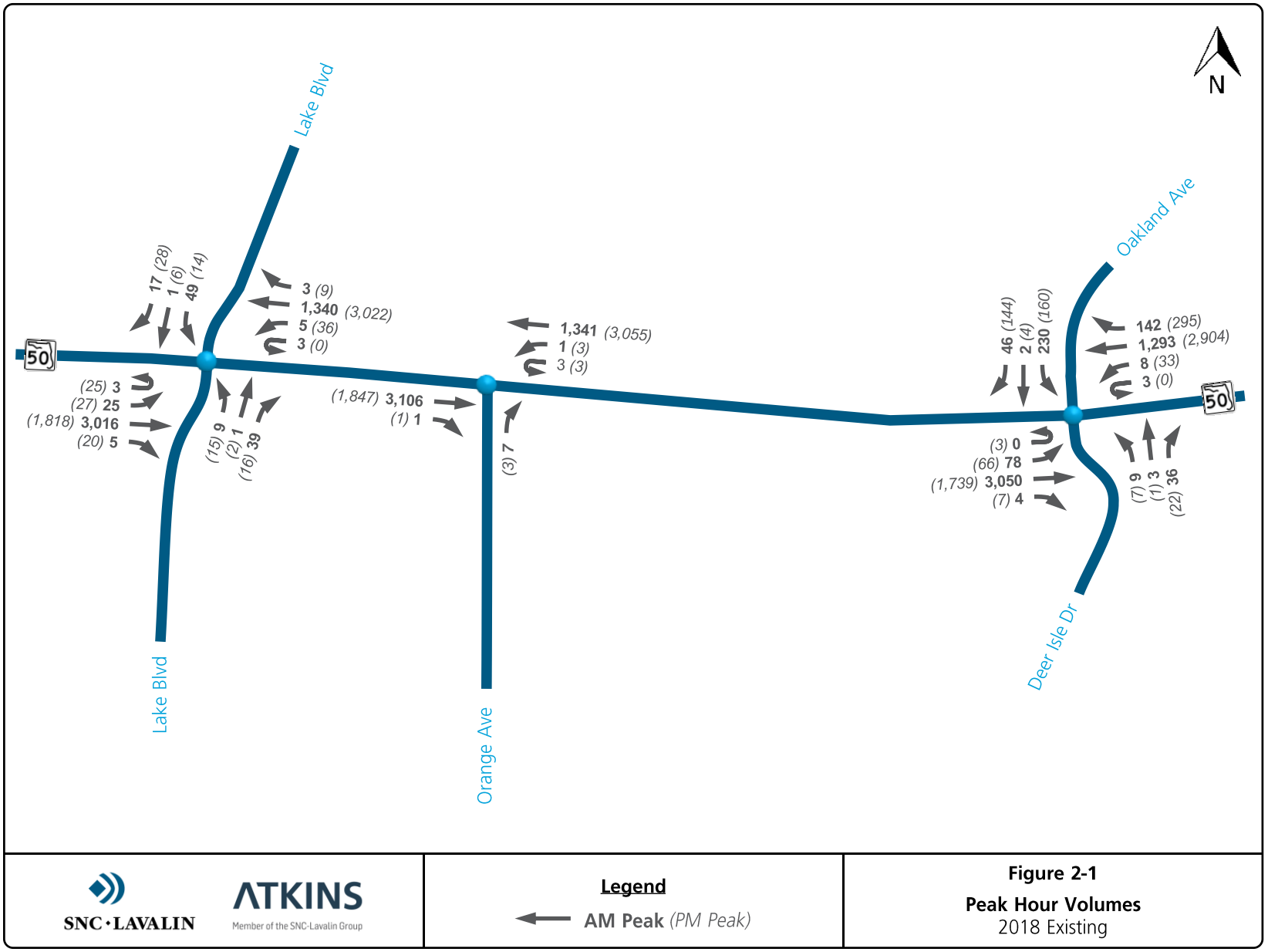
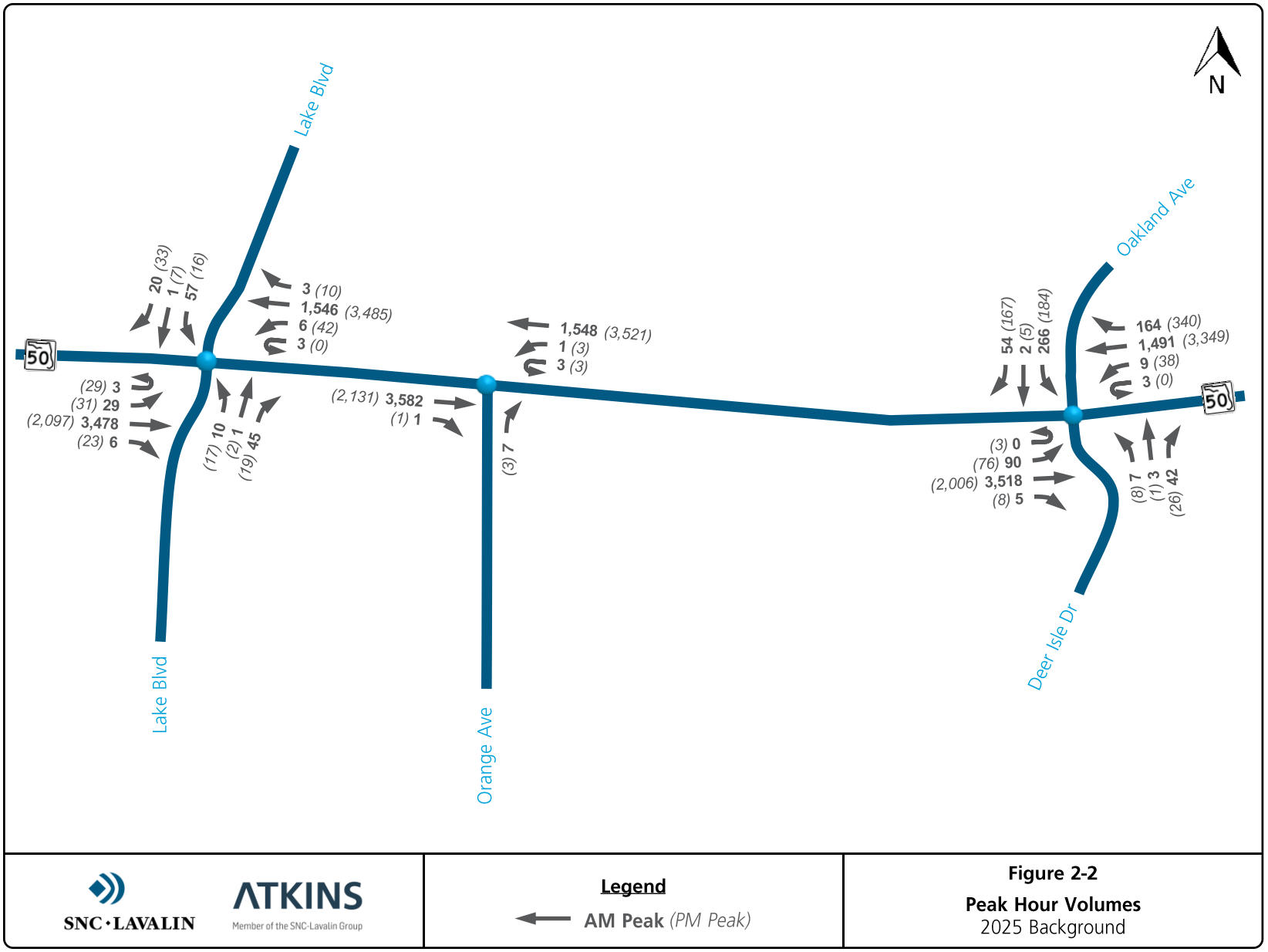


Figure 2-2 - 2025 Background Peak Hour Volumes



2.5. Background Segment Volume Development

Segment AADT volumes for the study were retrieved from the Orange County Traffic Counts Online Database. Table 2-3 and Table 2-4 list the existing AADT, peak hour directional capacity, and the Service Volume provided by FDOT's 2012 Quality/Level of Service Tables. The counts collected from Orange County Traffic can be found in Appendix C.

Table 2-3 - 2017 Daily Traffic Roadway Information

Facility	Speed Limit (mph)	2017 AADT	LOS D Service Volume Capacity	V/C	LOS	Allowable LOS
SR-50 (Lake County Line to Remington Road	50	61,750	59,900	1.03	F	D
SR-50 (Remington Road/Turnpike to Tubb St)	50	28,483	59,900	0.48	C	D
Oakland Avenue (SR-50 to Tubb St)	35	4,210	15,600	0.27	C	E

Sources: Orange County Traffic Engineering Department (2017)
FDOT 2012 Quality/Level of Service Handbook Generalized Tables

Table 2-4 - Peak Hour Direction & Capacity Data

Facility	Approach	Speed Limit (mph)	2017 Peak Hour Direction	LOS D Service Volume Capacity	V/C	LOS	Allowable LOS
SR-50	Eastbound	50	3,183 (AM)	3,020	1.05	F	D
SR-50	Westbound	50	2,855 (PM)	3,020	0.95	D	D
Oakland Avenue (SR-50 to Tubb St)	Eastbound	35	190 (AM)	575	0.33	C	E
Oakland Avenue (SR-50 to Tubb St)	Westbound	35	350 (PM)	575	061	C	E

Sources: Orange County Traffic Engineering Department (2017)
FDOT: Florida Traffic Online 2017
FDOT 2012 Quality/Level of Service Handbook Generalized Tables

3. Trip Generation

The Town of Oakland development trip generation was evaluated using the Institute of Transportation Engineers (ITE) Trip Generation Manual 10th Edition and follows the methodologies prescribed in the ITE Trip Generation Handbook 3rd Edition.

3.1. Development Land Use

The LIV Oakland apartment complex will include 242 multi-family units spanned across two buildings, each four stories tall. Based on the ITE 10th Edition Manual, the proposed development falls under ITE land use code 221: “Multifamily Housing (Mid-Rise)” with Daily, AM Peak, and PM Peak trip generation based on the development’s number of dwelling units (242) as detailed below:

Table 3-1– Development Land Use Summary

Land Use		Size	Units	Analysis Period	Total Trips	Entering Trips	Exiting Trips
LU 221	Multifamily Housing (Mid-Rise)	242	Dwelling Units	Daily	1,317	659	658
				AM Peak	87	23	64
				PM Peak	106	65	41

* No pass-by, internal, or modal split trips assumed

3.2. Internal Capture and Pass-by Capture

Since the development is being evaluated as a single-use development, internal capture is not expected. The Trip Generation Handbook 3rd Edition does not provide pass-by information for the Multifamily Housing land use type, therefore pass-by trips are not considered within the analysis.

3.3. Modal Split

Based on the surrounding land use It is expected that the majority of trips will be vehicle trips. To remain conservative in modal split calculations it is assumed all trips will be vehicle-based.

4. Trip Distribution

The distribution of project trips on the roadway is a manual assignment derived from the background traffic volume network. Both the Orange County historical counts and 2018 counts show daily counts are approximately split 50/50 eastbound and westbound. However, because the development represents a trip generator the existing count distribution do not capture the gravity of the trips generated at this site. A solution is to assume that the number of trips generated in the AM peak period must also return to their residency in the PM hour. The AM daily distribution averages out to be approximately two-thirds (66.7%) to the east and one-third (33.3% to the west). In the PM these percentages flip, as two-thirds are returning from the east and one-third returns from the west.

The daily trips are distributed with this percentile split and analyzed with a different traffic mix on either side of the development. Additionally, there are no left turns out of the development so all westbound trips are modeled as right turns out of the development that make a U-turn at Oakland Avenue. This results in WB destination trips being counted in the segmentation between the development and Oakland Avenue in both the Eastbound and Westbound directions of travel.

The peak hour trip distribution was conducted by first utilizing the general peak hour distribution to initiate the direction out of the property. In the AM peak period, the outbound traffic is 68% eastbound and 32% westbound. In the PM the inbound traffic is 64% from the east and 36% from the west. These peak hour volumes were further distributed to nearby intersections by assuming the same turning movement percentages as collected as part of the turning movement count data collection.

The following figures in Section 4.1 illustrate the Daily, AM Peak, and PM Peak project trip distribution trends of the new development.

4.1. 2025 Build Intersection Volumes

After the project trip distribution was completed, the project trips were applied to the 2025 background AM peak and PM peak hour turning movement volumes. The following figures provide the AM and PM peak hour build turning movement volumes.

Figure 4-1 - 2025 Build Daily Project Trip Distribution

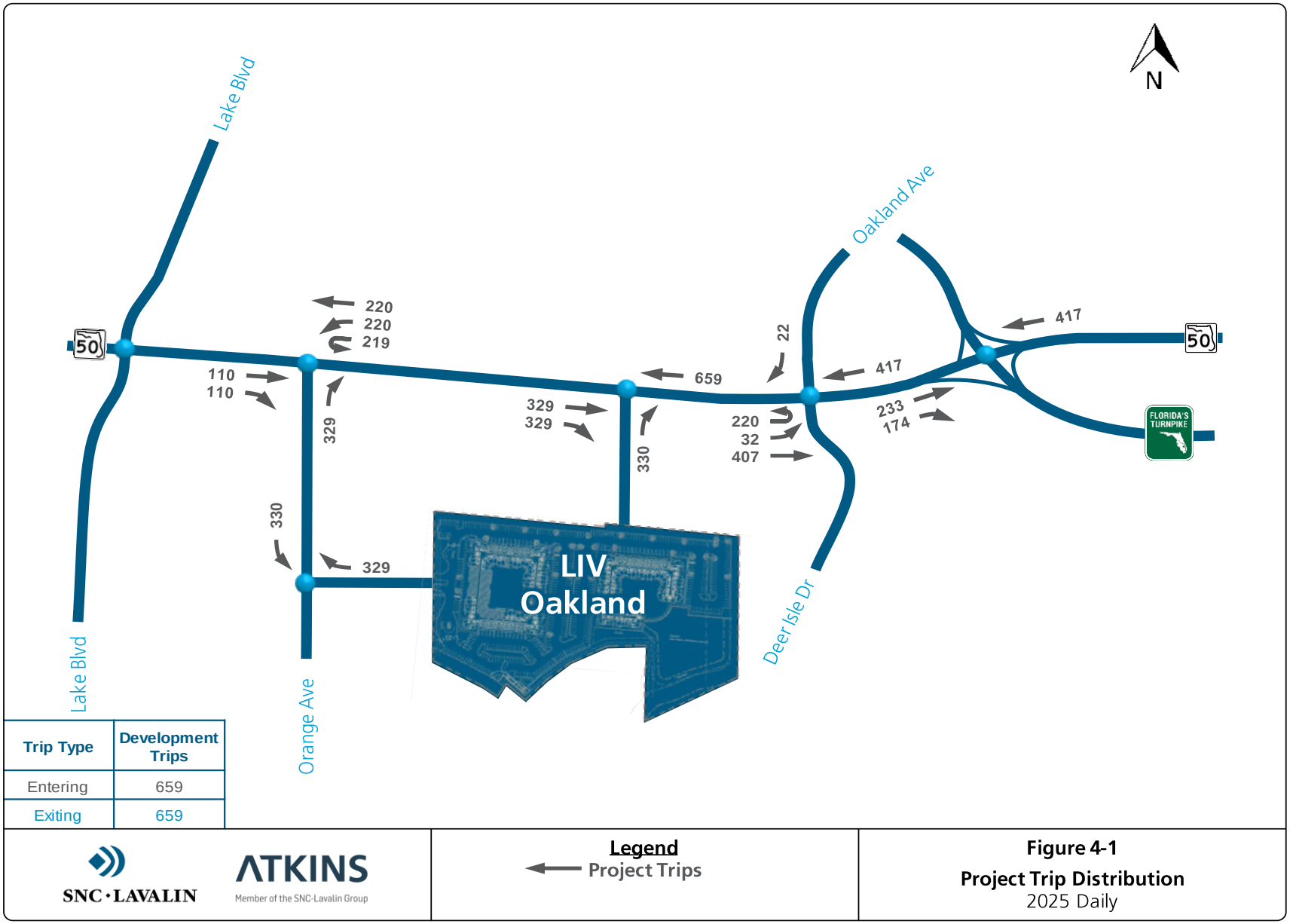


Figure 4-2 - 2025 Build AM Peak Project Trip Distribution

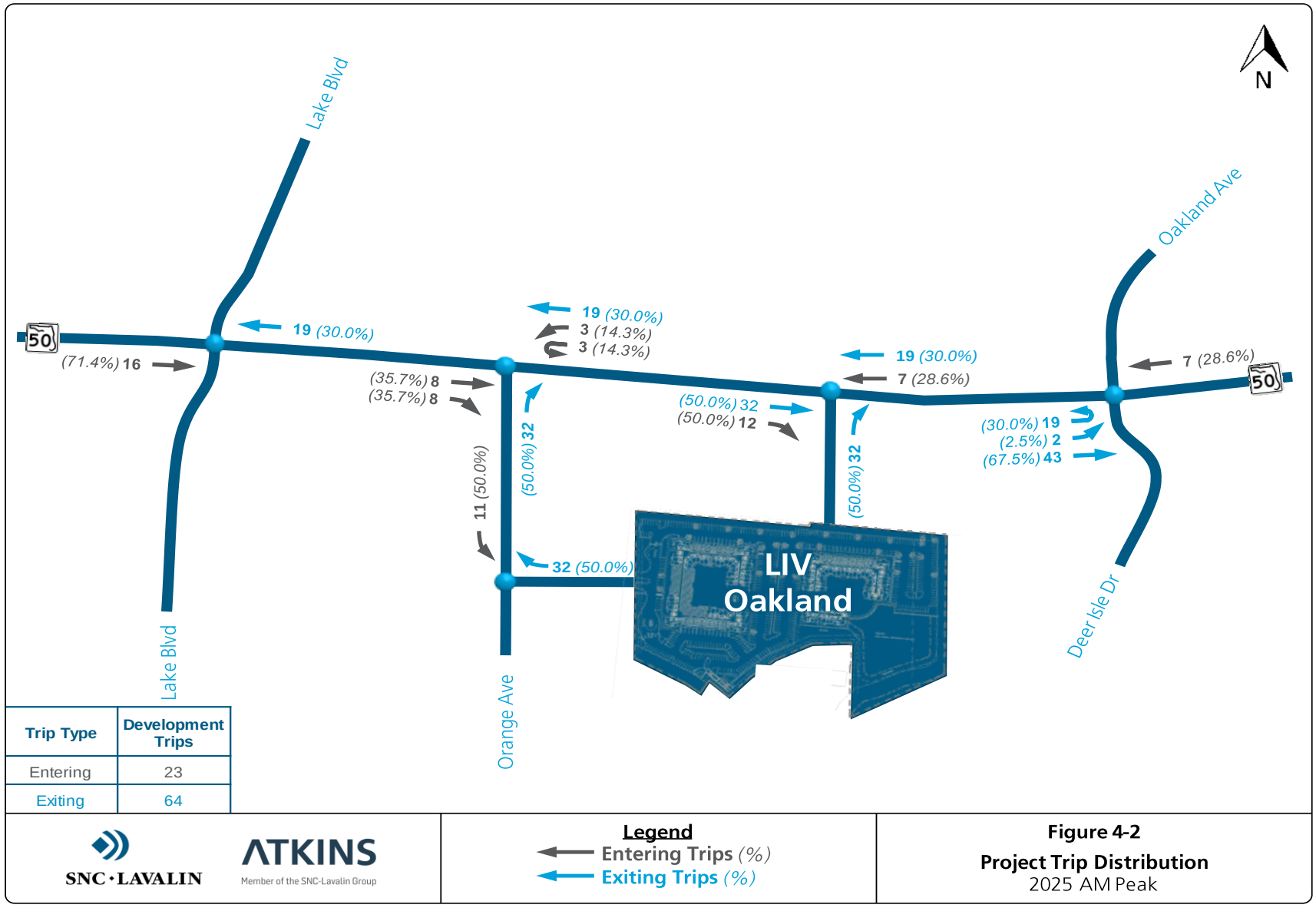


Figure 4-3 - 2025 Build PM Peak Project Trip Distribution

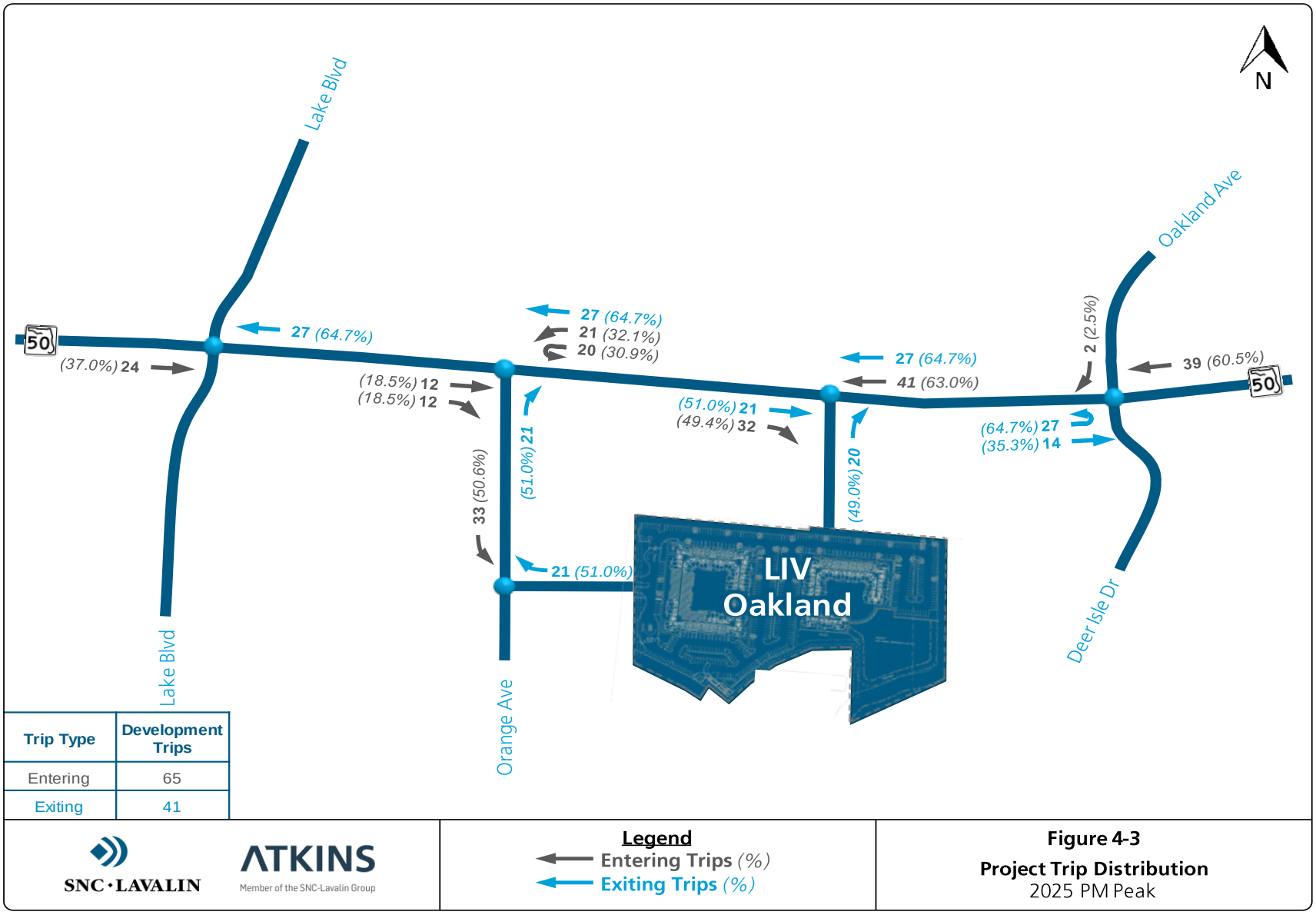
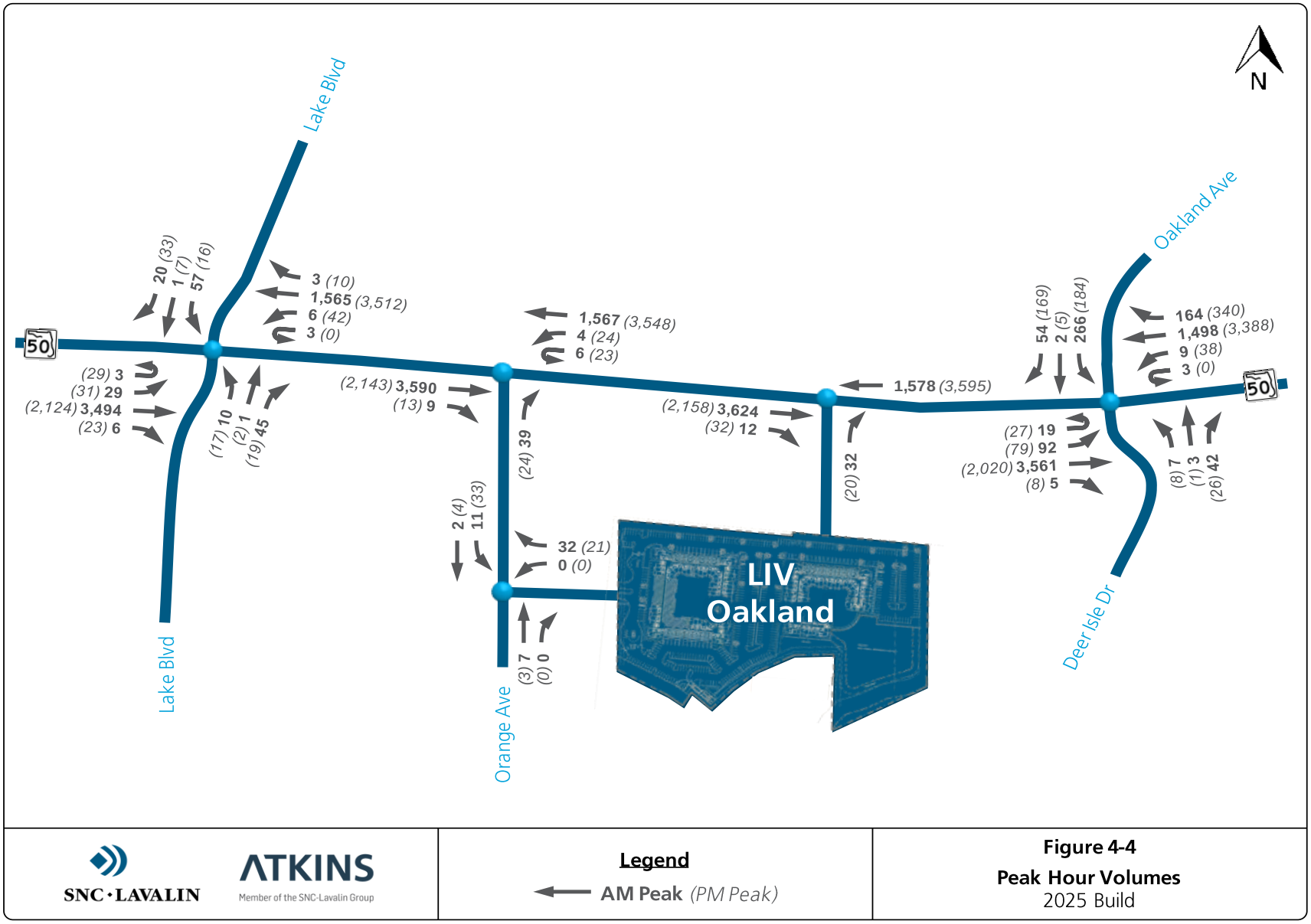


Figure 4-4 - 2025 Build Peak Hour Volumes



5. Capacity Analysis

5.1. Segment Significance Analysis

A significance analysis was performed for the roadways within the study area. According to the Town of Oakland's Comprehensive Plan and Traffic Impact Study Guidelines project traffic is determined significant if project trips are projected to be greater than or equal to 5% of the segment's Maximum Allowable Volume (MAV); or in cases where the Average Daily Traffic exceeds the capacity of a corridor, the project traffic shall be analyzed on links and nodes out of the de minims impact of 1% of MAV. As documented in the existing conditions section SR-50 exceeds the current MAV, therefore 1% is used as the MAV for this facility. SR-50 East of the Turnpike and Oakland Avenue is currently under capacity so the 5% threshold is used. MAV thresholds at significant locations near the site are listed in Table 5-1 below.

Table 5-1 - Segment Significance Summary

Road	Location	New Daily Project Trips	MAV[1]	% MAV	Significance Threshold	Significance Threshold Exceeded?
SR-50	West of Orange Avenue	440	59,900	0.73%	1%	No
SR-50	East of Orange Avenue to Oakland Ave	1,318	59,900	2.2%	1%	Yes
SR-50	Oakland Ave to Turnpike	824	59,900	1.38%	1%	Yes
SR-50	Turnpike to Tubb St	650	59,900	1.09%	5%	No
Oakland Avenue	SR-50 to Tubb St	54	15,600[2]	0.35%	5%	No

[1] Maximum Allowable Volume (MAV) = LOS D Generalized Service Volume obtained from 2013 FDOT Quality/LOS Handbook.

[2] Turnpike SB ramp volumes were calculated by using 2017 AADT distribution of traffic on SR 50. Eastbound towards turnpike (Orange County Count) is 31,500 AADT and Westbound towards the turnpike (FTI site 750380) is 15,000 AADT. The combined Turnpike ramp is 19,850 AADT. Using the approach percentages equates to 13,500 AADT from the west of SR 50. This is 43% of the eastbound traffic. Therefore, we assume 43% of eastbound trips will enter the Turnpike.

Based on the roadway significance analysis, SR-50 east of the development to the Turnpike ramps exceeds the 1% significance threshold for facilities over capacity. No other segments show significance based on their respective threshold percentage. As such, the evaluation will be limited to the SR-50 between Lake Boulevard and Turnpike and Oakland Avenue from SR-50 to Tubb Street as shown in Table 5-1.

5.2. Segment Analysis

Following the identification of significant segments is the segment analysis for capacity and operations. The following three tables calculate the Volume to Capacity (V/C) ratio for the 2025 design year with and without project trips. The 2025 Background year analysis assumes a 2.19% linear growth rate. Each of the three tables (Daily Two-Way, AM Peak Hour Directional, and PM Peak Hour Directional) share similar attributes that the V/C is exceeding 1.00, resulting in a LOS of F. When the project trips are added there is an increase in V/C of 2% or less.

Table 5-2 - Roadway Segment Traffic Analysis Summary – Daily Two-Way

Location	Description	Adopted		2017 AADT	2025 Background			Project Trips	2025 Build		
		LOS	Daily Service Volume		AADT	LOS	V/C		AADT + Trip Gen	LOS	V/C
SR-50	Orange Ave to Oakland Ave	D	59,900	61,750	73,435	F	1.23	1,318	74,753	F	1.25
SR-50	Oakland Ave to Turnpike	D	59,900	61,750	73,435	F	1.23	824	74,259	F	1.24
Oakland Ave	SR 50 to Tubb St	E	15,600	4,210	5,007	C	0.32	54	5,061	C	0.32

2025 Background AADT grown from 2017 AADT from the Orange County Traffic website and grown by a 2.2% linear annual growth rate.

Table 5-3 - Roadway Segment Traffic Analysis Summary - AM Peak Hour Directional Traffic

Location	Description	Adopted		2025 Background			Project Trips	2025 Build		
		LOS	Peak Hour Service Volume	AM Peak Volume	LOS	V/C		AM Peak Volume	LOS	V/C
SR-50 EB	Orange Ave to Oakland Ave	D	3,020	3,613	F	1.20	64	3,677	F	1.22
SR-50 EB	Oakland Ave to Turnpike	D	3,020	3,826	F	1.27	43	3,869	F	1.28
Oakland Ave SB	SR 50 to Tubb St	E	576	322	C	0.56	2	324	C	0.56

2025 Background AADT grown from 2018 turning movement counts and grown by a 2.2% linear annual growth rate.

Table 5-4 - Roadway Segment Traffic Analysis Summary - PM Peak Hour Directional Traffic

Location	Description	Adopted		2025 Background			Project Trips	2025 Build		
		LOS	Peak Hour Service Volume	PM Peak Volume	LOS	V/C		PM Peak Volume	LOS	V/C
SR-50 WB	Orange Ave to Oakland Ave	D	3,020	3,524	F	1.17	68	3,592	F	1.19
SR-50 WB	Oakland Ave to Turnpike	D	3,020	3,727	F	1.23	39	3,766	F	1.25
Oakland Ave SB	SR 50 to Tubb St	E	576	356	C	0.62	2	358	C	0.62

2025 Background AADT grown from 2018 turning movement counts and grown by a 2.2% linear annual growth rate.

5.3. Intersection Capacity Analysis

The Intersection capacity analysis utilized the 2010 Highway Capacity Manual methodology and was completed using Synchro software for the intersections nearby the site (listed below). The adjusted background 2018 traffic conditions were modeled and compared to the 2025 Build-out scenario. Results of the analysis indicate that each signalized intersection is estimated to operate at an acceptable LOS during the AM and PM peak hours as summarized in Table 5-5 to Table 5-9 below. The HCM 2010 synchro analysis worksheets are included in Appendix D.

The evaluation included the following intersections:

- SR-50 and Lake Boulevard (Signalized)
- SR-50 and Orange Avenue (Unsignalized)
- SR-50 and Proposed Right-in/Right-out driveway (Unsignalized)
- SR-50 and Oakland Avenue/Deer Isle Drive (Signalized)
- Orange Avenue & LIV Oakland West Driveway (TWSC)

The capacity analysis estimates minor increases of delay (less than 10 seconds) for each of the signalized intersections with SR-50. The unsignalized intersections show increased Northbound delay in the AM periods which is due to SR-50 already being over capacity in the existing counts. It should be noted that the HCM methodology for unsignalized intersections does not account for nearby signals, and thus, does not account for gaps in traffic created by the upstream signalized intersections. Accounting for the signal at Lake Boulevard would increase the minor street traffic departure rates into and out of the proposed development and would reduce delays at those movements. It should also be noted that the Town of Oakland Comprehensive Plan lists in their work program that Oakland Avenue (between SR-50 and Tubb St) is planned to be widened to four lanes by 2025. As part of this analysis, it was assumed that this segment would be widened but the approach turn lanes would remain the same since the southbound approach already includes two lanes.

Table 5-5 - Intersection Delay Summary: SR-50 at Lake Boulevard (Signalized)

Period	Scenario	Approach Delay (LOS)				Intersection Delay (LOS)
		EB	WB	NB	SB	
AM Peak	2018 Existing	10.5 (B)	5.6 (A)	81.6 (F)	88.1 (F)	10.2 (B)
	2025 Background	23.6 (C)	7.0 (A)	76.6 (E)	83.1 (F)	19.6 (B)
	2025 Build	24.1 (C)	7.0 (A)	76.6 (E)	83.1 (F)	19.9 (B)
PM Peak	2018 Existing	7.1 (A)	12.7 (B)	79.9 (E)	80.4 (F)	11.1 (B)
	2025 Background	10.4 (B)	20.2 (C)	84.6 (F)	86.1 (F)	17.0 (B)
	2025 Build	10.5 (B)	20.9 (C)	84.6 (F)	86.1 (F)	17.5 (B)

Background and Build scenarios assume optimized timing plans implanted as part of scheduled signal timing maintenance

Table 5-6 - Intersection Delay Summary: SR-50 at Orange Avenue (TWSC)

Period	Scenario	Approach Delay (LOS)		
		EB	WB	NB
AM Peak	2018 Existing	0.0 (A)	0.3 (A)	62.6 (F)
	2025 Background	0.0 (A)	0.5 (A)	95.9 (F)
	2025 Build	0.0 (A)	* ()	246.6 (F)
PM Peak	2018 Existing	0.0 (A)	0.1 (A)	22.8 (C)
	2025 Background	0.0 (A)	0.1 (A)	27.7 (C)
	2025 Build	0.0 (A)	0.9 (A)	32.2 (C)

Overall intersection LOS not available for two-way stop-controlled intersections

Table 5-7 - Intersection Delay Summary: SR-50 & LIV Oakland East Driveway (TWSC)

Period	Scenario	Approach Delay (LOS)		
		EB	WB	NB
AM Peak	2018 Existing	0.0 (A)	0.0 (A)	0.0 (A)
	2025 Background	0.0 (A)	0.0 (A)	0.0 (A)
	2025 Build	0.0 (A)	0.0 (A)	216.7 (F)
PM Peak	2018 Existing	0.0 (A)	0.0 (A)	0.0 (A)
	2025 Background	0.0 (A)	0.0 (A)	0.0 (A)
	2025 Build	0.0 (A)	0.0 (A)	32.2 (C)

Overall intersection LOS not available for two-way stop-controlled intersections

Table 5-8 - Intersection Delay Summary: SR-50 at Deer Isle Dr/Oakland Ave (Signalized)

Period	Scenario	Approach Delay (LOS)				Intersection Delay (LOS)
		EB	WB	NB	SB	
AM Peak	2018 Existing	108.8 (F)	27.8 (C)	49.8 (D)	66.4 (E)	83.0 (F)
	2025 Background	45.2 (D)	21.9 (C)	59.5 (E)	130.2 (F)	42.7 (D)
	2025 Build	50.5 (D)	22.0 (C)	59.5 (E)	130.2 (F)	46.2 (D)
PM Peak	2018 Existing	20.4 (C)	71.4 (E)	53.3 (D)	65.4 (E)	35.1 (D)
	2025 Background	8.3 (A)	69.9 (E)	76.4 (E)	91.3 (F)	49.5 (D)
	2025 Build	16.0 (B)	74.7 (E)	76.6 (E)	91.3 (F)	54.9 (D)

Background and Build scenarios assume optimized timing plans implanted as part of scheduled signal timing maintenance

Table 5-9 - Intersection Delay Summary: Orange Avenue & LIV Oakland West Driveway (TWSC)

Period	Scenario	Approach Delay (LOS)		
		WB	NB	SB
AM Peak	2018 Existing	0.0 (A)	0.0 (A)	0.0 (A)
	2025 Background	0.0 (A)	0.0 (A)	0.0 (A)
	2025 Build	8.5 (A)	0.0 (A)	6.1 (A)
PM Peak	2018 Existing	0.0 (A)	0.0 (A)	0.0 (A)
	2025 Background	0.0 (A)	0.0 (A)	0.0 (A)
	2025 Build	8.4 (A)	0.0 (A)	6.6 (A)

Overall intersection LOS not available for two-way stop-controlled intersections

6. Site Access Evaluation

The proposed development will lie on a mostly undeveloped parcel wherein one existing private home and connecting driveway are present. In the proposed concept plan, one full access entrance will be provided along Orange Avenue and one right-in/right-out access point will be present along SR-50.

6.1. Left-Turn Lane Access Evaluation

The estimated queue lengths of potentially impacted left turn lanes within the analysis area were evaluated to determine what impacts, if any, would be incurred from new development trips. This analysis was limited to the SR-50 and Orange Avenue westbound unsignalized turn-lane and the SR-50 and Oakland Avenue eastbound left turn lane.

Table 6-1 below provides a summary of the 2025 background left turn queue length, 2025 build left turn queue length, and existing storage. The analysis was based on the HCM method for calculating the 95th percentile queue which is defined to be the queue length that has only a five-percent probability of being exceeded during the analysis period.

The turn lane summary table provides the estimated queue compared to the available turn lane lengths and the total turn lane needs. The comparison assumes a Total Deceleration Distance of 240-ft, which is the maximum deceleration distance for urban single left turn lanes according to the FDOT Design Manual (FDOT FDM Exhibit 212-1). The westbound left turn at Orange Avenue has an existing turn lane of 315-ft and a need for 300-ft so no modifications are recommended. The eastbound left turn at Oakland Avenue has an existing 455-ft turn lane, but with the increase in queue storage needs (435-ft) the minimum recommended full turn lane length (from stop bar to back of taper) is 675-ft, or an increase of 220-ft.

Table 6-1 - Summary of Left Turn Queue Lengths (95% Queue)

Analysis Period	Alternative	SR-50 Westbound Left Turn @ Orange Avenue	SR-50 Eastbound Left Turn @ Oakland Avenue
AM Peak	2018 Existing	25'	170'
	2025 Background	25'	195'
	2025 Build	60’	245'
PM Peak	2018 Existing	25'	155'
	2025 Background	25'	310'
	2025 Build	55'	435
Existing Turn Lane Length (from Stop bar to back of taper)		315'	455'
Total Turn Lane Needs (Queue storage plus deceleration distance)		300’	675’

6.2. Right-Turn Lane Access Evaluation

The 2008 Florida Driveway Information Guide method was used for determining right-turn lane needs. The Driveway Information Guide presents two cases for when a right-turn lane should be considered at locations where the adjacent roadway has a speed limit over 45 mph. The first, and lower threshold, case pertains to higher volume two-lane roadways and recommends a right-turn lane to be considered if the right-turning volume exceeds 35 right turns per hour. The second case pertains to multilane highways or driveways with a large entry radius and recommends a right-turn lane to be considered if the right-turning volume exceeds 55 right turns per hour.

The area type and roadway volumes recommend the right-turning volumes should be evaluated using the latter scenario, 55 turning vehicles per hour threshold. From Figure 4-2 and Figure 4-3, the largest estimated right-turning volume into the development is 32 vehicles turning into the site at the eastern driveway entrance along SR-50 during the PM peak hour. Based on the trip distribution the site's peak hour right-turning volume does not exceed the recommended guidelines for an exclusive right turn lane.

7. Conclusions and Recommendations

Atkins has completed a traffic analysis for the development of the proposed apartment complex along SR-50 at Orange Avenue in Orange County, Florida. The proposed 242-unit multi-family residential development will lie on a mostly undeveloped parcel. In the proposed concept, access is provided to the site via one full access entrance along Orange Avenue and one right-in/right-out access point along SR-50. Along with the proposed development infrastructure, the developer will concurrently be submitting an application to propose the site be annexed into the Town of Oakland.

This traffic study evaluated potential traffic impact this development will have on the surrounding roadway network in accordance with the Town of Oakland's Traffic Impact Study Guidelines and Comprehensive Plan assuming this parcel will also be annexed into the Town as part of the development process.

The following can be concluded from the analysis herein:

- Existing traffic counts indicate that portions of SR-50 already exceed the Town's and DOT's acceptable LOS standards for the daily, eastbound AM, and westbound PM volumes.
- Results of the segment analysis conclude that the net new trips generated by the new development are classified significant along over capacity segments of SR-50 between Lake Boulevard and the Turnpike. This segment is over capacity based on the 2017 AADT and the 2018 counts. The results of the analysis show that while the project generates traffic along SR-50 it does not adversely affect the resulting LOS.
- Segments that are currently not over capacity (SR-50 east of Turnpike and Oakland Avenue) do not show adverse effects from the project trips and those segments are expected to operate below the adopted service volume threshold at build-out.
- Results of the signalized intersection capacity analysis indicate the study intersections are expected to operate at an acceptable overall LOS at the project buildout.
- Results of the driveway turn-lane evaluation do not warrant additional left or right-turn lanes to be included with the project.
- Analysis of existing left turn storage lengths was conducted to determine if the available storage and queue length remained serviceable in the future conditions. The westbound left turn along SR-50 at Orange Avenue was sufficient. The eastbound left turn lane along SR-50 at Oakland Avenue showed to be insufficient in the PM analysis and it is recommended this turn lane be extended by 220-ft to be 675-ft in total.

Based on the findings of this report, it can be concluded that the proposed development will not adversely impact the study area beyond high traffic that is already present. In summary, the segment of SR-50 is already over capacity and thus the impacts introduced by the trips associated with this project are not significant in the degradation of SR-50 or adjacent intersections.

Appendix A. Letter of Methodology & Review Comments

LIV Oakland Traffic Impact Analysis – Methodology Report

To:	Town of Oakland		
From:	Christopher Russo (PE), Atkins	Email:	Christopher.Russo@atkinsglobal.com
Date:	8 July 2018	Phone:	407-806-4233
Ref:		cc:	

Letter of Methodology - Apartment Complex on State Route 50/West Colonial Drive between Lake Boulevard and Oakland Avenue/Deer Isle Drive

1. Methodology Statement Purpose

The purpose of a traffic impact and capacity study is to identify the potential impacts the proposed LIV Oakland development may have on the transportation system, specifically State Route 50 and nearby intersections.

This development is a residential apartment complex proposed to include approximately 300 multi-family residential units. It will be located along State Route 50/West Colonial Drive between the signalized intersections of Lake Boulevard and Oakland Avenue/Deer Isle Drive near Orange Avenue.

The traffic impact study will evaluate the estimated development generated traffic potential impact upon the surrounding roadway network. The study will evaluate these impacts on surrounding roadway segments and intersections, then potential solutions will be identified for segments and intersections on which the adopted level of service is not met.

Along with the proposed development infrastructure the developer will concurrently be submitting an application to propose the site be annexed into the Town of Oakland. Based on that assumed annexation this methodology is being sent to both the Town of Oakland and District 5 of the Florida Department of Transportation.

2. Existing Conditions

Currently, State Route 50/W Colonial Drive between Lake Boulevard and Oakland Avenue/Deer Isle Drive maintains a 6-lane cross-section at the site of the proposed development with a 50 mile-per-hour speed limit. Exclusive left turns are present at the median for both directions near the site location. Per the Town of Oakland's TIS guidelines, data related to the existing site conditions will be detailed in the full traffic impact study report. These data include the following:

- **Volume/Capacity (V/C) Ratio and Delays:** Will be produced based on HCM 6 methods.
- **Aerial Photo and/or Field Drawing of Roadway Geometry:** A preliminary site plan will be provided in the full traffic impact study.
- **Existing Geometry/Movements in the Intersection (including Number/Types of Lanes):** A site location map depicting the study area will be provided with the impact analysis. Existing lane stripping facilitating present traffic movements will be clearly marked.
- **Lengths of Right & Left Turn Lanes/Tapers:** Tables will be provided for all links in the analysis detailing actual lengths of auxiliary lanes, and median opening locations.
- **Existing Daily Counts:** A 72-hour tube count will be collected between the two intersections parallel to the proposed development site by Orange Avenue. It is anticipated

- **Existing Turning Movement Counts:** Two-hour turning movement counts will be collected for the AM (7-9 AM) and PM (4-6 PM) hours on a typical weekday at the following intersections:
    - Lake Boulevard and SR-50
    - Oakland Avenue/Deer Isle Drive and SR-50.
- **Posted Speed Limits on Existing Roadways adjacent to the Site:** Tables showing existing speed limits within the impacted area will be provided in the full impacts study.
- **Peak Period Times/Volumes:** Peak periods and peak volumes are provided by Florida Traffic Online 2017 database as shown table 1 and table 2. Additionally, the 72-hour count will supplement the 2017 counts.
- **Signal Phasing:** Appropriate signal timing and phasing for each impacted roadway will be obtained from the Town of Oakland/Orange County for use in existing conditions analysis.
- **Level of Service (LOS) of Roadways & Intersections:** Will be produced for the impacted roadways by the development based on HCM 6 methods.
- **Adopted LOS:** Based on the Town of Oakland's Comprehensive Plan State Route 50/W Colonial Drive has adopted LOS D per the standard for State maintained roads. All other roads within the city that are not state or county maintained, are classified as local roads (except Tubb Street, an urban minor collector) with adopted LOS E. Present traffic conditions as detailed in Florida Traffic Online 2017 database are presented in Table 1 and Table 2 below:
    - Citing the tables below, State Route 50/W Colonial Drive is currently within its adopted LOS D standard defined by the State.

Table 1 – 2017 Daily Traffic Roadway Information

Facility	Speed Limit (mph)	2017 AADT	LOS D Service Volume Capacity	V/C	LOS	Allowable LOS
State Route 50/W Colonial Drive	50	56,000	59,900	0.95	D	D

Sources: FDOT: Florida Traffic Online 2017
FDOT 2012 Quality/Level of Service Handbook Generalized Tables

Table 2 – 2017 Peak Hour Direction & Capacity Data

Facility	Approach	Speed Limit (mph)	2017 Peak Hour Direction	LOS D Service Volume Capacity	V/C	LOS	Allowable LOS
State Route 50/W Colonial Drive	Eastbound	50	2,760 (AM)	3,020	0.92	D	D
State Route 50/W Colonial Drive	Westbound	50	2,690 (PM)	3,020	0.89	D	D

Sources: FDOT: Florida Traffic Online 2017
FDOT 2012 Quality/Level of Service Handbook Generalized Tables (DRAFT)

3. Proposed Conditions

The development is proposed to have one full access entrance along Orange Avenue and one right-in/right-out access point along SR-50. No left turn movements exiting the development onto SR-50 be permitted.

The following data pertaining to the proposed development conditions will be provided per the Town of Oakland's TIS guidelines:

- **Conceptual Site Plan:** A conceptual site plan showing proposed roads/driveways for the development will be provided.
- **Trip Generation**: Total site generated traffic volumes for the daily and peak hours with the formulas they are based on. The Institute of Transportation Engineers (ITE) Trip Generation (10th Edition) will be used to generate project trip estimates.
    - Preliminary data suggests this apartment complex development aligns with ITE land use code 221: "Multifamily Housing (Mid-Rise)." Driveway volumes will be determined based on the trip distribution and trip generation analyses.
    - It is preliminarily estimated that 300 dwelling units will result in a net new trips as follows: 1,633 daily trips, 100 AM trips, and 127 PM trips.
- **Trip Distribution:** Trips generated by the site will be manually distributed to estimate peak hour projected traffic for the average weekday. Directional distribution of traffic flow for the surrounding impacted intersections and roadway network will manually assigned similar to the existing traffic patterns along SR-50 and surrounding network.
- **Internal Capture:** This development is being analyzed as standalone, therefore no internal capture trips will be estimated.
- **Modal split:** If applicable vehicle trip reductions will be shown (when agreed upon in Methodology meeting).
- **Design Traffic:** Where available, local K and D-factors will be used over FDOT averages.
- **Growth Rate:** The 10-year historical growth rate to the AADT at a nearby count station shows less than 1% annual growth rate. A minimum growth rate of 2% will be implemented.
- **Access:** At access driveways or new roadways within 500 feet of an expressway, or at limited access facilities, weaving analyses will be presented. It is anticipated that a weaving analysis will be performed between the eastern most driveway and the signalized intersection of Oakland Avenue.
    - Driveway locations will meet the Local Government's and/or FDOT's minimum geometric standards as required for location. Additional site access elements and their corresponding source of standard, are as follows:
        - Right Turn Lanes: FDOT's Driveway Handbook (March 2005)
        - Left Turn Lanes: National Cooperative Highway Research Program (NCHRP) – Report 279: Intersection Channelization Design Guide.
        - Deceleration Length: FDOT's Design Manual – Exhibit 212-1
        - Storage Length: Based on 95th percentile queue lengths provided from HCM methodologies.

4. Network Analysis

According to the Town of Oakland's 2014 Traffic Impact Study (TIS) guidelines, the following areas related to the network must be analysed:

- **Area of Influence:**

a) All links and intersections with 5% or greater project traffic of the maximum allowable volume (MAV) for the roadway link. In this case, the volume of project traffic percent of impact area divided by capacity of the road (MAV) and is based on Average Daily Traffic (ADT).
    - Trip generation estimates are less than then 5% of the MAV along SR-50 so it is anticipated that evaluation will be limited to the adjacent corridors (SR-50 and Orange Avenue) and closest signalized intersections on either side of the property (Lake Boulevard and SR-50 and Oakland Avenue/Deer Isle Drive and SR-50).

b) In cases where the average daily traffic exceeds the capacity of the road, the project traffic must be analysed on links and nodes out to the de minimis impact (1% of MAV).
    - Given existing traffic conditions this case is not anticipated.

- **Roadway Link and Intersection Analysis:** Will include Existing Conditions, Background Traffic, and Future Conditions. In each scenario, capacity analysis will be performed using the latest version of the FDOT Generalized Level of Service Tables, and the Highway Capacity Manual to evaluate operations at the intersection for the weekday AM and PM peak period without incorporating project traffic.

- **Existing Conditions Analysis:** This analysis will serve as the baseline to determine the presence of existing operational deficiencies on the surrounding roadway network.

- **Background Traffic Analysis:** Will be determined based on counts and growth projections to the build out year for analysis. Capacity analysis will be performed on background traffic to show a baseline for traffic conditions if this development were not built. For purposes of this report 2025 will be used as the build-out year.

- **Future Conditions Analysis**: Using the same analytical tools as the Existing Conditions Analysis, the roadway network will be analyzed with background traffic plus proposed development traffic. The time frame of the future full build-out analysis will be assumed to be 2025. Future analysis will be conducted assuming full build out of the site and will not analyze intermediate phases.

5. Evaluation & Conclusions

While evaluating the impacts of the proposed development, the following information will be identified and/or submitted within the full TIA report:

- Both hard copy and electronic file (PDF) of the full TIA report will be submitted with the signature and seal of a registered professional engineering with experience in the conduct of traffic impact studies. Tables, graphics, figures, and text to fully document the study process, results, and recommendations will be provided.
- Reductions in level-of-service that are the result of background traffic growth or to the development proposal will be identified.
- Roadway Links where V/C ratios exceed 0.90 will be identified.
- Recommendations as improvements to roadway segments, intersections, bicycle, and trail facilities, and public transit facilities will be made as necessary based on engineering judgment.

6. Data & Appendix

This section will include the following as required by the Town of Oakland's Traffic Impact Study Guidelines:

- A regional model or other documentation of the project traffic assignment used in the study.
- All lane ADT and intersection TMC's used in the study.
- Both AM and PM peak hour volumes and their data sources.
- Software program output sheets. Short-form is satisfactory for HCS.
- Existing signal timings where applicable.
- Improvement cost estimates.

Should you have any questions or concerns regarding this methodology please do not hesitate to call. I can be reached at 407.806.4233 or chris.russo@atkinsglobal.com.

Thank you,

Chris Russo, PE

Sr. Transportation Engineer Atkins, NA

MEMORANDUM

TO: Jay R. Marder, AICP, Director
FROM: Joseph T. Roviaro, AICP
DATE: July 13, 2018
RE: Continuing Transportation Planning and Engineering Services – Review of the LIV/English Apartment Residential TIA Methodology (*LTEC Nº 16-4302*)

The purpose of this memorandum is to provide a review of the proposed traffic methodology for the LIV/English Apartment Residential development to be located in the southeast quadrant of Colonial Drive (SR 50) and Orange Avenue. Specific comments and findings are provided below.

Site Location, Project Description and Access

Per the methodology, the proposed development will consist of a 300-unit multi-family residential development on a ±11.60 acre's parcel. The parcel is currently vacant. Access to the study parcel will be via two (2) access driveway connections; a full access connection onto Orange Avenue and a right-in/right-out driveway onto Colonial Drive (SR 50). Estimated build-out data is 2025.

Existing Conditions

The proposed existing conditions data is acceptable except for the following items:

- Current service volumes should be updated using the current April 2018 FDOT Quality /Level of Service Handbook service volumes.
- Current Orange County AADT traffic count on Colonial Drive (SR 50) is 61,750 daily trips which exceeds the level of service threshold. Therefore, the Applicant should include a table documenting the project trips percentage 1% de minimis impact on the adjacent roadway network.
- The intersection of Colonial Drive (SR 50) and Orange Avenue should be added to the list of study intersections.

Proposed Conditions

The use of the *10th Edition ITE Trip Generation Report* as the source of estimated trips is acceptable. The Applicant has proposed to use ITE LUC 221 Multi-family (Mid-Rise) as the source for estimating the developments trip generation. The description for a mid-rise multi-family apartment is a building with between three (3) and ten (10) levels (see attached land use description. Should the proposed development plan indicate that the apartment buildings will be two (2) levels, ITE LUC 220 should be used.

The use of existing travel patterns to determine project trip distribution is acceptable.

Should a mode split be proposed, it is expected to be very low. The current transit route adjacent to the development parcel is the Lake County Route 50 East which connects Clermont to Winter Garden.

Local K and D factors are acceptable.

Historical growth should be based on the last five years of Orange County traffic count data. Colonial Drive (SR 50), during the years between 2010 and 2012, was under construction and no traffic count data was collected. In addition, the 2017 three-day traffic count conducted by Orange County is more consistent in the daily ADT total (59,587, 59,875 and 60,392 for an average of 59,951) versus the 2017 FDOT two-day ADT count (53,231 and 59,095 for an average of 56,163). The use of a minimum 2% annual growth rate is acceptable for study roadways with historical growth rates of less than 2%.

Network Analysis

As noted above, because Colonial Drive (SR 50) is over capacity (Orange County 2017 AADT – 61,750), please include a table documenting the project trips percentage 1% de minimis impact on the adjacent roadway network.

At a minimum, the study roadway segments should include:

- Colonial Drive (SR 50) – Lake County Line to Florida Turnpike
- Oakland Avenue (CR 538) – Lake County Line to Tubb Street

The study intersections should include:

- Colonial Drive (SR 50) and Lake Boulevard
- Colonial Drive (SR 50) and Oakland Avenue/Deer Isle Drive
- Colonial Drive (SR 50) and Orange Avenue
- Colonial Drive (SR 50) and Proposed Right-in/Right-out

The A.M. and P.M. peak hour analysis for the roadway segments is acceptable. As is the use of the April 2018 FDOT Quality /Level of Service Handbook service volumes.

Please provide a queuing analysis, at the study intersections, to determine if the existing auxiliary turn lanes adequate storage for the existing and proposed traffic. This should be performed for both the A.M. and P.M. peak hour.

Please include an analysis to determine if an auxiliary right-turn lane is needed at the Colonial Drive (SR 50) and Orange Avenue intersection and at the Colonial Drive (SR 50) and Project Right-in/Right-out entrance.

Please include a discussion on available Transit, Bicycle and Pedestrian features and how they will be accessed from the proposed development.

In Summary:

- Please use ITE LUC 220 for the residential development of multi-family apartments is only two-stories.
- The use of existing travel patterns to determine the Project trip distribution is acceptable.
- Please include a table documenting the 1% roadway segment significant impact.
- At a minimum, the study roadway segments should include:
    - Colonial Drive (SR 50) – Lake County Line to Florida Turnpike
    - Oakland Avenue (CR 538) – Lake County Line to Tubb Street
- The study roadway segments should include:
    - Colonial Drive (SR 50) and Lake Boulevard
    - Colonial Drive (SR 50) and Oakland Avenue/Deer Isle Drive
    - Colonial Drive (SR 50) and Orange Avenue
    - Colonial Drive (SR 50) and Proposed Right-in/Right-out
- The analysis of both the A.M. and P.M. peak hours for the study roadway segments and intersections is acceptable.
- Pleases provide a queuing analysis to determine if the existing auxiliary turn lanes at the study intersections have adequate storage for the existing and proposed traffic.
- Please include an analysis to determine if a right-turn lane is needed at the Colonial Drive (SR 50) and Orange Avenue intersection and the Colonial Drive (SR 50) and Project entrance.
- Please include a discussion on available Transit, Bicycle and Pedestrian features and how they will be accessed from the proposed development.
- Document all required roadway/intersection improvements needed by the proposed development.
- Provide copies of the electronic intersection analysis files.
- The traffic impact analysis report should be signed and sealed.

This concludes our review of the *LIV/English Apartment Residential - Traffic Study Methodology*. If you have any questions, please call.

Land Use: 221
Multifamily Housing (Mid-Rise)

Description

Mid-rise multifamily housing includes apartments, townhouses, and condominiums located within the same building with at least three other dwelling units and that have between three and 10 levels (floors). Multifamily housing (low-rise) (Land Use 220), multifamily housing (high-rise) (Land Use 222), off-campus student apartment (Land Use 225), and mid-rise residential with 1st-floor commercial (Land Use 231) are related land uses.

Additional Data

In prior editions of *Trip Generation Manual*, the mid-rise multifamily housing sites were further divided into rental and condominium categories. An investigation of vehicle trip data found no clear differences in trip making patterns between the rental and condominium sites within the ITE database. As more data are compiled for future editions, this land use classification can be reinvestigated.

For the six sites for which both the number of residents and the number of occupied dwelling units were available, there were an average of 2.46 residents per occupied dwelling unit.

For the five sites for which the numbers of both total dwelling units and occupied dwelling units were available, an average of 95.7 percent of the total dwelling units were occupied.

Time-of-day distribution data for this land use are presented in Appendix A. For the eight general urban/suburban sites with data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 7:00 and 8:00 a.m. and 4:45 and 5:45 p.m., respectively.

For the four dense multi-use urban sites with 24-hour count data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 7:15 and 8:15 a.m. and 4:15 and 5:15 p.m., respectively. For the three center city core sites with 24-hour count data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 6:45 and 7:45 a.m. and 5:00 and 6:00 p.m., respectively.

For the six sites for which data were provided for both occupied dwelling units and residents, there was an average of 2.46 residents per occupied dwelling unit.

For the five sites for which data were provided for both occupied dwelling units and total dwelling units, an average of 95.7 percent of the units were occupied.

The average numbers of person trips per vehicle trip at the five center city core sites at which both person trip and vehicle trip data were collected were as follows:

- 1.84 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 7 and 9 a.m.
- 1.94 during Weekday, AM Peak Hour of Generator
- 2.07 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 4 and 6 p.m.
- 2.59 during Weekday, PM Peak Hour of Generator

The average numbers of person trips per vehicle trip at the 32 dense multi-use urban sites at which both person trip and vehicle trip data were collected were as follows:

- 1.90 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 7 and 9 a.m.
- 1.90 during Weekday, AM Peak Hour of Generator
- 2.00 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 4 and 6 p.m.
- 2.08 during Weekday, PM Peak Hour of Generator

The average numbers of person trips per vehicle trip at the 13 general urban/suburban sites at which both person trip and vehicle trip data were collected were as follows:

- 1.56 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 7 and 9 a.m.
- 1.88 during Weekday, AM Peak Hour of Generator
- 1.70 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 4 and 6 p.m.
- 2.07 during Weekday, PM Peak Hour of Generator

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in Alberta (CAN), British Columbia (CAN), California, Delaware, District of Columbia, Florida, Georgia, Illinois, Maryland, Massachusetts, Minnesota, New Hampshire, New Jersey, Ontario, Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Utah, Virginia, and Wisconsin.

Source Numbers

168, 188, 204, 305, 306, 321, 357, 390, 436, 525, 530, 579, 638, 818, 857, 866, 901, 904, 910, 912, 918, 934, 936, 939, 944, 947, 948, 949, 959, 963, 964, 966, 967, 969, 970

Appendix B. Concept Plan

Site Data:

Units

Studio.....
1 bed / 1 bath.....
2 bed / 2 bath.....
3 bed / 2 bath.....
Total..... 242

Parking

standard..... 3
tuck under garages.....

tandem.....
total.....
1.9 sp / unit

required..... 1.0/ bedro
344 +/-

Notes:

- Building #1: 3-stories with in
ed clubhouse, leasing, post
- Buildings #2: 3-stories.
- Gates #3 are for resident o
only, right-in, right-out.
- Retention is vaulted.

LIV
VELOPMENT
roving the way you live.

LIV John's Lake Apts. - Oakland Fl.

2019-01-09 * Charlan Brock Architects * #3920

cba
charlan brock & associ
architects | planne

Appendix C. Data Collection

C.1. 2017 Season Factor Reports

2017 PEAK SEASON FACTOR CATEGORY REPORT - REPORT TYPE: ALL
CATEGORY: 7500 ORANGE COUNTYWIDE

MOCF: 0.98

WEEK	DATES	SF	PSCF
1	01/01/2017 - 01/07/2017	1.01	1.03
2	01/08/2017 - 01/14/2017	1.03	1.05
3	01/15/2017 - 01/21/2017	1.04	1.06
4	01/22/2017 - 01/28/2017	1.03	1.05
5	01/29/2017 - 02/04/2017	1.02	1.04
6	02/05/2017 - 02/11/2017	1.00	1.02
7	02/12/2017 - 02/18/2017	0.99	1.01
8	02/19/2017 - 02/25/2017	0.99	1.01
* 9	02/26/2017 - 03/04/2017	0.98	1.00
*10	03/05/2017 - 03/11/2017	0.98	1.00
*11	03/12/2017 - 03/18/2017	0.97	0.99
*12	03/19/2017 - 03/25/2017	0.97	0.99
*13	03/26/2017 - 04/01/2017	0.97	0.99
*14	04/02/2017 - 04/08/2017	0.97	0.99
*15	04/09/2017 - 04/15/2017	0.97	0.99
*16	04/16/2017 - 04/22/2017	0.97	0.99
*17	04/23/2017 - 04/29/2017	0.97	0.99
*18	04/30/2017 - 05/06/2017	0.98	1.00
*19	05/07/2017 - 05/13/2017	0.98	1.00
*20	05/14/2017 - 05/20/2017	0.98	1.00
*21	05/21/2017 - 05/27/2017	0.99	1.01
22	05/28/2017 - 06/03/2017	1.00	1.02
23	06/04/2017 - 06/10/2017	1.00	1.02
24	06/11/2017 - 06/17/2017	1.01	1.03
25	06/18/2017 - 06/24/2017	1.01	1.03
26	06/25/2017 - 07/01/2017	1.01	1.03
27	07/02/2017 - 07/08/2017	1.01	1.03
28	07/09/2017 - 07/15/2017	1.02	1.04
29	07/16/2017 - 07/22/2017	1.01	1.03
30	07/23/2017 - 07/29/2017	1.00	1.02
31	07/30/2017 - 08/05/2017	1.00	1.02
32	08/06/2017 - 08/12/2017	0.99	1.01
33	08/13/2017 - 08/19/2017	0.99	1.01
34	08/20/2017 - 08/26/2017	1.01	1.03
35	08/27/2017 - 09/02/2017	1.04	1.06
36	09/03/2017 - 09/09/2017	1.06	1.08
37	09/10/2017 - 09/16/2017	1.09	1.11
38	09/17/2017 - 09/23/2017	1.07	1.09
39	09/24/2017 - 09/30/2017	1.05	1.07
40	10/01/2017 - 10/07/2017	1.03	1.05
41	10/08/2017 - 10/14/2017	1.01	1.03
42	10/15/2017 - 10/21/2017	0.99	1.01
43	10/22/2017 - 10/28/2017	0.99	1.01
44	10/29/2017 - 11/04/2017	0.99	1.01
45	11/05/2017 - 11/11/2017	1.00	1.02
46	11/12/2017 - 11/18/2017	1.00	1.02
47	11/19/2017 - 11/25/2017	1.00	1.02
48	11/26/2017 - 12/02/2017	1.01	1.03
49	12/03/2017 - 12/09/2017	1.01	1.03
50	12/10/2017 - 12/16/2017	1.01	1.03
51	12/17/2017 - 12/23/2017	1.02	1.04
52	12/24/2017 - 12/30/2017	1.03	1.05
53	12/31/2017 - 12/31/2017	1.04	1.06

* PEAK SEASON

02-MAR-2018 15:35:06 830UPD 5_7500_PKSEASON.TXT

C.2. 2018 Peak Hour Turning Movement Counts

National Data & Surveying Services

Intersection Turning Movement Count

Location: Lake Blvd & SR 50/W Colonial Dr
City: Oakland
Control:

Project ID: 18-03330-001
Date: 7/17/2018

Total

NS/EW Streets:	Lake Blvd				Lake Blvd				SR 50/W Colonial Dr				SR 50/W Colonial Dr				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	15	0	9	0	2	0	2	732	1	0	0	231	1	0	993
7:15 AM	2	0	15	0	10	1	3	0	4	834	1	0	0	279	0	2	1151
7:30 AM	4	1	8	0	18	0	2	0	8	796	1	0	1	341	2	1	1183
7:45 AM	3	0	7	0	16	0	8	0	11	683	1	1	2	370	0	0	1102
8:00 AM	0	0	9	0	5	0	4	0	2	673	2	2	2	337	1	0	1037
8:15 AM	2	0	9	0	10	0	8	0	0	679	0	2	0	335	3	0	1048
8:30 AM	8	1	5	0	6	0	6	0	3	631	3	3	2	362	0	0	1030
8:45 AM	3	1	10	0	4	0	11	0	13	515	2	3	2	357	2	0	923
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	22	3	78	0	78	1	44	0	43	5543	11	11	9	2612	9	3	8467
APPROACH %'s :	21.36%	2.91%	75.73%	0.00%	63.41%	0.81%	35.77%	0.00%	0.77%	98.84%	0.20%	0.20%	0.34%	99.20%	0.34%	0.11%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	9	1	39	0	49	1	17	0	25	2986	5	3	5	1327	3	3	4473
PEAK HR FACTOR :	0.563	0.250	0.650	0.000	0.681	0.250	0.531	0.000	0.568	0.895	0.625	0.375	0.625	0.897	0.375	0.375	0.945
		0.721				0.698				0.900				0.899			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:30 PM	4	1	5	0	1	1	11	0	9	449	7	11	7	679	3	0	1188
4:45 PM	5	0	6	0	4	0	5	0	9	452	8	6	4	674	0	0	1173
5:00 PM	4	0	5	0	4	2	7	0	1	363	2	10	12	768	1	0	1179
5:15 PM	3	1	3	0	5	3	10	0	14	526	6	5	13	800	2	0	1391
5:30 PM	3	1	2	0	1	1	6	0	3	459	4	4	7	750	6	0	1247
5:45 PM	9	1	4	0	0	2	3	0	5	365	6	9	16	690	0	2	1112
6:00 PM	6	1	4	0	1	0	8	0	8	363	7	5	15	695	1	1	1115
6:15 PM	5	0	2	0	2	0	7	0	7	359	7	6	8	639	2	0	1044
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	39	5	31	0	18	9	57	0	56	3336	47	56	82	5695	15	3	9449
APPROACH %'s :	52.00%	6.67%	41.33%	0.00%	21.43%	10.71%	67.86%	0.00%	1.60%	95.45%	1.34%	1.60%	1.42%	98.27%	0.26%	0.05%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	15	2	16	0	14	6	28	0	27	1800	20	25	36	2992	9	0	4990
PEAK HR FACTOR :	0.750	0.500	0.667	0.000	0.700	0.500	0.700	0.000	0.482	0.856	0.625	0.625	0.692	0.935	0.375	0.000	0.897
		0.750				0.667				0.849				0.932			

National Data & Surveying Services

Intersection Turning Movement Count

Location: Lake Blvd & SR 50/W Colonial Dr
City: Oakland
Control:

Project ID: 18-03330-001
Date: 7/17/2018

Cars

NS/EW Streets:	Lake Blvd				Lake Blvd				SR 50/W Colonial Dr				SR 50/W Colonial Dr				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	15	0	9	0	2	0	2	717	1	0	0	216	1	0	963
7:15 AM	2	0	15	0	10	1	3	0	4	822	1	0	0	266	0	2	1126
7:30 AM	4	1	8	0	18	0	2	0	8	780	1	0	1	323	2	1	1149
7:45 AM	3	0	7	0	16	0	8	0	11	669	1	1	2	345	0	0	1063
8:00 AM	0	0	8	0	5	0	4	0	2	658	2	2	2	311	1	0	995
8:15 AM	2	0	9	0	10	0	8	0	0	665	0	2	0	316	2	0	1014
8:30 AM	8	1	5	0	6	0	6	0	3	607	3	3	2	345	0	0	989
8:45 AM	3	1	10	0	4	0	11	0	13	487	2	3	2	337	2	0	875
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	22	3	77	0	78	1	44	0	43	5405	11	11	9	2459	8	3	8174
APPROACH %'s :	21.57%	2.94%	75.49%	0.00%	63.41%	0.81%	35.77%	0.00%	0.79%	98.81%	0.20%	0.20%	0.36%	99.19%	0.32%	0.12%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	9	1	38	0	49	1	17	0	25	2929	5	3	5	1245	3	3	4333
PEAK HR FACTOR :	0.56	0.250	0.633	0.000	0.681	0.250	0.531	0.000	0.568	0.891	0.625	0.375	0.625	0.902	0.375	0.375	0.943
			0.706				0.698				0.895				0.905		

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:30 PM	4	1	5	0	1	1	11	0	9	433	7	11	7	664	3	0	1157
4:45 PM	5	0	6	0	4	0	5	0	9	439	8	6	4	662	0	0	1148
5:00 PM	4	0	5	0	4	2	6	0	1	354	2	10	12	758	1	0	1159
5:15 PM	3	1	3	0	5	3	10	0	14	514	6	5	13	792	2	0	1371
5:30 PM	3	1	2	0	1	1	6	0	3	451	4	4	7	745	6	0	1234
5:45 PM	9	1	4	0	0	2	3	0	5	356	6	8	16	686	0	2	1098
6:00 PM	6	1	4	0	1	0	8	0	8	357	7	5	15	685	1	1	1099
6:15 PM	5	0	2	0	2	0	7	0	7	353	7	6	8	631	2	0	1030
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	39	5	31	0	18	9	56	0	56	3257	47	55	82	5623	15	3	9296
APPROACH %'s :	52.00%	6.67%	41.33%	0.00%	21.69%	10.84%	67.47%	0.00%	1.64%	95.37%	1.38%	1.61%	1.43%	98.25%	0.26%	0.05%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	15	2	16	0	14	6	27	0	27	1758	20	25	36	2957	9	0	4912
PEAK HR FACTOR :	0.75	0.500	0.667	0.000	0.700	0.500	0.675	0.000	0.482	0.855	0.625	0.625	0.692	0.933	0.375	0.000	0.896
			0.750				0.653				0.849				0.930		

National Data & Surveying Services

Intersection Turning Movement Count

Location: Lake Blvd & SR 50/W Colonial Dr
City: Oakland
Control:

Project ID: 18-03330-001
Date: 7/17/2018

HT

NS/EW Streets:	Lake Blvd				Lake Blvd				SR 50/W Colonial Dr				SR 50/W Colonial Dr				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	15	0	0	0	15	0	0	30
7:15 AM	0	0	0	0	0	0	0	0	0	12	0	0	0	13	0	0	25
7:30 AM	0	0	0	0	0	0	0	0	0	16	0	0	0	18	0	0	34
7:45 AM	0	0	0	0	0	0	0	0	0	14	0	0	0	25	0	0	39
8:00 AM	0	0	1	0	0	0	0	0	0	15	0	0	0	26	0	0	42
8:15 AM	0	0	0	0	0	0	0	0	0	14	0	0	0	19	1	0	34
8:30 AM	0	0	0	0	0	0	0	0	0	24	0	0	0	17	0	0	41
8:45 AM	0	0	0	0	0	0	0	0	0	28	0	0	0	20	0	0	48
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	1	0	0	0	0	0	0	138	0	0	0	153	1	0	293
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%					0.00%	100.00%	0.00%	0.00%	0.00%	99.35%	0.65%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	1	0	0	0	0	0	0	57	0	0	0	82	0	0	140
PEAK HR FACTOR :	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.891	0.000	0.000	0.000	0.788	0.000	0.000	0.833
			0.250							0.891				0.788			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:30 PM	0	0	0	0	0	0	0	0	0	16	0	0	0	15	0	0	31
4:45 PM	0	0	0	0	0	0	0	0	0	13	0	0	0	12	0	0	25
5:00 PM	0	0	0	0	0	0	1	0	0	9	0	0	0	10	0	0	20
5:15 PM	0	0	0	0	0	0	0	0	0	12	0	0	0	8	0	0	20
5:30 PM	0	0	0	0	0	0	0	0	0	8	0	0	0	5	0	0	13
5:45 PM	0	0	0	0	0	0	0	0	0	9	0	1	0	4	0	0	14
6:00 PM	0	0	0	0	0	0	0	0	0	6	0	0	0	10	0	0	16
6:15 PM	0	0	0	0	0	0	0	0	0	6	0	0	0	8	0	0	14
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	1	0	0	79	0	1	0	72	0	0	153
APPROACH %'s :					0.00%	0.00%	100.00%	0.00%	0.00%	98.75%	0.00%	1.25%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	1	0	0	42	0	0	0	35	0	0	78
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.808	0.000	0.000	0.000	0.729	0.000	0.000	0.780
							0.250			0.808				0.729			

National Data & Surveying Services

Intersection Turning Movement Count

Location: Lake Blvd & SR 50/W Colonial Dr
City: Oakland
Control:

Project ID: 18-03330-001
Date: 7/17/2018

Bikes

NS/EW Streets:	Lake Blvd				Lake Blvd				SR 50/W Colonial Dr				SR 50/W Colonial Dr				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	0	4
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	0	4
APPROACH %'s :									0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	0	4
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.250
										0.250				0.250			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

National Data Surveying Services

Intersection Turning Movement Count

Location: Lake Blvd & SR 50/W Colonial Dr **Project ID:** 18-03330-001
City: Oakland **Date:** 7/17/2018

Pedestrians (Crosswalks)

NS/EW Streets:	Lake Blvd		Lake Blvd		SR 50/W Colonial Dr		SR 50/W Colonial Dr		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0
APPROACH %'s :									
PEAK HR :	07:15 AM - 08:15 AM								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	1	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0
6:00 PM	0	1	0	0	0	0	0	0	1
6:15 PM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	2	0	0	0	0	0	0	2
APPROACH %'s :	0.00%	100.00%							
PEAK HR :	04:45 PM - 05:45 PM								TOTAL
PEAK HR VOL :	0	1	0	0	0	0	0	0	1
PEAK HR FACTOR :		0.250							0.250
	0.250								

Prepared by National Data & Surveying Services

Lake Blvd & SR 50/W Colonial Dr

Peak Hour Turning Movement Count

ID: 18-03330-001
City: Oakland

Day: Tuesday
Date: 07/17/2018

PEAK HOURS		COUNT PERIODS
AM	07:15 AM - 08:15 AM	07:00 AM - 09:00 AM
NOON	NONE	NONE
PM	04:45 PM - 05:45 PM	04:30 PM - 06:30 PM

Lake Blvd — SOUTHBOUND

AM	17	1	49	0	29	AM
NOON	0	0	0	0	0	NOON
PM	28	6	14	0	38	PM

SR 50/W Colonial Dr — EASTBOUND

AM	NOON	PM	
1356	0	3060	⇦
3	0	25	↶ 0
25	0	27	↰ 0
2986	0	1800	→ 0
5	0	20	↳ 0
AM	NOON	PM	

SR 50/W Colonial Dr — WESTBOUND

PM	NOON	AM	
9	0	3	0 ↰
2992	0	1327	0 ←
36	0	5	0 ↶
0	0	3	0 ↰
1830	0	3077	⇨
PM	NOON	AM	

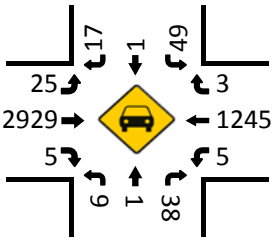
CONTROL

TEV	4473	0	4990
	AM	NOON	PM
PHF	0.95		0.90

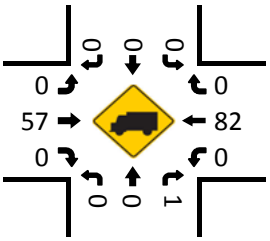
Lake Blvd — NORTHBOUND

PM	62	0	15	2	16	PM
NOON	0	0	0	0	0	NOON
AM	11	0	9	1	39	AM

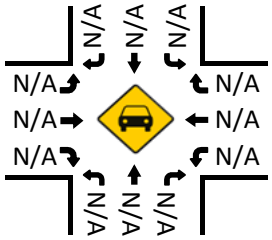
Cars (AM)



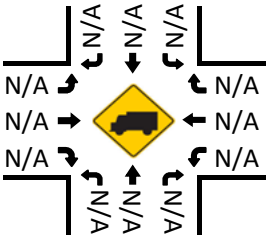
HT (AM)



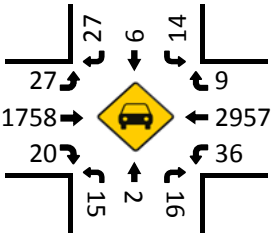
Cars (NOON)



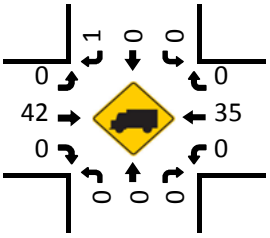
HT (NOON)



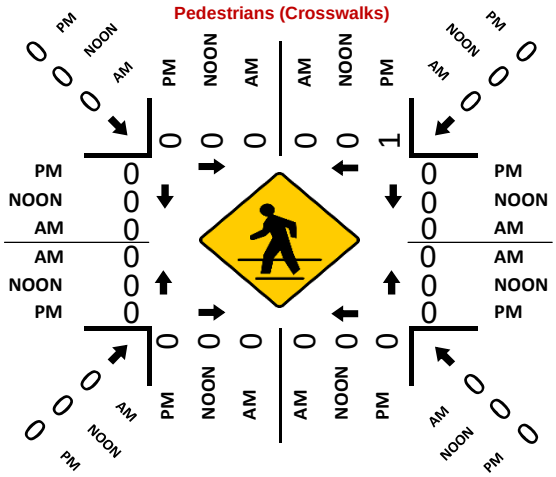
Cars (PM)



HT (PM)



Pedestrians (Crosswalks)

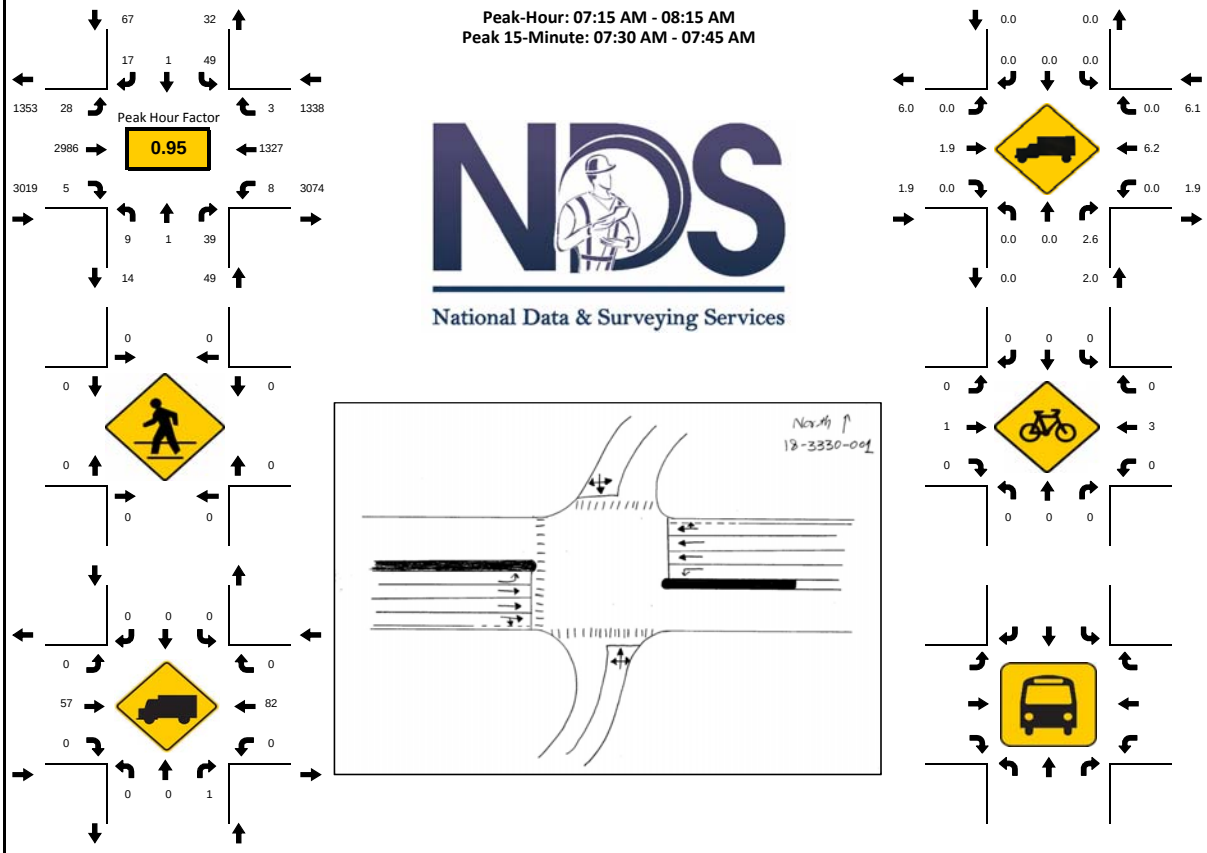


LOCATION: Lake Blvd & SR 50/W Colonial Dr
CITY/STATE: Oakland, FL

PROJECT ID: 18-03330-001
DATE: 07/17/2018

Peak-Hour: 07:15 AM - 08:15 AM
Peak 15-Minute: 07:30 AM - 07:45 AM

Peak Hour Factor: **0.95**



15-Min Count Period Beginning At	Lake Blvd Northbound					Lake Blvd Southbound					SR 50/W Colonial Dr Eastbound					SR 50/W Colonial Dr Westbound					Total	Hourly Total
	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*		
07:00 AM	0	0	15	0		9	0	2	0		2	732	1	0		0	231	1	0		993	4429
07:15 AM	2	0	15	0		10	1	3	0		4	834	1	0		0	279	0	2		1151	4473
07:30 AM	4	1	8	0		18	0	2	0		8	796	1	0		1	341	2	1		1183	4370
07:45 AM	3	0	7	0		16	0	8	0		11	683	1	1		2	370	0	0		1102	4217
08:00 AM	0	0	9	0		5	0	4	0		2	673	2	2		2	337	1	0		1037	4038
08:15 AM	2	0	9	0		10	0	8	0		0	679	0	2		0	335	3	0		1048	3001
08:30 AM	8	1	5	0		6	0	6	0		3	631	3	3		2	362	0	0		1030	1953
08:45 AM	3	1	10	0		4	0	11	0		13	515	2	3		2	357	2	0		923	923

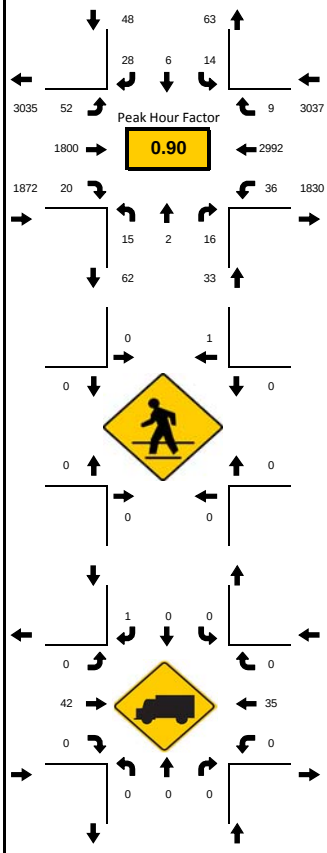
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total
	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	
All Vehicles	16	4	60	0		72	4	32	0		44	3336	8	8		8	1480	8	8		**5088**
Heavy Trucks	0	0	4			0	0	0			0	64	0			0	104	0			**172**
Pedestrians		0					0					0					0				**0**
Bicycles	0	0	0			0	0	0			0	4	0			0	12	0			**16**
Railroad Stopped Buses																					

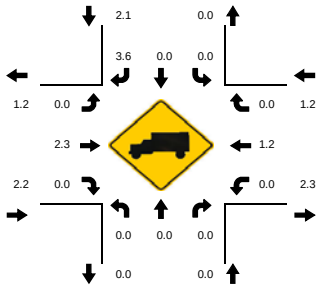
LOCATION: Lake Blvd & SR 50/W Colonial Dr
CITY/STATE: Oakland, FL

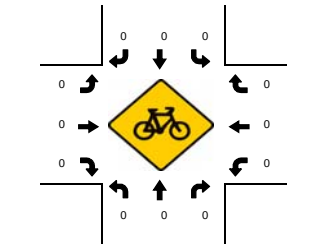
PROJECT ID: 18-03330-001
DATE: 07/17/2018

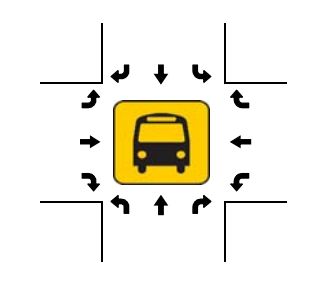
Peak-Hour: 04:45 PM - 05:45 PM
Peak 15-Minute: 05:15 PM - 05:30 PM

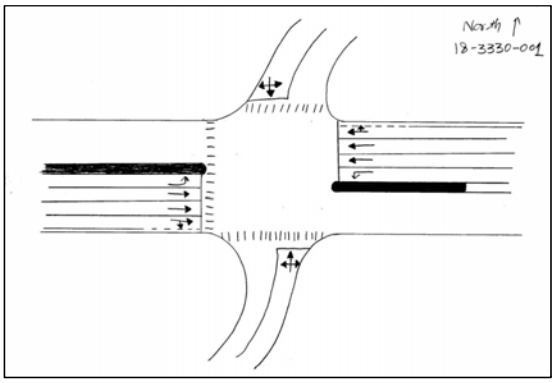
Peak Hour Factor
0.90











15-Min Count Period Beginning At	Lake Blvd Northbound					Lake Blvd Southbound					SR 50/W Colonial Dr Eastbound					SR 50/W Colonial Dr Westbound					Total	Hourly Total
	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*		
04:30 PM	4	1	5	0		1	1	11	0		9	449	7	11		7	679	3	0		1188	4931
04:45 PM	5	0	6	0		4	0	5	0		9	452	8	6		4	674	0	0		1173	4990
05:00 PM	4	0	5	0		4	2	7	0		1	363	2	10		12	768	1	0		1179	4929
05:15 PM	3	1	3	0		5	3	10	0		14	526	6	5		13	800	2	0		1391	4865
05:30 PM	3	1	2	0		1	1	6	0		3	459	4	4		7	750	6	0		1247	4518
05:45 PM	9	1	4	0		0	2	3	0		5	365	6	9		16	690	0	2		1112	3271
06:00 PM	6	1	4	0		1	0	8	0		8	363	7	5		15	695	1	1		1115	2159
06:15 PM	5	0	2	0		2	0	7	0		7	359	7	6		8	639	2	0		1044	1044

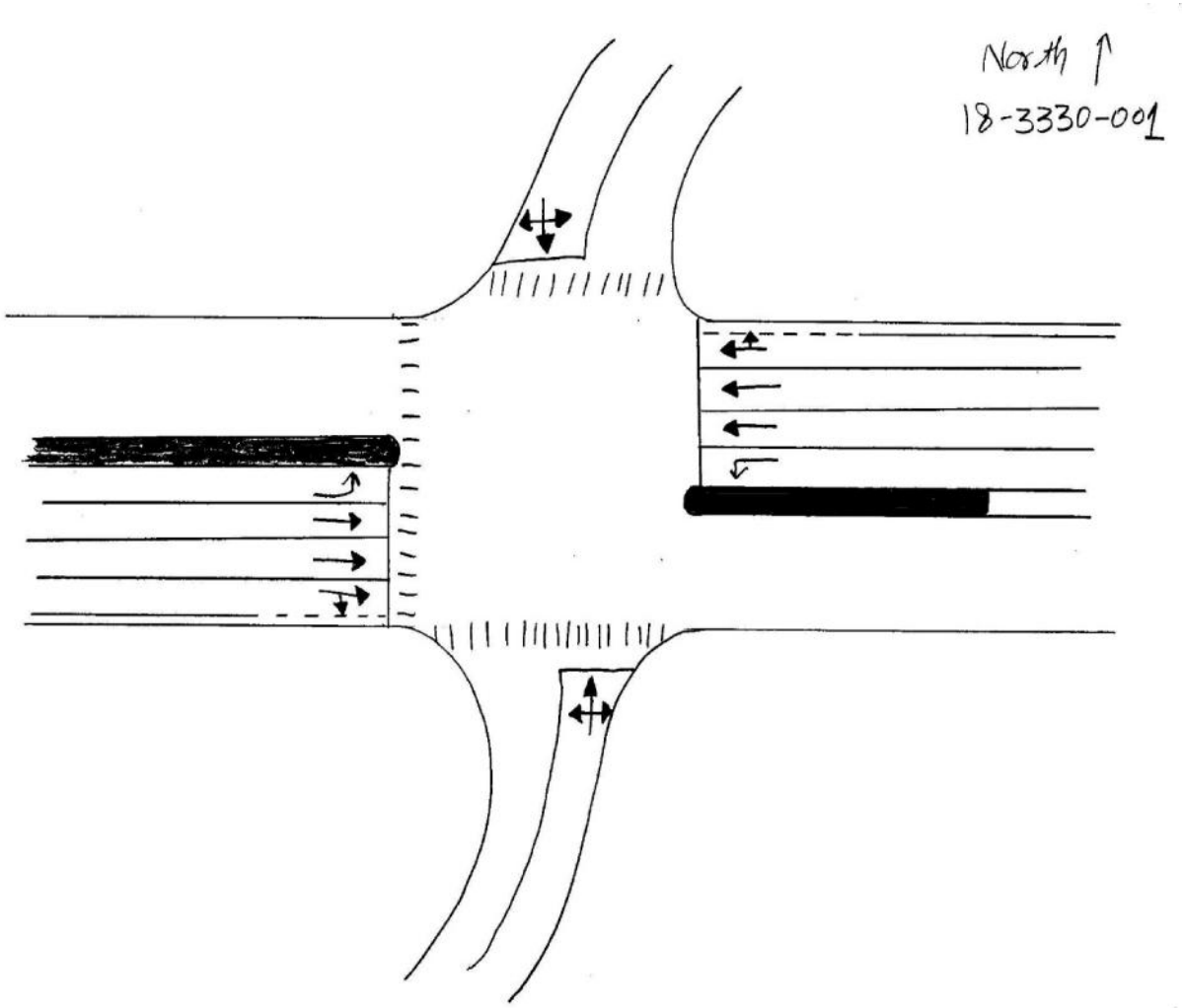
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total
	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	
All Vehicles	20	4	24	0		20	12	40	0		56	2104	32	40		52	3200	24	0		**5628**
Heavy Trucks	0	0	0			0	0	4			0	52	0			0	48	0			**104**
Pedestrians		0					4					0					0				**4**
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			**0**
Railroad Stopped Buses																					

National Data & Surveying Services

N

N/S Street: **Lake Blvd**

Speed: **N/A**



E/W Street: **SR 50/W Colonial Dr**

Speed: **50 MPH**

PHASES	**1**	**2**	**3**
NT/ST	00:11	00:22	00:18
EL/WL	-	00:22	00:20
ET/WT	02:37	02:06	05:02

National Data & Surveying Services

Intersection Turning Movement Count

Location: Oakland Ave/Deer Isle Dr & SR 50/W Colonial Dr
City: Oakland
Control:

Project ID: 18-03330-002
Date: 7/17/2018

Total

NS/EW Streets:	Oakland Ave/Deer Isle Dr				Oakland Ave/Deer Isle Dr				SR 50/W Colonial Dr				SR 50/W Colonial Dr				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	0	6	0	55	0	15	0	20	717	0	0	3	215	33	2	1068
7:15 AM	0	0	12	0	58	0	8	0	20	824	1	0	3	268	29	2	1225
7:30 AM	3	1	8	0	65	0	16	0	13	813	1	0	1	330	38	0	1289
7:45 AM	1	1	10	0	57	1	13	0	29	706	1	0	1	359	46	0	1225
8:00 AM	2	1	6	0	48	1	9	0	15	677	1	0	3	323	28	1	1115
8:15 AM	0	0	12	0	57	0	17	0	17	675	1	0	2	321	36	0	1138
8:30 AM	6	0	8	0	61	0	14	0	14	638	2	0	4	343	46	1	1137
8:45 AM	0	0	4	0	61	1	14	0	17	498	0	0	3	346	35	1	980
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	14	3	66	0	462	3	106	0	145	5548	7	0	20	2505	291	7	9177
APPROACH %'s :	16.87%	3.61%	79.52%	0.00%	80.91%	0.53%	18.56%	0.00%	2.54%	97.33%	0.12%	0.00%	0.71%	88.74%	10.31%	0.25%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	6	3	36	0	228	2	46	0	77	3020	4	0	8	1280	141	3	4854
PEAK HR FACTOR :	0.500	0.750	0.750	0.000	0.877	0.500	0.719	0.000	0.664	0.916	1.000	0.000	0.667	0.891	0.766	0.375	0.941
		0.938				0.852				0.917				0.882			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:30 PM	3	1	1	0	54	1	28	0	23	395	6	0	3	616	63	0	1194
4:45 PM	2	0	2	0	33	2	22	0	10	430	0	1	10	671	58	0	1241
5:00 PM	2	1	1	0	50	1	56	0	14	363	0	0	9	713	81	0	1291
5:15 PM	1	0	10	0	45	0	30	0	21	535	4	2	9	795	71	0	1523
5:30 PM	2	0	9	0	30	1	35	0	20	394	3	0	5	696	82	0	1277
5:45 PM	2	1	5	0	40	2	37	0	10	412	3	0	8	691	79	0	1290
6:00 PM	1	1	5	0	38	3	32	0	9	376	0	3	8	705	85	1	1267
6:15 PM	4	0	5	0	39	0	25	0	13	308	0	0	9	583	56	0	1042
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	17	4	38	0	329	10	265	0	120	3213	16	6	61	5470	575	1	10125
APPROACH %'s :	28.81%	6.78%	64.41%	0.00%	54.47%	1.66%	43.87%	0.00%	3.58%	95.77%	0.48%	0.18%	1.00%	89.57%	9.42%	0.02%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	7	2	25	0	165	4	158	0	65	1704	10	2	31	2895	313	0	5381
PEAK HR FACTOR :	0.875	0.500	0.625	0.000	0.825	0.500	0.705	0.000	0.774	0.796	0.625	0.250	0.861	0.910	0.954	0.000	0.883
		0.773				0.764				0.792				0.925			

National Data & Surveying Services

Intersection Turning Movement Count

Location: Oakland Ave/Deer Isle Dr & SR 50/W Colonial Dr
City: Oakland
Control:

Project ID: 18-03330-002
Date: 7/17/2018

Cars

NS/EW Streets:	Oakland Ave/Deer Isle Dr				Oakland Ave/Deer Isle Dr				SR 50/W Colonial Dr				SR 50/W Colonial Dr				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	0	6	0	55	0	13	0	20	705	0	0	3	200	33	2	1039
7:15 AM	0	0	12	0	57	0	7	0	20	809	0	0	3	255	29	2	1194
7:30 AM	3	1	7	0	65	0	16	0	13	799	0	0	1	312	36	0	1253
7:45 AM	1	1	10	0	54	1	12	0	29	692	1	0	1	336	46	0	1184
8:00 AM	2	1	6	0	48	1	9	0	15	659	1	0	2	297	26	1	1068
8:15 AM	0	0	11	0	56	0	17	0	16	667	1	0	2	301	33	0	1104
8:30 AM	6	0	7	0	59	0	13	0	14	609	2	0	4	329	44	1	1088
8:45 AM	0	0	4	0	58	1	14	0	17	476	0	0	3	326	32	1	932
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	14	3	63	0	452	3	101	0	144	5416	5	0	19	2356	279	7	8862
APPROACH %'s :	17.50%	3.75%	78.75%	0.00%	81.29%	0.54%	18.17%	0.00%	2.59%	97.32%	0.09%	0.00%	0.71%	88.54%	10.48%	0.26%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	6	3	35	0	224	2	44	0	77	2959	2	0	7	1200	137	3	4699
PEAK HR FACTOR :	0.50	0.750	0.729	0.000	0.862	0.500	0.688	0.000	0.664	0.914	0.500	0.000	0.583	0.893	0.745	0.375	0.938
		0.917				0.833				0.916				0.879			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:30 PM	3	1	1	0	51	1	28	0	23	378	6	0	3	601	63	0	1159
4:45 PM	2	0	2	0	30	2	22	0	10	418	0	1	10	659	58	0	1214
5:00 PM	2	1	1	0	50	1	56	0	14	353	0	0	9	701	81	0	1269
5:15 PM	1	0	10	0	43	0	29	0	21	523	4	2	9	788	69	0	1499
5:30 PM	2	0	9	0	28	1	35	0	20	389	3	0	5	691	81	0	1264
5:45 PM	2	1	5	0	40	2	36	0	10	400	3	0	8	688	79	0	1274
6:00 PM	1	1	5	0	38	3	31	0	9	370	0	3	8	696	82	1	1248
6:15 PM	4	0	5	0	38	0	23	0	13	302	0	0	9	578	56	0	1028
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	17	4	38	0	318	10	260	0	120	3133	16	6	61	5402	569	1	9955
APPROACH %'s :	28.81%	6.78%	64.41%	0.00%	54.08%	1.70%	44.22%	0.00%	3.66%	95.66%	0.49%	0.18%	1.01%	89.54%	9.43%	0.02%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	7	2	25	0	161	4	156	0	65	1665	10	2	31	2868	310	0	5306
PEAK HR FACTOR :	0.88	0.500	0.625	0.000	0.805	0.500	0.696	0.000	0.774	0.796	0.625	0.250	0.861	0.910	0.957	0.000	0.885
		0.773				0.750				0.792				0.926			

National Data & Surveying Services

Intersection Turning Movement Count

Location: Oakland Ave/Deer Isle Dr & SR 50/W Colonial Dr
City: Oakland
Control:

Project ID: 18-03330-002
Date: 7/17/2018

HT

NS/EW Streets:	Oakland Ave/Deer Isle Dr				Oakland Ave/Deer Isle Dr				SR 50/W Colonial Dr				SR 50/W Colonial Dr				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	2	0	0	12	0	0	0	15	0	0	29
7:15 AM	0	0	0	0	1	0	1	0	0	15	1	0	0	13	0	0	31
7:30 AM	0	0	1	0	0	0	0	0	0	14	1	0	0	18	2	0	36
7:45 AM	0	0	0	0	3	0	1	0	0	14	0	0	0	23	0	0	41
8:00 AM	0	0	0	0	0	0	0	0	0	18	0	0	1	26	2	0	47
8:15 AM	0	0	1	0	1	0	0	0	1	8	0	0	0	20	3	0	34
8:30 AM	0	0	1	0	2	0	1	0	0	29	0	0	0	14	2	0	49
8:45 AM	0	0	0	0	3	0	0	0	0	22	0	0	0	20	3	0	48
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	3	0	10	0	5	0	1	132	2	0	1	149	12	0	315
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%	66.67%	0.00%	33.33%	0.00%	0.74%	97.78%	1.48%	0.00%	0.62%	91.98%	7.41%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	1	0	4	0	2	0	0	61	2	0	1	80	4	0	155
PEAK HR FACTOR :	0.000	0.000	0.250	0.000	0.333	0.000	0.500	0.000	0.000	0.847	0.500	0.000	0.250	0.769	0.500	0.000	0.824
			0.250				0.375				0.875				0.733		

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:30 PM	0	0	0	0	3	0	0	0	0	17	0	0	0	15	0	0	35
4:45 PM	0	0	0	0	3	0	0	0	0	12	0	0	0	12	0	0	27
5:00 PM	0	0	0	0	0	0	0	0	0	10	0	0	0	12	0	0	22
5:15 PM	0	0	0	0	2	0	1	0	0	12	0	0	0	7	2	0	24
5:30 PM	0	0	0	0	2	0	0	0	0	5	0	0	0	5	1	0	13
5:45 PM	0	0	0	0	0	0	1	0	0	12	0	0	0	3	0	0	16
6:00 PM	0	0	0	0	0	0	1	0	0	6	0	0	0	9	3	0	19
6:15 PM	0	0	0	0	1	0	2	0	0	6	0	0	0	5	0	0	14
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	11	0	5	0	0	80	0	0	0	68	6	0	170
APPROACH %'s :					68.75%	0.00%	31.25%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	91.89%	8.11%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	4	0	2	0	0	39	0	0	0	27	3	0	75
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.500	0.000	0.500	0.000	0.000	0.813	0.000	0.000	0.000	0.563	0.375	0.000	0.781
							0.500				0.813				0.625		

National Data & Surveying Services

Intersection Turning Movement Count

Location: Oakland Ave/Deer Isle Dr & SR 50/W Colonial Dr
City: Oakland
Control:

Project ID: 18-03330-002
Date: 7/17/2018

Bikes

NS/EW Streets:	Oakland Ave/Deer Isle Dr				Oakland Ave/Deer Isle Dr				SR 50/W Colonial Dr				SR 50/W Colonial Dr				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3
8:00 AM	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	3
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	3	0	0	0	0	0	0	0	0	3	0	0	6
APPROACH %'s :					100.00%	0.00%	0.00%	0.00%					0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	0	0	3	0	0	0	0	0	0	0	0	3	0	0	6
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.500
						0.250								0.250			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
APPROACH %'s :									0.00%	100.00%	0.00%	0.00%					
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.250
										0.250							

National Data & Surveying Services
Intersection Turning Movement Count

Location: Oakland Ave/Deer Isle Dr & SR 50/W Colonial Dr
City: Oakland
Project ID: 18-03330-002
Date: 7/17/2018

Pedestrians (Crosswalks)

NS/EW Streets:	Oakland Ave/Deer Isle Dr		Oakland Ave/Deer Isle Dr		SR 50/W Colonial Dr		SR 50/W Colonial Dr		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0
APPROACH %'s :									
PEAK HR :	07:15 AM - 08:15 AM								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	1	0	0	0	1
6:00 PM	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	1	0	0	0	1
APPROACH %'s :					100.00%	0.00%			
PEAK HR :	05:00 PM - 06:00 PM								TOTAL
PEAK HR VOL :	0	0	0	0	1	0	0	0	1
PEAK HR FACTOR :					0.250				0.250
					0.250				

Prepared by National Data & Surveying Services

Oakland Ave/Deer Isle Dr & SR 50/W Colonial Dr

Peak Hour Turning Movement Count

ID: 18-03330-002
City: Oakland

Day: Tuesday
Date: 07/17/2018

PEAK HOURS

AM: 07:15 AM - 08:15 AM
NOON: NONE
PM: 05:00 PM - 06:00 PM

COUNT PERIODS

AM: 07:00 AM - 09:00 AM
NOON: NONE
PM: 04:30 PM - 06:30 PM

Oakland Ave/Deer Isle Dr — SOUTHBOUND

AM	46	2	228	0	221	AM
NOON	0	0	0	0	0	NOON
PM	158	4	165	0	380	PM

SR 50/W Colonial Dr — EASTBOUND

AM	NOON	PM	
1332	0	3062	⇦
0	0	2	↶ 0
77	0	65	↱ 0
3020	0	1704	→ 0
4	0	10	↳ 0
AM	NOON	PM	

SR 50/W Colonial Dr — WESTBOUND

PM	NOON	AM	
313	0	141	0 ↰
2895	0	1280	0 ←
31	0	8	0 ↙
0	0	3	0 ↶
1894	0	3287	⇨
PM	NOON	AM	

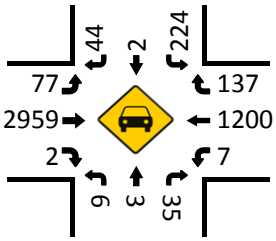
CONTROL

TEV	4854 AM	0 NOON	5381 PM
PHF	0.94		0.88

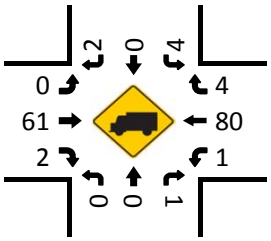
Oakland Ave/Deer Isle Dr — NORTHBOUND

PM	45	0	7	2	25	PM
NOON	0	0	0	0	0	NOON
AM	14	0	6	3	36	AM

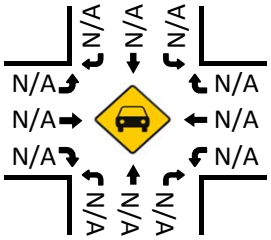
Cars (AM)



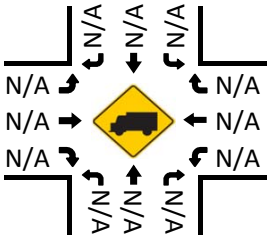
HT (AM)



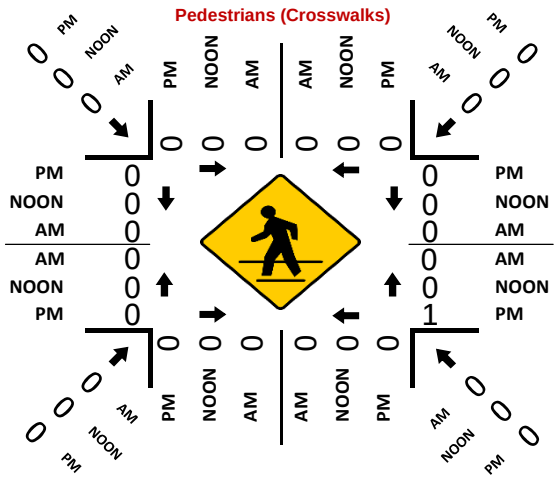
Cars (NOON)



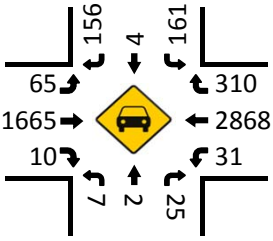
HT (NOON)



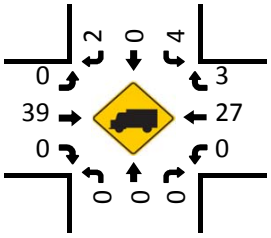
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)

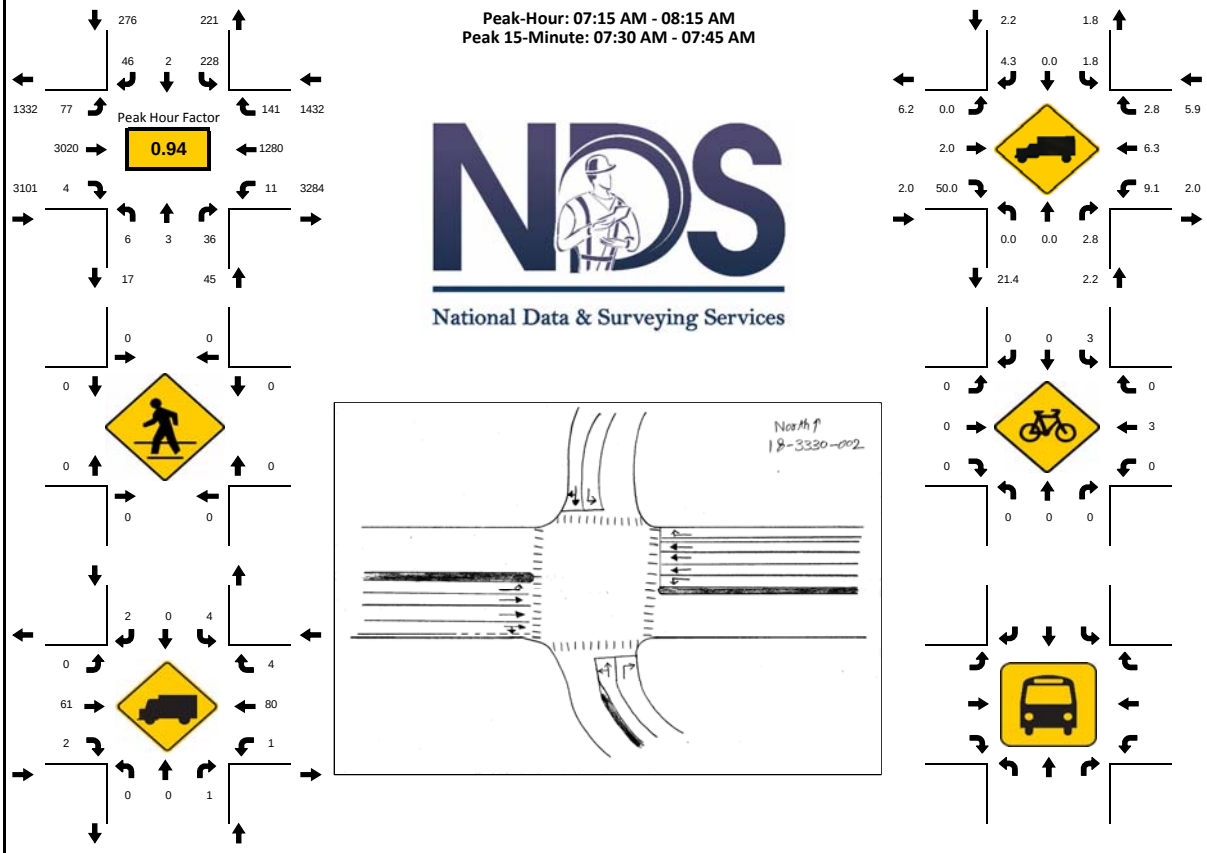


LOCATION: Oakland Ave/Deer Isle Dr & SR 50/W Colonial Dr
CITY/STATE: Oakland, FL

PROJECT ID: 18-03330-002
DATE: 07/17/2018

Peak-Hour: 07:15 AM - 08:15 AM
Peak 15-Minute: 07:30 AM - 07:45 AM

Peak Hour Factor: **0.94**



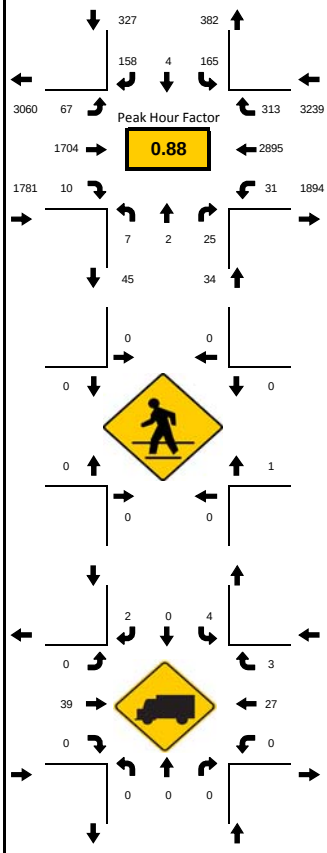
National Data & Surveying Services

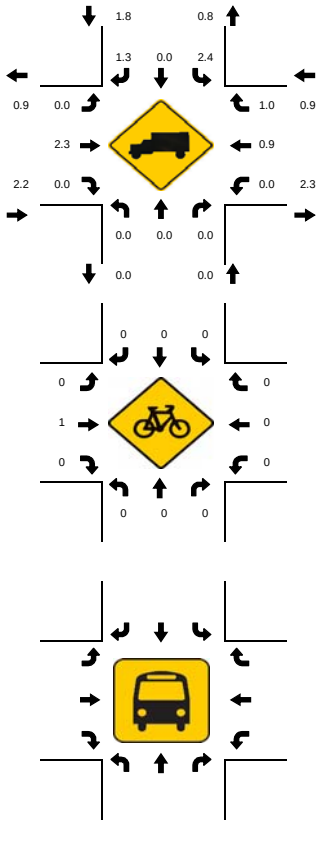
15-Min Count Period Beginning At	Oakland Ave/Deer Isle Dr Northbound					Oakland Ave/Deer Isle Dr Southbound					SR 50/W Colonial Dr Eastbound					SR 50/W Colonial Dr Westbound						
	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Total	Hourly Total
07:00 AM	2	0	6	0		55	0	15	0		20	717	0	0		3	215	33	2		1068	4807
07:15 AM	0	0	12	0		58	0	8	0		20	824	1	0		3	268	29	2		1225	4854
07:30 AM	3	1	8	0		65	0	16	0		13	813	1	0		1	330	38	0		1289	4767
07:45 AM	1	1	10	0		57	1	13	0		29	706	1	0		1	359	46	0		1225	4615
08:00 AM	2	1	6	0		48	1	9	0		15	677	1	0		3	323	28	1		1115	4370
08:15 AM	0	0	12	0		57	0	17	0		17	675	1	0		2	321	36	0		1138	3255
08:30 AM	6	0	8	0		61	0	14	0		14	638	2	0		4	343	46	1		1137	2117
08:45 AM	0	0	4	0		61	1	14	0		17	498	0	0		3	346	35	1		980	980
Peak 15-Min Flowrates	**Northbound**					**Southbound**					**Eastbound**					**Westbound**						
	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	**Total**	
All Vehicles	12	4	48	0		260	4	64	0		116	3296	4	0		12	1436	184	8		**5448**	
Heavy Trucks	0	0	4			12	0	4			0	72	4			4	104	8			**212**	
Pedestrians		0					0					0					0				**0**	
Bicycles	0	0	0			12	0	0			0	0	0			0	12	0			**24**	
Railroad																						
Stopped Buses																						

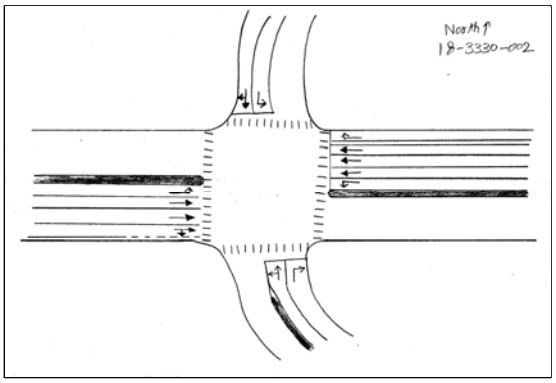
LOCATION: Oakland Ave/Deer Isle Dr & SR 50/W Colonial Dr
CITY/STATE: Oakland, FL

PROJECT ID: 18-03330-002
DATE: 07/17/2018

Peak-Hour: 05:00 PM - 06:00 PM
Peak 15-Minute: 05:15 PM - 05:30 PM



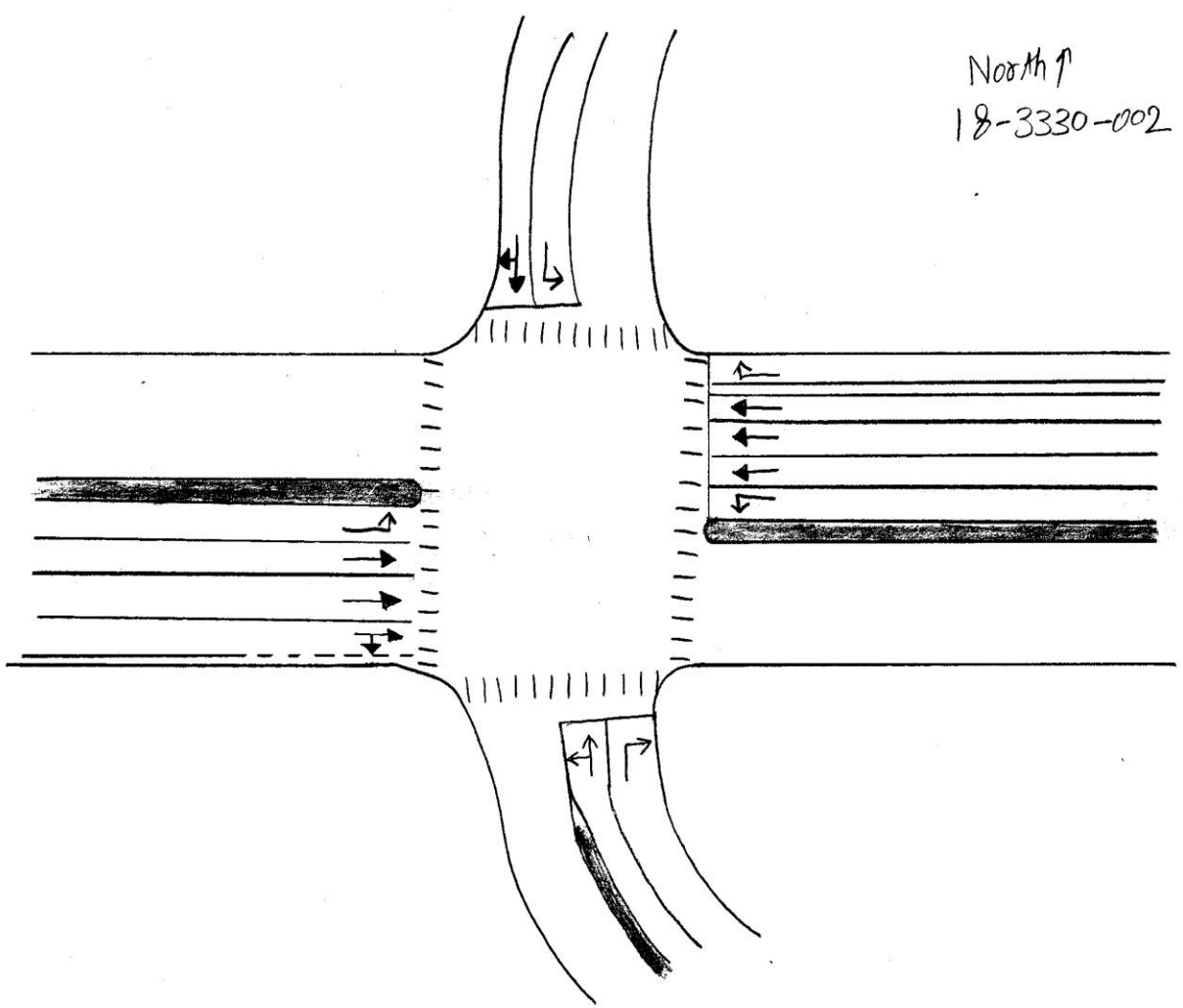




15-Min Count Period Beginning At	Oakland Ave/Deer Isle Dr Northbound					Oakland Ave/Deer Isle Dr Southbound					SR 50/W Colonial Dr Eastbound					SR 50/W Colonial Dr Westbound					Total	Hourly Total
	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*		
04:30 PM	3	1	1	0		54	1	28	0		23	395	6	0		3	616	63	0		1194	5249
04:45 PM	2	0	2	0		33	2	22	0		10	430	0	1		10	671	58	0		1241	5332
05:00 PM	2	1	1	0		50	1	56	0		14	363	0	0		9	713	81	0		1291	5381
05:15 PM	1	0	10	0		45	0	30	0		21	535	4	2		9	795	71	0		1523	5357
05:30 PM	2	0	9	0		30	1	35	0		20	394	3	0		5	696	82	0		1277	4876
05:45 PM	2	1	5	0		40	2	37	0		10	412	3	0		8	691	79	0		1290	3599
06:00 PM	1	1	5	0		38	3	32	0		9	376	0	3		8	705	85	1		1267	2309
06:15 PM	4	0	5	0		39	0	25	0		13	308	0	0		9	583	56	0		1042	1042
Peak 15-Min Flowrates	**Northbound**					**Southbound**					**Eastbound**					**Westbound**					**Total**	
	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*		
All Vehicles	8	4	40	0		200	8	224	0		84	2140	16	8		36	3180	328	0		**6276**	
Heavy Trucks	0	0	0			8	0	4			0	48	0			0	48	8			**116**	
Pedestrians		0					0					0					4				**4**	
Bicycles	0	0	0			0	0	0			0	4	0			0	0	0			**4**	
Railroad																						
Stopped Buses																						

National Data & Surveying Services

N/S Street: **Oakland Ave/Deer Isle Dr**	Speed: **45 MPH**



E/W Street: **SR 50/W Colonial Dr**

Speed: **50 MPH**

Site Code: **18-3330-002**

Date: **07/17/2018**

Weather: **Sunny**

City: **Oakland**

County: **Orange County**

Count Times: **07:00 – 09:00**

16:30 - 18:30

Control: **Signalized**

SIGNAL TIMING

PHASES	**1**	**2**	**3**
NT/ST	00:46	00:22	00:25
ET/EL	00:21	00:20	00:26
ET/WT	01:03	01:18	01:29
WT/WL	00:15	00:16	-

C.3. 2018 24-hour Tube Counts

Prepared by NDS/ATD

VOLUME

SR 50/W Colonial Dr Bet. Lake Blvd & Oakland Ave/Deer Isle Dr

Day: Tuesday
Date: 7/17/2018

City: Oakland
Project #: FL18_3331_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	29,431	28,000	57,431

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			45		113		158		12:00			419		363		782	
00:15			28		105		133		12:15			402		353		755	
00:30			31		93		124		12:30			412		383		795	
00:45			21	125	71	382	92	507	12:45			409	1642	379	1478	788	3120
01:00			23		69		92		13:00			386		363		749	
01:15			18		51		69		13:15			357		393		750	
01:30			33		41		74		13:30			412		384		796	
01:45			21	95	47	208	68	303	13:45			379	1534	381	1521	760	3055
02:00			22		36		58		14:00			372		399		771	
02:15			27		37		64		14:15			405		426		831	
02:30			39		34		73		14:30			400		445		845	
02:45			20	108	35	142	55	250	14:45			366	1543	465	1735	831	3278
03:00			52		24		76		15:00			387		458		845	
03:15			43		22		65		15:15			408		480		888	
03:30			64		27		91		15:30			411		587		998	
03:45			49	208	30	103	79	311	15:45			392	1598	615	2140	1007	3738
04:00			65		35		100		16:00			454		538		992	
04:15			107		24		131		16:15			390		619		1009	
04:30			129		49		178		16:30			422		671		1093	
04:45			134	435	49	157	183	592	16:45			466	1732	686	2514	1152	4246
05:00			191		54		245		17:00			368		778		1146	
05:15			305		58		363		17:15			532		823		1355	
05:30			333		99		432		17:30			437		752		1189	
05:45			340	1169	114	325	454	1494	17:45			395	1732	718	3071	1113	4803
06:00			438		113		551		18:00			366		706		1072	
06:15			497		138		635		18:15			368		636		1004	
06:30			673		214		887		18:30			349		571		920	
06:45			661	2269	245	710	906	2979	18:45			265	1348	461	2374	726	3722
07:00			750		229		979		19:00			275		412		687	
07:15			837		283		1120		19:15			275		372		647	
07:30			833		338		1171		19:30			238		380		618	
07:45			726	3146	379	1229	1105	4375	19:45			210	998	320	1484	530	2482
08:00			684		332		1016		20:00			198		323		521	
08:15			704		340		1044		20:15			169		283		452	
08:30			638		358		996		20:30			196		255		451	
08:45			537	2563	364	1394	901	3957	20:45			167	730	257	1118	424	1848
09:00			528		306		834		21:00			160		231		391	
09:15			482		341		823		21:15			170		212		382	
09:30			484		316		800		21:30			144		210		354	
09:45			402	1896	324	1287	726	3183	21:45			130	604	243	896	373	1500
10:00			436		297		733		22:00			126		183		309	
10:15			453		304		757		22:15			128		184		312	
10:30			400		303		703		22:30			93		150		243	
10:45			410	1699	316	1220	726	2919	22:45			83	430	124	641	207	1071
11:00			382		335		717		23:00			70		141		211	
11:15			431		325		756		23:15			77		130		207	
11:30			379		357		736		23:30			59		127		186	
11:45			368	1560	361	1378	729	2938	23:45			61	267	95	493	156	760
TOTALS				15273		8535		23808	TOTALS				14158		19465		33623
SPLIT %				64.2%		35.8%		41.5%	SPLIT %				42.1%		57.9%		58.5%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	29,431	28,000	57,431

AM Peak Hour			07:00	11:45	07:15	PM Peak Hour			16:45	17:00	16:45
AM Pk Volume			3146	1460	4412	PM Pk Volume			1803	3071	4842
Pk Hr Factor			0.940	0.953	0.942	Pk Hr Factor			0.847	0.933	0.893
7 - 9 Volume	0	0	5709	2623	8332	4 - 6 Volume	0	0	3464	5585	9049
7 - 9 Peak Hour			07:00	07:45	07:15	4 - 6 Peak Hour			16:45	17:00	16:45
7 - 9 Pk Volume	0	0	3146	1409	4412	4 - 6 Pk Volume	0	0	1803	3071	4842
Pk Hr Factor	0.000	0.000	0.940	0.929	0.942	Pk Hr Factor	0.000	0.000	0.847	0.933	0.893

Prepared by NDS/ATD

VOLUME

SR 50/W Colonial Dr Bet. Lake Blvd & Oakland Ave/Deer Isle Dr

Day: Wednesday
Date: 7/18/2018

City: Oakland
Project #: FL18_3331_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	29,397	27,906	57,303

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			32		106		138		12:00			371		345		716	
00:15			35		85		120		12:15			406		362		768	
00:30			34		82		116		12:30			447		390		837	
00:45			37	138	57	330	94	468	12:45			391	1615	385	1482	776	3097
01:00			25		45		70		13:00			386		341		727	
01:15			18		46		64		13:15			379		357		736	
01:30			16		50		66		13:30			433		400		833	
01:45			23	82	47	188	70	270	13:45			367	1565	384	1482	751	3047
02:00			18		36		54		14:00			358		405		763	
02:15			27		39		66		14:15			447		374		821	
02:30			27		43		70		14:30			423		464		887	
02:45			43	115	40	158	83	273	14:45			322	1550	440	1683	762	3233
03:00			46		29		75		15:00			390		462		852	
03:15			44		25		69		15:15			396		470		866	
03:30			60		28		88		15:30			367		531		898	
03:45			46	196	41	123	87	319	15:45			419	1572	561	2024	980	3596
04:00			70		47		117		16:00			390		565		955	
04:15			133		37		170		16:15			423		603		1026	
04:30			128		35		163		16:30			405		653		1058	
04:45			153	484	67	186	220	670	16:45			478	1696	657	2478	1135	4174
05:00			215		53		268		17:00			385		764		1149	
05:15			270		75		345		17:15			524		829		1353	
05:30			338		86		424		17:30			437		738		1175	
05:45			322	1145	123	337	445	1482	17:45			384	1730	716	3047	1100	4777
06:00			418		139		557		18:00			389		701		1090	
06:15			527		137		664		18:15			354		616		970	
06:30			643		215		858		18:30			317		489		806	
06:45			663	2251	244	735	907	2986	18:45			299	1359	432	2238	731	3597
07:00			735		238		973		19:00			218		397		615	
07:15			829		295		1124		19:15			275		332		607	
07:30			832		318		1150		19:30			216		385		601	
07:45			718	3114	386	1237	1104	4351	19:45			232	941	320	1434	552	2375
08:00			681		320		1001		20:00			225		299		524	
08:15			686		352		1038		20:15			204		286		490	
08:30			635		341		976		20:30			178		295		473	
08:45			538	2540	379	1392	917	3932	20:45			184	791	268	1148	452	1939
09:00			505		328		833		21:00			189		250		439	
09:15			502		347		849		21:15			195		226		421	
09:30			441		306		747		21:30			176		244		420	
09:45			470	1918	339	1320	809	3238	21:45			110	670	205	925	315	1595
10:00			380		314		694		22:00			110		214		324	
10:15			432		297		729		22:15			113		196		309	
10:30			421		355		776		22:30			105		188		293	
10:45			439	1672	358	1324	797	2996	22:45			89	417	164	762	253	1179
11:00			342		291		633		23:00			70		156		226	
11:15			414		313		727		23:15			62		147		209	
11:30			415		344		759		23:30			65		143		208	
11:45			410	1581	366	1314	776	2895	23:45			58	255	113	559	171	814
TOTALS				15236		8644		23880	TOTALS				14161		19262		33423
SPLIT %				63.8%		36.2%		41.7%	SPLIT %				42.4%		57.6%		58.3%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	29,397	27,906	57,303

AM Peak Hour			07:00	11:45	07:15	PM Peak Hour		16:45	17:00	16:45
AM Pk Volume			3114	1463	4379	PM Pk Volume		1824	3047	4812
Pk Hr Factor			0.936	0.938	0.952	Pk Hr Factor		0.870	0.919	0.889
7 - 9 Volume	0	0	5654	2629	8283	4 - 6 Volume	0	3426	5525	8951
7 - 9 Peak Hour			07:00	07:45	07:15	4 - 6 Peak Hour		16:45	17:00	16:45
7 - 9 Pk Volume	0	0	3114	1399	4379	4 - 6 Pk Volume	0	1824	3047	4812
Pk Hr Factor	0.000	0.000	0.936	0.906	0.952	Pk Hr Factor	0.000	0.870	0.919	0.889

Prepared by NDS/ATD

VOLUME

SR 50/W Colonial Dr Bet. Lake Blvd & Oakland Ave/Deer Isle Dr

Day: Thursday
Date: 7/19/2018

City: Oakland
Project #: FL18_3331_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	29,881	28,397	58,278

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			41		108		149		12:00			433		376		809	
00:15			25		87		112		12:15			368		385		753	
00:30			27		98		125		12:30			481		388		869	
00:45			26	119	70	363	96	482	12:45			425	1707	335	1484	760	3191
01:00			24		63		87		13:00			402		349		751	
01:15			42		46		88		13:15			400		433		833	
01:30			21		57		78		13:30			416		377		793	
01:45			19	106	53	219	72	325	13:45			367	1585	434	1593	801	3178
02:00			32		45		77		14:00			367		426		793	
02:15			34		40		74		14:15			407		398		805	
02:30			38		37		75		14:30			371		477		848	
02:45			33	137	35	157	68	294	14:45			411	1556	443	1744	854	3300
03:00			39		28		67		15:00			413		442		855	
03:15			40		34		74		15:15			410		462		872	
03:30			69		20		89		15:30			452		513		965	
03:45			50	198	42	124	92	322	15:45			374	1649	592	2009	966	3658
04:00			67		43		110		16:00			421		511		932	
04:15			105		31		136		16:15			398		605		1003	
04:30			134		62		196		16:30			455		666		1121	
04:45			139	445	48	184	187	629	16:45			439	1713	684	2466	1123	4179
05:00			207		64		271		17:00			402		752		1154	
05:15			269		80		349		17:15			528		808		1336	
05:30			296		122		418		17:30			446		761		1207	
05:45			402	1174	111	377	513	1551	17:45			411	1787	708	3029	1119	4816
06:00			449		128		577		18:00			398		721		1119	
06:15			508		173		681		18:15			346		632		978	
06:30			604		222		826		18:30			358		541		899	
06:45			667	2228	266	789	933	3017	18:45			283	1385	476	2370	759	3755
07:00			732		246		978		19:00			277		408		685	
07:15			839		292		1131		19:15			231		362		593	
07:30			830		330		1160		19:30			233		362		595	
07:45			735	3136	367	1235	1102	4371	19:45			220	961	314	1446	534	2407
08:00			691		345		1036		20:00			216		305		521	
08:15			692		327		1019		20:15			201		324		525	
08:30			651		356		1007		20:30			206		291		497	
08:45			523	2557	346	1374	869	3931	20:45			178	801	278	1198	456	1999
09:00			513		339		852		21:00			178		281		459	
09:15			497		346		843		21:15			162		224		386	
09:30			485		360		845		21:30			162		262		424	
09:45			439	1934	304	1349	743	3283	21:45			141	643	214	981	355	1624
10:00			394		313		707		22:00			123		209		332	
10:15			452		279		731		22:15			128		212		340	
10:30			431		328		759		22:30			87		175		262	
10:45			450	1727	328	1248	778	2975	22:45			79	417	183	779	262	1196
11:00			382		344		726		23:00			72		135		207	
11:15			471		328		799		23:15			66		138		204	
11:30			419		325		744		23:30			49		131		180	
11:45			401	1673	355	1352	756	3025	23:45			56	243	123	527	179	770
TOTALS				15434		8771		24205	TOTALS				14447		19626		34073
SPLIT %				63.8%		36.2%		41.5%	SPLIT %				42.4%		57.6%		58.5%

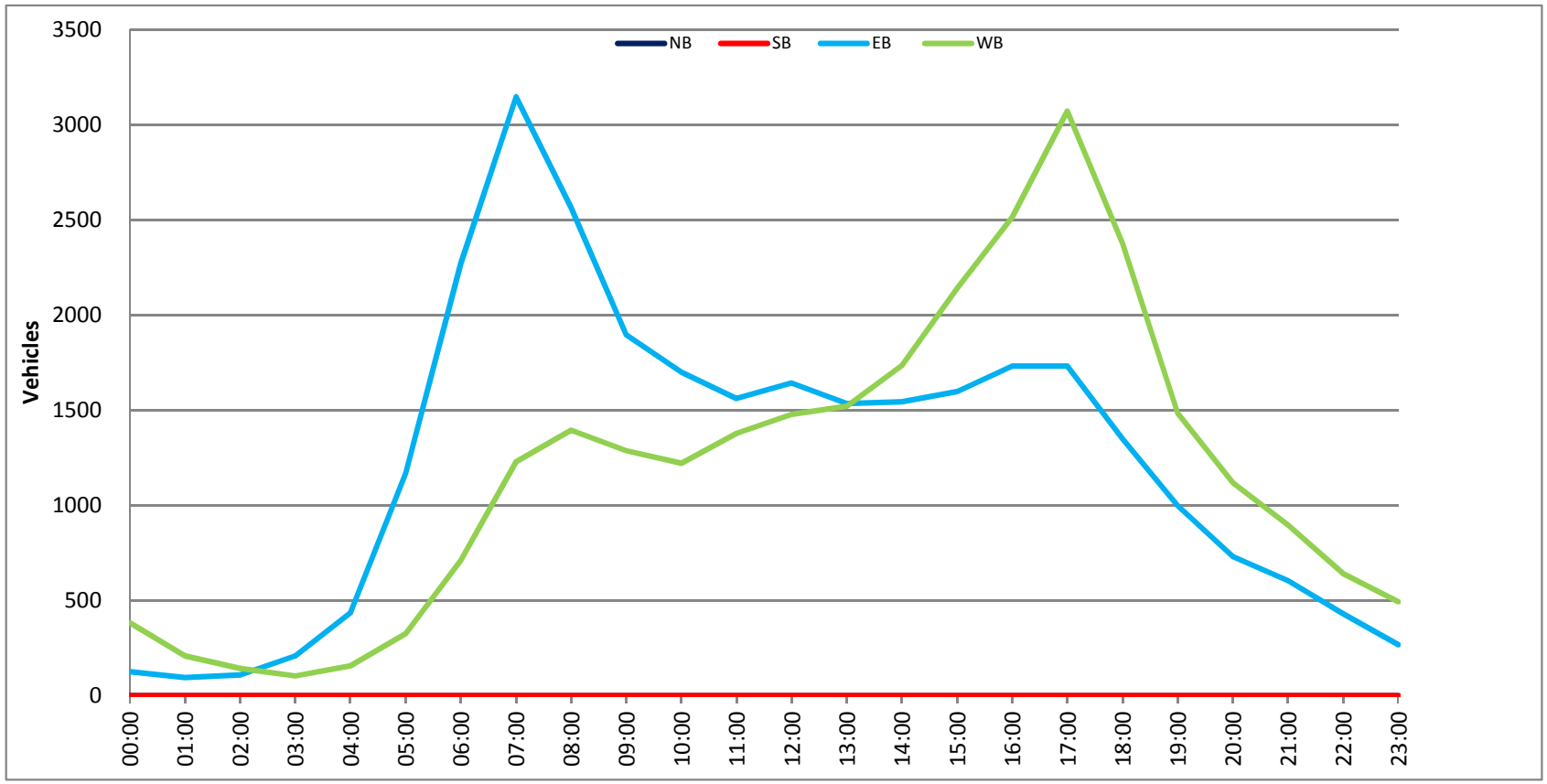
DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	29,881	28,397	58,278

AM Peak Hour			07:00	11:45	07:15	PM Peak Hour			16:30	17:00	16:45
AM Pk Volume			3136	1504	4429	PM Pk Volume			1824	3029	4820
Pk Hr Factor			0.934	0.969	0.955	Pk Hr Factor			0.864	0.937	0.902
7 - 9 Volume	0	0	5693	2609	8302	4 - 6 Volume	0	0	3500	5495	8995
7 - 9 Peak Hour			07:00	07:45	07:15	4 - 6 Peak Hour			16:30	17:00	16:45
7 - 9 Pk Volume	0	0	3136	1395	4429	4 - 6 Pk Volume	0	0	1824	3029	4820
Pk Hr Factor	0.000	0.000	0.934	0.950	0.955	Pk Hr Factor	0.000	0.000	0.864	0.937	0.902

Prepared by NDS/ATD

Project #: FL18_3331_001 **City:** Oakland

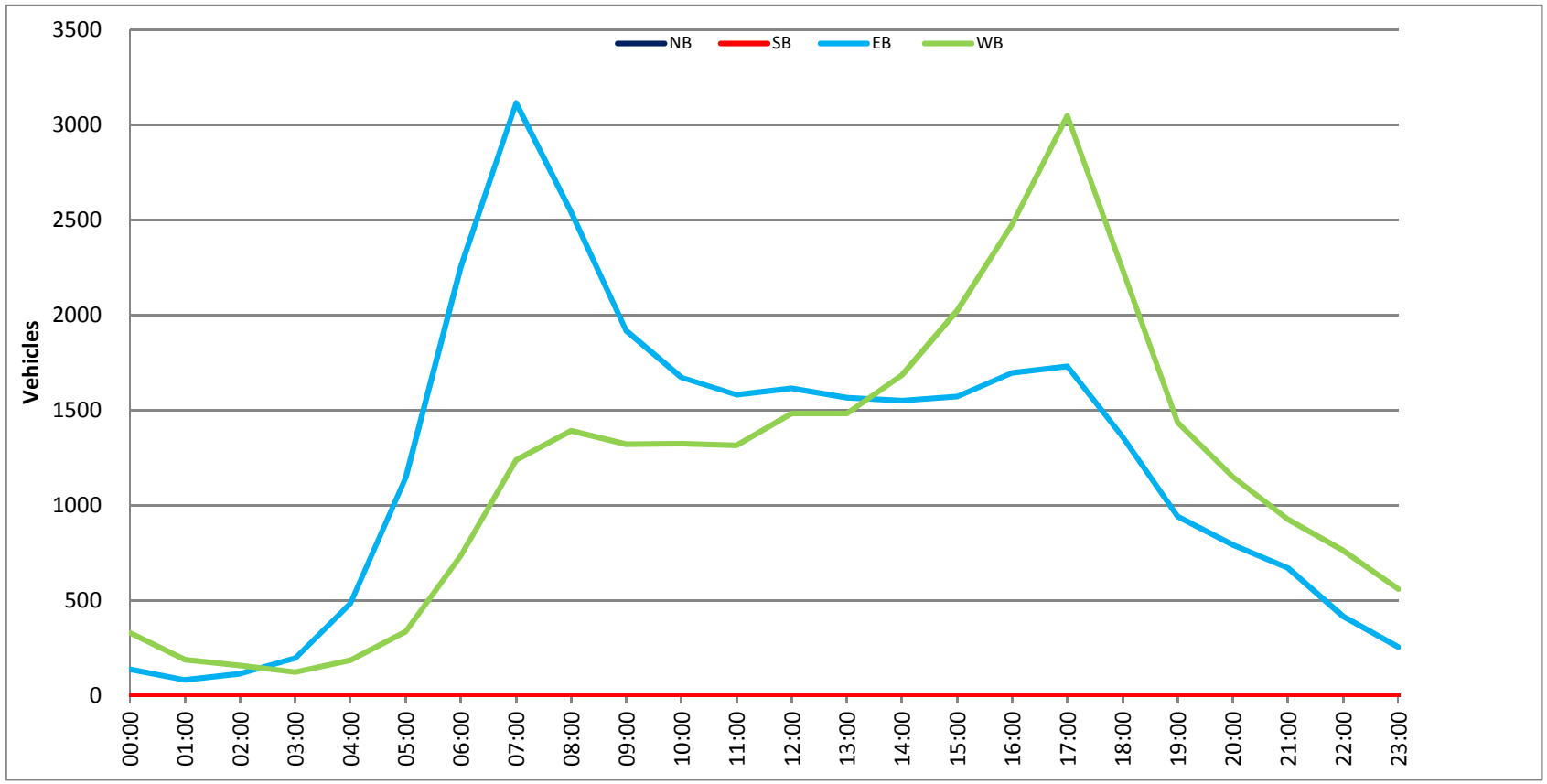
Location: SR 50/W Colonial Dr Bet. Lake Blvd & **Date:** 7/17/2018



Prepared by NDS/ATD

Project #: FL18_3331_001 **City:** Oakland

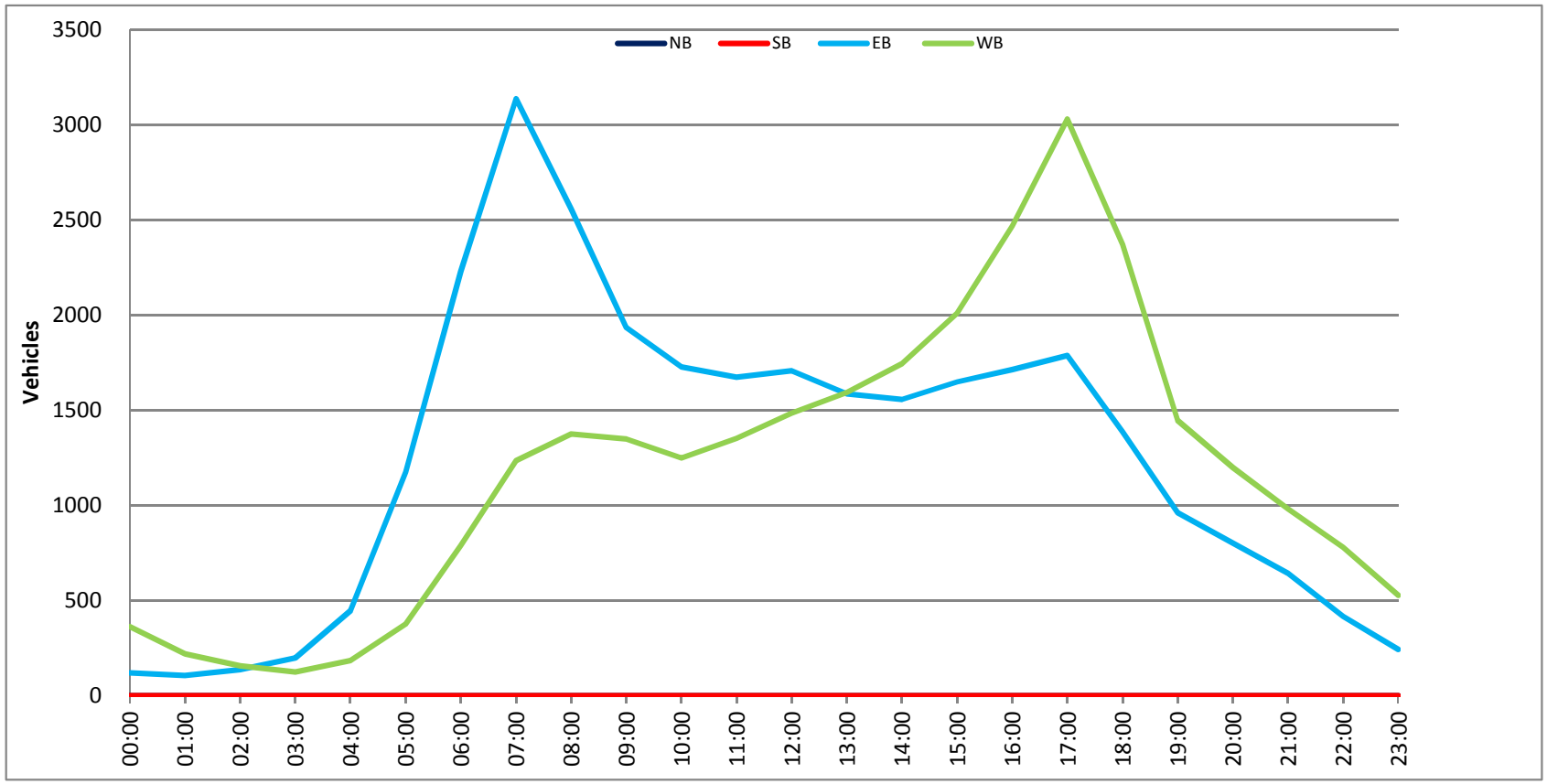
Location: SR 50/W Colonial Dr Bet. Lake Blvd & **Date:** 7/18/2018



Prepared by NDS/ATD

Project #: FL18_3331_001 **City:** Oakland

Location: SR 50/W Colonial Dr Bet. Lake Blvd & **Date:** 7/19/2018



Roadway Count Summary

Start Date	17-Oct-17	Start Time	00:00
Stop Date	18-Oct-17	Stop Time	24:00
County	Orange	Station ID	119
Location	Oakland Av: Lake County Line to Tubb St (0.5 Mi. E. Florida's Turnpike)		

17-Oct-17 East for Lane 1

End Time	00	01	02	03	04	05	06	07	08	09	10	11
15	4	0	0	1	2	2	12	22	49	39	33	23
30	1	0	1	4	3	3	15	29	47	22	23	24
45	0	1	1	1	6	9	28	40	36	30	23	26
00	0	1	0	1	2	9	38	47	35	25	17	30
Hr Total	5	2	2	7	13	23	93	138	167	116	96	103

End Time	12	13	14	15	16	17	18	19	20	21	22	23
15	37	20	26	30	37	46	35	16	9	6	12	2
30	25	18	27	30	26	38	33	17	6	9	5	2
45	18	17	18	25	27	48	29	15	5	4	3	0
00	27	23	38	32	44	32	32	9	10	3	4	0
Hr Total	107	78	109	117	134	164	129	57	30	22	24	4

24 Hour Total	1,740				
AM Peak Hour Begins	7:30	AM Peak Volume	183	AM Peak Hour Factor	0.93
PM Peak Hour Begins	16:45	PM Peak Volume	176	PM Peak Hour Factor	0.96

17-Oct-17 Westbound for Lane 2

End Time	00	01	02	03	04	05	6	07	08	09	10	11
15	2	1	1	3	1	0	13	33	41	24	24	32
30	4	1	2	1	1	3	13	36	42	26	22	27
45	0	2	0	2	2	9	18	25	27	21	34	24
00	4	0	1	1	4	8	27	36	28	30	15	22
Hr Total	10	4	4	7	8	20	71	130	138	101	95	105

End Time	12	13	14	15	16	17	18	19	20	21	22	23
15	26	27	30	49	66	111	67	33	19	13	10	6
30	31	29	27	52	62	94	52	35	33	14	5	3
45	34	33	31	48	68	79	37	22	28	9	9	2
00	26	40	42	56	54	66	52	30	22	12	9	4
Hr Total	117	129	130	205	250	350	208	120	102	48	33	15

24 Hour Total	2,400				
AM Peak Hour Begins	7:45	AM Peak Volume	146	AM Peak Hour Factor	0.87
PM Peak Hour Begins	17:00	PM Peak Volume	350	PM Peak Hour Factor	0.79

17-Oct-17 Total Volume for All Lanes

End Time	00	01	02	03	04	05	06	07	08	09	10	11
15	6	1	1	4	3	2	25	55	90	63	57	55
30	5	1	3	5	4	6	28	65	89	48	45	51
45	0	3	1	3	8	18	46	65	63	51	57	50
00	4	1	1	2	6	17	65	83	63	55	32	52
Hr Total	15	6	6	14	21	43	164	268	305	217	191	208

End Time	12	13	14	15	16	17	18	19	20	21	22	23
15	63	47	56	79	103	157	102	49	28	19	22	8
30	56	47	54	82	88	132	85	52	39	23	10	5
45	52	50	49	73	95	127	66	37	33	13	12	2
00	53	63	80	88	98	98	84	39	32	15	13	4
Hr Total	224	207	239	322	384	514	337	177	132	70	57	19

24 Hour Total	4,140				
AM Peak Hour Begins	7:30	AM Peak Volume	327	AM Peak Hour Factor	0.91
PM Peak Hour Begins	16:45	PM Peak Volume	514	PM Peak Hour Factor	0.82

Roadway Count Summary

Start Date	18-Oct-17	Start Time	00:00
Stop Date	19-Oct-17	Stop Time	24:00
County	Orange	Station ID	119
Location	Oakland Av: Lake County Line to Tubb St (0.5 Mi. E. Florida's Turnpike)		

18-Oct-17 East for Lane 1

End Time	00	01	02	03	04	05	06	07	08	09	10	11
15	3	2	0	0	3	7	11	34	48	30	18	24
30	0	2	0	1	1	5	20	35	26	21	19	23
45	0	1	2	1	1	5	26	50	28	33	23	24
00	1	0	0	1	7	13	25	56	41	19	17	26
Hr Total	4	5	2	3	12	30	82	175	143	103	77	97

End Time	12	13	14	15	16	17	18	19	20	21	22	23
15	30	23	18	35	53	46	36	24	23	13	1	3
30	25	29	33	27	31	46	20	18	15	7	3	3
45	23	31	29	36	34	46	20	14	7	4	5	3
00	20	24	23	46	36	47	30	24	9	5	3	1
Hr Total	98	107	103	144	154	185	106	80	54	29	12	10

24 Hour Total	1,815				
AM Peak Hour Begins	7:15	AM Peak Volume	189	AM Peak Hour Factor	0.84
PM Peak Hour Begins	17:00	PM Peak Volume	185	PM Peak Hour Factor	0.98

18-Oct-17 Westbound for Lane 2

End Time	00	01	02	03	04	05	06	07	08	09	10	11
15	3	0	2	1	1	0	6	27	34	19	21	33
30	2	1	2	0	1	1	10	37	46	26	31	26
45	3	1	1	2	1	5	9	28	32	21	25	40
00	2	1	1	1	0	6	20	40	27	24	17	28
Hr Total	10	3	6	4	3	12	45	132	139	90	94	127

End Time	12	13	14	15	16	17	18	19	20	21	22	23
15	41	32	31	41	67	74	60	38	47	16	4	2
30	36	30	45	47	66	82	74	33	32	12	13	4
45	39	37	47	38	71	86	38	29	22	15	11	5
00	45	32	32	49	71	68	39	22	18	11	5	4
Hr Total	161	131	155	175	275	310	211	122	119	54	33	15

24 Hour Total	2,426				
AM Peak Hour Begins	12:00	AM Peak Volume	161	AM Peak Hour Factor	0.89
PM Peak Hour Begins	16:45	PM Peak Volume	313	PM Peak Hour Factor	0.95

18-Oct-17 Total Volume for All Lanes

End Time	00	01	02	03	04	05	06	07	08	09	10	11
15	6	2	2	1	4	7	17	61	82	49	39	57
30	2	3	2	1	2	6	30	72	72	47	50	49
45	3	2	3	3	2	10	35	78	60	54	48	64
00	3	1	1	2	7	19	45	96	68	43	34	54
Hr Total	14	8	8	7	15	42	127	307	282	193	171	224

End Time	12	13	14	15	16	17	18	19	20	21	22	23
15	71	55	49	76	120	120	96	62	70	29	5	5
30	61	59	78	74	97	128	94	51	47	19	16	7
45	62	68	76	74	105	132	58	43	29	19	16	8
00	65	56	55	95	107	115	69	46	27	16	8	5
Hr Total	259	238	258	319	429	495	317	202	173	83	45	25

24 Hour Total	4,241				
AM Peak Hour Begins	7:15	AM Peak Volume	328	AM Peak Hour Factor	0.85
PM Peak Hour Begins	17:00	PM Peak Volume	495	PM Peak Hour Factor	0.94

Roadway Count Summary

Start Date	19-Oct-17	Start Time	00:00
Stop Date	20-Oct-17	Stop Time	24:00
County	Orange	Station ID	119
Location	Oakland Av: Lake County Line to Tubb St (0.5 Mi. E. Florida's Turnpike)		

19-Oct-17 East for Lane 1

End Time	00	01	02	03	04	05	06	07	08	09	10	11
15	1	2	1	2	4	7	17	33	44	19	18	26
30	0	1	0	3	2	5	22	33	41	24	18	38
45	2	3	0	1	1	4	27	41	30	29	28	26
00	1	1	0	1	6	11	35	50	37	24	26	35
Hr Total	4	7	1	7	13	27	101	157	152	96	90	125

End Time	12	13	14	15	16	17	18	19	20	21	22	23
15	28	32	31	25	34	44	39	29	10	8	5	2
30	34	20	21	35	43	34	44	24	24	7	5	2
45	22	30	29	40	31	53	26	13	9	3	6	4
00	25	29	40	34	26	29	32	14	8	5	2	0
Hr Total	109	111	121	134	134	160	141	80	51	23	18	8

24 Hour Total	1,870				
AM Peak Hour Begins	7:30	AM Peak Volume	176	AM Peak Hour Factor	0.88
PM Peak Hour Begins	17:30	PM Peak Volume	165	PM Peak Hour Factor	0.78

19-Oct-17 Westbound for Lane 2

End Time	00	01	02	03	04	05	06	07	08	09	10	11
15	3	0	0	1	0	2	8	26	30	21	20	31
30	1	3	2	0	0	2	8	42	47	31	24	32
45	2	1	1	3	3	4	14	25	35	25	32	17
00	1	1	1	1	2	8	24	31	36	23	18	46
Hr Total	7	5	4	5	5	16	54	124	148	100	94	126

End Time	12	13	14	15	16	17	18	19	20	21	22	23
15	31	36	34	50	60	78	74	34	36	22	23	4
30	37	40	44	49	62	84	55	38	48	17	15	10
45	37	38	40	47	57	78	55	23	32	20	10	5
00	21	29	37	57	87	51	38	27	24	16	7	4
Hr Total	126	143	155	203	266	291	222	122	140	75	55	23

24 Hour Total	2,509				
AM Peak Hour Begins	11:45	AM Peak Volume	151	AM Peak Hour Factor	0.82
PM Peak Hour Begins	16:45	PM Peak Volume	327	PM Peak Hour Factor	0.94

19-Oct-17 Total Volume for All Lanes

End Time	00	01	02	03	04	05	06	07	08	09	10	11
15	4	2	1	3	4	9	25	59	74	40	38	57
30	1	4	2	3	2	7	30	75	88	55	42	70
45	4	4	1	4	4	8	41	66	65	54	60	43
00	2	2	1	2	8	19	59	81	73	47	44	81
Hr Total	11	12	5	12	18	43	155	281	300	196	184	251

End Time	12	13	14	15	16	17	18	19	20	21	22	23
15	59	68	65	75	94	122	113	63	46	30	28	6
30	71	60	65	84	105	118	99	62	72	24	20	12
45	59	68	69	87	88	131	81	36	41	23	16	9
00	46	58	77	91	113	80	70	41	32	21	9	4
Hr Total	235	254	276	337	400	451	363	202	191	98	73	31

24 Hour Total	4,379				
AM Peak Hour Begins	7:30	AM Peak Volume	309	AM Peak Hour Factor	0.88
PM Peak Hour Begins	16:45	PM Peak Volume	484	PM Peak Hour Factor	0.99

Roadway Count Summary

Start Date	17-Oct-17	Start Time	00:00
Stop Date	19-Oct-17	Stop Time	24:00
County	Orange	Station ID	119
Location	Oakland Av: Lake County Line to Tubb St (0.5 Mi. E. Florida's Turnpike)		

17-Oct-17 East for Lane 1

End Time	00	01	02	03	04	05	06	07	08	09	10	11
15	3	1	0	1	3	5	13	30	47	29	23	24
30	0	1	0	3	2	4	19	32	38	22	20	28
45	1	2	1	1	3	6	27	44	31	31	25	25
00	1	1	0	1	5	11	33	51	38	23	20	30
Hr Total	4	5	2	6	13	27	92	157	154	105	88	108

End Time	12	13	14	15	16	17	18	19	20	21	22	23
15	32	25	25	30	41	45	37	23	14	9	6	2
30	28	22	27	31	33	39	32	20	15	8	4	2
45	21	26	25	34	31	49	25	14	7	4	5	2
00	24	25	34	37	35	36	31	16	9	4	3	0
Hr Total	105	99	111	132	141	170	125	72	45	25	18	7

24 Hour Total	1,808				
AM Peak Hour Begins	7:30	AM Peak Volume	180	AM Peak Hour Factor	0.88
PM Peak Hour Begins	17:00	PM Peak Volume	170	PM Peak Hour Factor	0.87

17-Oct-17 Westbound for Lane 2

End Time	00	01	02	03	04	05	06	07	08	09	10	11
15	3	0	1	2	1	1	9	29	35	21	22	32
30	2	2	2	0	1	2	10	38	45	28	26	28
45	2	1	1	2	2	6	14	26	31	22	30	27
00	2	1	1	1	2	7	24	36	30	26	17	32
Hr Total	9	4	5	5	5	16	57	129	142	97	94	119

End Time	12	13	14	15	16	17	18	19	20	21	22	23
15	33	32	32	47	64	88	67	35	34	17	12	4
30	35	33	39	49	63	87	60	35	38	14	11	6
45	37	36	39	44	65	81	43	25	27	15	10	4
00	31	34	37	54	71	62	43	26	21	13	7	4
Hr Total	135	134	147	194	264	317	214	121	120	59	40	18

24 Hour Total	2,445				
AM Peak Hour Begins	7:45	AM Peak Volume	147	AM Peak Hour Factor	0.82
PM Peak Hour Begins	16:45	PM Peak Volume	326	PM Peak Hour Factor	0.93

17-Oct-17 Total Volume for All Lanes

End Time	00	01	02	03	04	05	06	07	08	09	10	11
15	5	2	1	3	4	6	22	58	82	51	45	56
30	3	3	2	3	3	6	29	71	83	50	46	57
45	2	3	2	3	5	12	41	70	63	53	55	52
00	3	1	1	2	7	18	56	87	68	48	37	62
Hr Total	13	9	6	11	18	43	149	285	296	202	182	228

End Time	12	13	14	15	16	17	18	19	20	21	22	23
15	64	57	57	77	106	133	104	58	48	26	18	6
30	63	55	66	80	97	126	93	55	53	22	15	8
45	58	62	65	78	96	130	68	39	34	18	15	6
00	55	59	71	91	106	98	74	42	30	17	10	4
Hr Total	239	233	258	326	404	487	339	194	165	84	58	25

24 Hour Total	4,253				
AM Peak Hour Begins	7:30	AM Peak Volume	321	AM Peak Hour Factor	0.93
PM Peak Hour Begins	16:45	PM Peak Volume	495	PM Peak Hour Factor	0.93

Roadway Count Summary

Start Date	3-Oct-17	Start Time	00:00
Stop Date	4-Oct-17	Stop Time	24:00
County	Orange	Station ID	120
Location	Colonial Dr (W) : Florida's Turnpike to Lake County Line (0.19 Miles W. of Remington Rd)		

3-Oct-17 Eastbound Volume for Lane 1

End Time	00	01	02	03	04	05	06	07	08	09	10	11
15	35	23	36	44	109	244	596	898	743	545	409	411
30	18	22	43	58	116	376	699	795	659	507	388	432
45	21	21	26	64	151	409	657	805	599	432	365	389
00	22	28	33	64	202	543	801	726	564	442	449	391
Hr Total	96	94	138	230	578	1572	2753	3224	2565	1926	1611	1623

End Time	12	13	14	15	16	17	18	19	20	21	22	23
15	428	417	360	401	417	498	410	253	249	176	123	53
30	418	388	396	465	452	441	313	268	198	125	82	44
45	373	394	381	446	421	383	288	239	163	109	65	40
00	397	415	403	428	485	405	295	262	198	123	83	47
Hr Total	1616	1614	1540	1740	1775	1727	1306	1022	808	533	353	184

24 Hour Total	30,628					
AM Peak Hour Begins	6:45	AM Peak Volume	3,299	AM Peak Hour Factor		0.92
PM Peak Hour Begins	16:15	PM Peak Volume	1,856	PM Peak Hour Factor		0.93

3-Oct-17 Westbound Volume for Lane 2

End Time	00	01	02	03	04	05	6	07	08	09	10	11
15	87	33	22	19	40	73	195	411	386	317	333	327
30	55	39	27	36	50	98	255	374	414	336	306	368
45	50	33	20	31	35	135	302	428	387	357	295	373
00	65	31	29	27	66	148	330	393	387	293	341	347
Hr Total	257	136	98	113	191	454	1082	1606	1574	1303	1275	1415

End Time	12	13	14	15	16	17	18	19	20	21	22	23
15	388	386	411	521	631	729	701	389	333	240	160	97
30	373	405	470	567	719	665	578	419	280	224	173	116
45	378	386	494	626	641	726	519	335	306	233	132	89
00	353	392	537	623	681	655	398	317	269	172	128	90
Hr Total	1492	1569	1912	2337	2672	2775	2196	1460	1188	869	593	392

24 Hour Total	28,959					
AM Peak Hour Begins	7:30	AM Peak Volume	1,621	AM Peak Hour Factor		0.95
PM Peak Hour Begins	16:45	PM Peak Volume	2,801	PM Peak Hour Factor		0.96

3-Oct-17 Total Volume for All Lanes

End Time	00	01	02	03	04	05	06	07	08	09	10	11
15	122	56	58	63	149	317	791	1309	1129	862	742	738
30	73	61	70	94	166	474	954	1169	1073	843	694	800
45	71	54	46	95	186	544	959	1233	986	789	660	762
00	87	59	62	91	268	691	1131	1119	951	735	790	738
Hr Total	353	230	236	343	769	2026	3835	4830	4139	3229	2886	3038

End Time	12	13	14	15	16	17	18	19	20	21	22	23
15	816	803	771	922	1048	1227	1111	642	582	416	283	150
30	791	793	866	1032	1171	1106	891	687	478	349	255	160
45	751	780	875	1072	1062	1109	807	574	469	342	197	129
00	750	807	940	1051	1166	1060	693	579	467	295	211	137
Hr Total	3108	3183	3452	4077	4447	4502	3502	2482	1996	1402	946	576

24 Hour Total	59,587					
AM Peak Hour Begins	6:45	AM Peak Volume	4,842	AM Peak Hour Factor		0.92
PM Peak Hour Begins	16:15	PM Peak Volume	4,626	PM Peak Hour Factor		0.94

Roadway Count Summary

Start Date	4-Oct-17	Start Time	00:00
Stop Date	5-Oct-17	Stop Time	24:00
County	Orange	Station ID	120
Location	Colonial Dr (W) : Florida's Turnpike to Lake County Line (0.19 Miles W. of Remington Rd)		

4-Oct-17 Eastbound Volume for Lane 1

End Time	00	01	02	03	04	05	06	07	08	09	10	11
15	37	28	21	37	93	292	591	825	709	520	402	406
30	29	29	38	55	150	417	672	777	675	472	410	383
45	32	17	23	59	191	450	657	757	576	515	408	392
00	24	25	36	105	202	532	797	710	487	406	401	389
Hr Total	122	99	118	256	636	1691	2717	3069	2447	1913	1621	1570

End Time	12	13	14	15	16	17	18	19	20	21	22	23
15	429	382	268	437	463	520	440	258	235	193	109	75
30	406	388	425	467	463	516	363	249	191	131	83	58
45	411	416	428	399	472	413	300	253	185	118	69	51
00	377	325	399	464	446	392	337	220	181	105	52	31
Hr Total	1623	1511	1520	1767	1844	1841	1440	980	792	547	313	215

24 Hour Total	30,652				
AM Peak Hour Begins	6:45	AM Peak Volume	3,156	AM Peak Hour Factor	0.96
PM Peak Hour Begins	16:30	PM Peak Volume	1,954	PM Peak Hour Factor	0.94

4-Oct-17 Westbound Volume for Lane 2

End Time	00	01	02	03	04	05	06	07	08	09	10	11
15	82	47	31	15	47	70	180	404	412	343	337	356
30	62	37	33	29	61	102	271	395	366	345	307	329
45	68	39	36	33	46	113	300	405	378	290	337	327
00	78	37	35	37	62	168	317	402	395	284	319	397
Hr Total	290	160	135	114	216	453	1068	1606	1551	1262	1300	1409

End Time	12	13	14	15	16	17	18	19	20	21	22	23
15	401	381	415	518	643	732	643	448	347	267	198	134
30	399	431	495	551	631	698	615	349	323	250	167	110
45	331	409	499	551	673	732	531	363	275	213	140	110
00	354	379	512	603	690	665	422	324	296	202	136	103
Hr Total	1485	1600	1921	2223	2637	2827	2211	1484	1241	932	641	457

24 Hour Total	29,223				
AM Peak Hour Begins	7:15	AM Peak Volume	1,614	AM Peak Hour Factor	0.98
PM Peak Hour Begins	16:45	PM Peak Volume	2,852	PM Peak Hour Factor	0.97

4-Oct-17 Total Volume for All Lanes

End Time	00	01	02	03	04	05	06	07	08	09	10	11
15	119	75	52	52	140	362	771	1229	1121	863	739	762
30	91	66	71	84	211	519	943	1172	1041	817	717	712
45	100	56	59	92	237	563	957	1162	954	805	745	719
00	102	62	71	142	264	700	1114	1112	882	690	720	786
Hr Total	412	259	253	370	852	2144	3785	4675	3998	3175	2921	2979

End Time	12	13	14	15	16	17	18	19	20	21	22	23
15	830	763	683	955	1106	1252	1083	706	582	460	307	209
30	805	819	920	1018	1094	1214	978	598	514	381	250	168
45	742	825	927	950	1145	1145	831	616	460	331	209	161
00	731	704	911	1067	1136	1057	759	544	477	307	188	134
Hr Total	3108	3111	3441	3990	4481	4668	3651	2464	2033	1479	954	672

24 Hour Total	59,875				
AM Peak Hour Begins	6:45	AM Peak Volume	4,677	AM Peak Hour Factor	0.95
PM Peak Hour Begins	16:30	PM Peak Volume	4,747	PM Peak Hour Factor	0.95

Roadway Count Summary

Start Date	5-Oct-17	Start Time	00:00
Stop Date	6-Oct-17	Stop Time	24:00
County	Orange	Station ID	120
Location	Colonial Dr (W) : Florida's Turnpike to Lake County Line (0.19 Miles W. of Remington Rd)		

5-Oct-17 — Eastbound Volume for Lane 1

End Time	00	01	02	03	04	05	06	07	08	09	10	11
15	40	23	24	47	136	315	634	750	671	553	358	369
30	25	35	35	56	125	375	723	721	623	461	405	365
45	22	15	31	66	154	435	636	648	466	397	353	331
00	25	20	34	60	227	520	718	688	462	426	405	384
Hr Total	112	93	124	229	642	1645	2711	2807	2222	1837	1521	1449

End Time	12	13	14	15	16	17	18	19	20	21	22	23
15	439	470	447	481	497	564	410	262	241	156	111	70
30	410	446	447	538	519	503	325	322	188	137	86	55
45	350	441	437	501	515	480	307	306	195	150	83	57
00	346	443	470	503	465	434	308	239	189	123	76	44
Hr Total	1545	1800	1801	2023	1996	1981	1350	1129	813	566	356	226

24 Hour Total	30,978					
AM Peak Hour Begins	6:45	AM Peak Volume	2,837	AM Peak Hour Factor		0.95
PM Peak Hour Begins	16:15	PM Peak Volume	2,063	PM Peak Hour Factor		0.91

5-Oct-17 — Westbound Volume for Lane 2

End Time	00	01	02	03	04	05	06	07	08	09	10	11
15	79	73	37	43	56	65	186	383	388	379	344	330
30	95	56	34	22	62	95	228	397	387	345	324	333
45	67	58	32	40	65	113	266	366	376	319	335	347
00	70	59	37	45	58	140	343	372	366	329	333	320
Hr Total	311	246	140	150	241	413	1023	1518	1517	1372	1336	1330

End Time	12	13	14	15	16	17	18	19	20	21	22	23
15	377	395	454	511	631	763	671	414	312	279	236	124
30	365	412	478	570	665	718	540	412	269	268	201	124
45	378	387	529	580	625	733	497	386	296	222	164	130
00	392	412	511	642	698	594	414	324	273	205	131	105
Hr Total	1512	1606	1972	2303	2619	2808	2122	1536	1150	974	732	483

24 Hour Total	29,414					
AM Peak Hour Begins	7:15	AM Peak Volume	1,523	AM Peak Hour Factor		0.96
PM Peak Hour Begins	16:45	PM Peak Volume	2,912	PM Peak Hour Factor		0.95

5-Oct-17 — Total Volume for All Lanes

End Time	00	01	02	03	04	05	06	07	08	09	10	11
15	119	96	61	90	192	380	820	1133	1059	932	702	699
30	120	91	69	78	187	470	951	1118	1010	806	729	698
45	89	73	63	106	219	548	902	1014	842	716	688	678
00	95	79	71	105	285	660	1061	1060	828	755	738	704
Hr Total	423	339	264	379	883	2058	3734	4325	3739	3209	2857	2779

End Time	12	13	14	15	16	17	18	19	20	21	22	23
15	816	865	901	992	1128	1327	1081	676	553	435	347	194
30	775	858	925	1108	1184	1221	865	734	457	405	287	179
45	728	828	966	1081	1140	1213	804	692	491	372	247	187
00	738	855	981	1145	1163	1028	722	563	462	328	207	149
Hr Total	3057	3406	3773	4326	4615	4789	3472	2665	1963	1540	1088	709

24 Hour Total	60,392					
AM Peak Hour Begins	6:45	AM Peak Volume	4,326	AM Peak Hour Factor		0.95
PM Peak Hour Begins	16:45	PM Peak Volume	4,924	PM Peak Hour Factor		0.93

Roadway Count Summary

Start Date	3-Oct-17	Start Time	00:00
Stop Date	5-Oct-17	Stop Time	24:00
County	Orange	Station ID	120
Location	Colonial Dr (W) : Florida's Turnpike to Lake County Line (0.19 Miles W. of Remington Rd)		

3-Oct-17 Eastbound Volume for Lane 1

End Time	00	01	02	03	04	05	06	07	08	09	10	11
15	37	25	27	43	113	284	607	824	708	539	390	395
30	24	29	39	56	130	389	698	764	652	480	401	393
45	25	18	27	63	165	431	650	737	547	448	375	371
00	24	24	34	76	210	532	772	708	504	425	418	388
Hr Total	110	95	127	238	619	1636	2727	3033	2411	1892	1584	1547

End Time	12	13	14	15	16	17	18	19	20	21	22	23
15	432	423	358	440	459	527	420	258	242	175	114	66
30	411	407	423	490	478	487	334	280	192	131	84	52
45	378	417	415	449	469	425	298	266	181	126	72	49
00	373	394	424	465	465	410	313	240	189	117	70	41
Hr Total	1595	1642	1620	1843	1872	1850	1365	1044	804	549	341	208

24 Hour Total	30,753				
AM Peak Hour Begins	6:45	AM Peak Volume	3,097	AM Peak Hour Factor	0.94
PM Peak Hour Begins	16:30	PM Peak Volume	1,949	PM Peak Hour Factor	0.92

3-Oct-17 Westbound Volume for Lane 2

End Time	00	01	02	03	04	05	06	07	08	09	10	11
15	83	51	30	26	48	69	187	399	395	346	338	338
30	71	44	31	29	58	98	251	389	389	342	312	343
45	62	43	29	35	49	120	289	400	380	322	322	349
00	71	42	34	36	62	152	330	389	383	302	331	355
Hr Total	286	181	124	126	216	440	1058	1577	1547	1312	1304	1385

End Time	12	13	14	15	16	17	18	19	20	21	22	23
15	389	387	427	517	635	741	672	417	331	262	198	118
30	379	416	481	563	672	694	578	393	291	247	180	117
45	362	394	507	586	646	730	516	361	292	223	145	110
00	366	394	520	623	690	638	411	322	279	193	132	99
Hr Total	1496	1592	1935	2288	2643	2803	2176	1493	1193	925	655	444

24 Hour Total	29,199				
AM Peak Hour Begins	7:00	AM Peak Volume	1,577	AM Peak Hour Factor	0.99
PM Peak Hour Begins	16:45	PM Peak Volume	2,855	PM Peak Hour Factor	0.96

3-Oct-17 Total Volume for All Lanes

End Time	00	01	02	03	04	05	06	07	08	09	10	11
15	120	76	57	68	160	353	794	1224	1103	886	728	733
30	95	73	70	85	188	488	949	1153	1041	822	713	737
45	87	61	56	98	214	552	939	1136	927	770	698	720
00	95	67	68	113	272	684	1102	1097	887	727	749	743
Hr Total	396	276	251	364	835	2076	3785	4610	3959	3204	2888	2932

End Time	12	13	14	15	16	17	18	19	20	21	22	23
15	821	810	785	956	1094	1269	1092	675	572	437	312	184
30	790	823	904	1053	1150	1180	911	673	483	378	264	169
45	740	811	923	1034	1116	1156	814	627	473	348	218	159
00	740	789	944	1088	1155	1048	725	562	469	310	202	140
Hr Total	3091	3233	3555	4131	4514	4653	3542	2537	1997	1474	996	652

24 Hour Total	59,951				
AM Peak Hour Begins	6:45	AM Peak Volume	4,615	AM Peak Hour Factor	0.94
PM Peak Hour Begins	16:45	PM Peak Volume	4,760	PM Peak Hour Factor	0.94

C.4. Orange County 2017 Counts

ORANGE COUNTY TRAFFIC ENGINEERING DEPARTMENT
2017 Annual Count Report

Station ID	Count Order	Roadway	Counter Location	2016 AADT	2017 AADT	K100 Factor	D Factor	Peak Hour Volume Total	Pk Dir	Dir	Opp Dir	Through Lanes	Posted Speed
60	80	Clarcona-Ocoee Rd	0.32 Miles E. of Pine Hills Rd	25,955	25,721	0.081	0.583	2,094	1,220	WB	874	4	45
438	90	Clarcona-Ocoee Rd	700 Ft. W. of Edgewater Dr	22,322	21,579	0.087	0.661	1,867	1,233	WB	634	4	45
7141	10	Clarke Rd	0.43 Miles N. of A.D. Mims Rd	13,937	15,757	0.098	0.610	1,543	942	SB	601	4	45
7140	20	Clarke Rd	500 Ft. S. of A.D. Mims Rd	18,558	20,811	0.095	0.605	1,973	1,193	NB	780	4	45
7139	30	Clarke Rd	0.36 Miles N. of White Rd	27,705	30,511	0.087	0.586	2,648	1,552	NB	1,096	4	45
7138	40	Clarke Rd	0.51 Miles N. of Colonial Dr	21,263	23,096	0.084	0.611	1,938	1,184	NB	754	4	45
7105	10	Clay St	0.22 Miles N. of Par St	12,738	12,812	0.092	0.552	1,175	648	NB	527	2	30
7105.5	20	Clay St	0.11 Miles S. of Par St	8,259	8,287	0.087	0.622	722	449	SB	273	2	30
311	10	Colonial Dr (E)	0.67 Miles E. of Fort Christmas Rd	11,734	12,118	0.093	0.517	1,121	579	WB	542	4	60
310	20	Colonial Dr (E)	0.36 Miles E. of SR 520	11,423	12,441	0.094	0.523	1,167	610	WB	557	4	60
314	30	Colonial Dr (E)	0.62 Miles E. of Chuluota Rd	33,399	37,781	0.087	0.535	3,272	1,751	EB	1,521	4	45
313	40	Colonial Dr (E)	0.56 Miles E. of Tanner Rd	34,831	37,337	0.081	0.565	3,035	1,713	EB	1,322	4	55
313.5	45	Colonial Dr (E)	0.13 Miles E. of Avalon Park Bv	36,416	37,278	0.080	0.593	2,997	1,778	EB	1,219	4	55
611	50	Colonial Dr (E)	0.29 Miles E. of Lake Pickett Rd	49,720	50,940	0.079	0.599	4,019	2,406	EB	1,613	6	45
263	70	Colonial Dr (E)	0.038 Miles W. of River Reach Dr	38,521	43,386	0.073	0.568	3,185	1,810	EB	1,375	6	45
261	80	Colonial Dr (E)	0.33 Miles E. of Rouse Rd	46,977	52,904	0.077	0.521	4,074	2,123	EB	1,951	6	45
259	90	Colonial Dr (E)	0.21 Miles W. of Rouse Rd	51,258	57,200	0.078	0.508	4,456	2,265	EB	2,191	6	45
249	100	Colonial Dr (E)	0.38 Miles W. of Dean Rd	54,247	61,452	0.081	0.550	4,959	2,726	EB	2,233	6	45
37.1	110	Colonial Dr (E)	0.29 Miles E. of Goldenrod Rd	55,213	61,926	0.076	0.556	4,694	2,611	EB	2,083	6	50
226	120	Colonial Dr (E)	0.40 Miles W. of Forsyth Rd	59,575	59,154	0.069	0.603	4,093	2,468	WB	1,625	6	50
444	121	Colonial Dr (E)	0.37 Miles W. of Semoran Bv	62,246	63,279	0.076	0.602	4,797	2,888	EB	1,909	8	50
7076	160	Colonial Dr (E)	295 Ft. E. of Highland Av	45,547	47,913	0.066	0.524	3,172	1,661	EB	1,511	4	40
246	111	Colonial Dr (E)	0.28 Miles E. of Forsyth Rd	55,344	61,338	0.074	0.612	4,545	2,782	WB	1,763	6	50
610	60	Colonial Dr (W)	0.17 Miles W. of Lake Pickett Rd	57,436	62,182	0.095	0.500	5,895	2,948	WB	2,947	6	45
6083	130	Colonial Dr (W)	221 Ft. W. of Herman Av	68,215	65,009	0.075	0.601	4,882	2,936	EB	1,946	6	40
6081	140	Colonial Dr (W)	0.10 Miles E. of Maguire Bv	57,729	62,454	0.072	0.561	4,497	2,521	EB	1,976	6	40
7093	150	Colonial Dr (W)	0.19 Miles E. of Mills Av	48,203	48,776	0.063	0.511	3,078	1,572	EB	1,506	4	40
7061	165	Colonial Dr (W)	562 Ft. E. of Westmoreland Dr	38,902	39,100	0.071	0.513	2,764	1,418	WB	1,346	4	40
5180	170	Colonial Dr (W)	0.27 Miles E. of N. Tampa Av	32,832	33,472	0.078	0.513	2,624	1,345	WB	1,279	4	40
5174	180	Colonial Dr (W)	0.13 Miles E. of John Young Py	39,207	39,713	0.080	0.551	3,193	1,760	WB	1,433	6	45
90	190	Colonial Dr (W)	0.18 Miles W. of John Young Py	41,798	42,427	0.075	0.563	3,195	1,799	WB	1,396	6	45
355	200	Colonial Dr (W)	0.39 Miles W. of Mercy Dr	40,783	41,666	0.081	0.614	3,354	2,060	WB	1,294	6	45
6044	210	Colonial Dr (W)	260 Ft. W. of Mission Rd	42,394	42,493	0.076	0.591	3,246	1,918	WB	1,328	6	45
1021	220	Colonial Dr (W)	0.16 Miles E. of N Kirkman Rd	44,055	48,405	0.082	0.610	3,955	2,411	WB	1,544	6	45
1022	230	Colonial Dr (W)	0.28 Miles W. of N Kirkman Rd	41,772	41,062	0.074	0.612	3,047	1,865	WB	1,182	6	45
103	240	Colonial Dr (W)	0.12 Miles W. of Hiawassee Rd	39,947	42,594	0.082	0.614	3,493	2,146	WB	1,347	6	45
1042	250	Colonial Dr (W)	0.10 Miles W. of Dorscher Rd	40,952	42,378	0.082	0.605	3,462	2,095	WB	1,367	6	45
7060	260	Colonial Dr (W)	0.28 Miles E. of Good Homes Rd	29,774	30,620	0.082	0.529	2,520	1,333	WB	1,187	6	45
629.5	270	Colonial Dr (W)	0.38 Miles W. of Good Homes Rd	30,728	30,289	0.081	0.528	2,459	1,297	WB	1,162	6	45
304.1	280	Colonial Dr (W)	0.20 Miles W. of Clarke Rd	U/C	39,215	0.076	0.519	2,980	1,547	EB	1,433	4	45
7058	290	Colonial Dr (W)	599 Ft. E. of Marshall Farms Rd	U/C	45,422	0.081	0.518	3,670	1,902	WB	1,768	4	45
7057	300	Colonial Dr (W)	335 Ft. W. of Carter Rd	43,093	44,571	0.081	0.559	3,610	2,017	WB	1,593	6	45
518	310	Colonial Dr (W)	0.37 Miles W. of Beulah Rd	46,030	48,028	0.080	0.563	3,828	2,156	WB	1,672	6	45
115	320	Colonial Dr (W)	0.15 Miles E. of Avalon Rd	36,301	38,801	0.081	0.540	3,131	1,691	WB	1,440	6	45
380	330	Colonial Dr (W)	0.13 Miles E. of S. Tubbs St/S. 4th St	27,219	29,321	0.082	0.554	2,396	1,327	EB	1,069	6	45
113	340	Colonial Dr (W)	0.17 Miles W. of Tubbs St	27,508	28,483	0.082	0.540	2,338	1,263	WB	1,075	6	50
120	350	Colonial Dr (W)	0.19 Miles W. of Remington Rd	57,545	61,750	0.083	0.620	5,131	3,183	EB	1,948	6	50
356	10	Columbia St	0.17 Miles W. of John Young Py	15,960	16,869	0.096	0.558	1,626	907	WB	719	4	30
147	10	Conroy-Windermere Rd	0.41 Miles W. of Apopka-Vineland Rd	24,930	26,251	0.075	0.594	1,979	1,176	EB	803	2	30
1065	20	Conroy-Windermere Rd	0.11 Miles E. of Apopka-Vineland Rd	29,540	30,666	0.082	0.565	2,527	1,427	WB	1,100	4	35
337	30	Conroy-Windermere Rd	0.19 Miles E. of Dr. Phillips Bv	42,296	44,435	0.084	0.563	3,724	2,095	WB	1,629	5	45
6021	35	Conroy-Windermere Rd	0.26 Miles W. of Turkey Lake Rd	47,369	48,624	0.079	0.624	3,832	2,392	WB	1,440	6	45
338	40	Conroy-Windermere Rd	0.33 Miles E. of Turkey Lake Rd	33,907	38,046	0.080	0.566	3,055	1,728	EB	1,327	6	45
6022	50	Conroy-Windermere Rd	0.35 Miles W. of Vineland Rd	39,600	41,653	0.073	0.544	3,020	1,644	WB	1,376	4	35
7110	60	Conroy-Windermere Rd	0.75 Miles E. of Windmere Rd-Vineland Bv	30,663	32,540	0.078	0.524	2,535	1,328	EB	1,207	4	35
1041	30	Conroy-Windermere Rd/Americana Bv	0.26 Miles W. of John Young Py	31,719	33,421	0.077	0.507	2,577	1,306	EB	1,271	4	35
8112	10	Consulate Dr	0.4 Miles E. of John Young Py				Under Construction					2	30
2001	20	Consulate Dr	280 Ft. W. of Delegates Dr	33,276	28,617	0.065	0.626	1,857	1,162	EB	695	4	40
7063	10	Conway Gardens Rd	0.27 Miles N. of Lake Margret Dr	5,606	5,573	0.116	0.648	645	418	NB	227	2	30
7062	20	Conway Gardens Rd	0.32 Miles N. of Gatlin Av	3,912	3,893	0.111	0.524	434	227	NB	207	2	30
382	10	Conway Rd	0.18 Miles N. of Curry Ford Rd	29,265	29,502	0.073	0.513	2,154	1,106	SB	1,048	4	40
7064	20	Conway Rd	0.25 Miles S. of Curry Ford Rd	33,192	33,627	0.074	0.527	2,495	1,314	SB	1,181	4	40
7065	30	Conway Rd	0.22 Miles N. of Gatlin Av	32,368	33,299	0.082	0.511	2,727	1,393	SB	1,334	4	40
210	40	Conway Rd	0.23 Miles S. of Gatlin Av	39,240	40,129	0.082	0.503	3,291	1,656	SB	1,635	4	40

ORANGE COUNTY TRAFFIC ENGINEERING DEPARTMENT
2017 Annual Count Report

Station ID	Count Order	Roadway	Counter Location	2016 AADT	2017 AADT	K100 Factor	D Factor	Peak Hour Volume Total	Pk Dir	Dir	Opp Dir	Through Lanes	Posted Speed
8038	1	Metrowest Bv	0.25 Mi. E. Kirkman Rd	9,633	9,775	0.103	0.516	1,003	517	WB	486	2	25
7082	10	Metrowest Bv	0.22 Mi. SE. Hiawassee Rd	27,995	27,820	0.082	0.552	2,290	1,265	WB	1,025	4	40
7083	10	Micheal Gladden Bv	0.18 Mi. E. Bradshaw Rd	5,322	6,032	0.086	0.553	518	287	EB	231	2	35
191	10	Michigan St	0.3 Mi. E. Rio Grande Av	10,506	21,328	0.081	0.572	1,721	985	WB	736	4	35
190	20	Michigan St	0.45 Mi. W. Orange Ave	41,038	40,042	0.071	0.516	2,847	1,468	WB	1,379	4	35
366	30	Michigan St	0.32 Mi. W. Bumby Av	26,529	25,926	0.079	0.635	2,038	1,295	EB	743	4	40
93	40	Michigan St	400 Ft E. Bumby Av	16,841	16,926	0.081	0.696	1,373	955	WB	418	3	35
380.1	50	Michigan St	0.12 Mi. W. Conway Rd	11,455	11,350	0.100	0.669	1,130	756	EB	374	2	35
6095	60	Michigan St	1.44 Mi. W. Semoran Bv	13,754	13,483	0.096	0.602	1,292	777	EB	515	4	35
7053	20	Millenia Bv	0.2 Mi. S. Radebaugh Wy	27,002	26,961	0.080	0.553	2,160	1,194	SB	966	4	35
7116	30	Millenia Bv	0.5 Mi. W. John Young Py	14,810	19,450	0.089	0.584	1,733	1,012	EB	721	4	35
7053.5	10	Millenia Bv	0.25 Mi. N. Oak Ridge Rd	24,743	23,966	0.080	0.508	1,917	974	SB	943	4	35
6071	10	Mills Av	0.47 Mi. N. Colonial Dr	32,714	33,149	0.087	0.571	2,867	1,638	SB	1,229	4	30
6077	20	Mills Av	0.42 Mi. S. Colonial Dr	17,834	17,078	0.098	0.642	1,672	1,074	SB	598	4	30
7085	30	Mills Av	0.5 Mi. N. Michigan St	3,745	4,033	0.179	0.606	724	439	NB	285	2	25
6066	70	Mills Av	300 Ft S. Princeton St	44,072	44,450	0.087	0.520	3,876	2,014	SB	1,862	4	35
8055	1	Monument Py	0.2 Mi. N. H C Kelley Rd	11,148	8,244	0.131	0.920	1,083	996	NB	87	2	45
7119	0	Moss Park Rd	0.25 Mi. E. Narcoossee Rd	16,501	16,514	0.099	0.516	1,641	847	EB	794	4	40
7120	0	Moss Park Rd	850 Ft N. Wycliffe Blvd	12,309	13,784	0.105	0.565	1,450	820	NB	630	4	40
6002	10	Mott Av/Beggs Rd	700 Ft N. Orange Blossom Tl	2,855	2,869	0.143	0.831	409	340	NB	69	2	30
17	10	Mt. Plymouth Rd	0.5 Mi. N. Kelly Park Rd	8,566	9,100	0.103	0.618	934	577	NB	357	2	45
2010	10	N. Tanner Rd	250 Ft N. Stonebriar Wy	11,964	11,514	0.093	0.545	1,070	583	SB	487	2	40
8064	80	Narcoossee Rd	900 Ft N. Boggy Creek Rd	22,840	33,139	0.088	0.671	2,923	1,960	SB	963	6	45
289	10	Narcoossee Rd	0.25 Mi. N. Lee Vista Bv	21,498	19,408	0.074	0.518	1,440	746	SB	694	2	45
7040	30	Narcoossee Rd	0.25 Mi. S. Beachline Ex (SR 528)	43,368	44,062	0.081	0.576	3,560	2,049	SB	1,511	4	45
8138	40	Narcoossee Rd	500 Ft S. Dowden Rd	40,227	39,113	0.075	0.558	2,945	1,643	SB	1,302	4	4
6030	50	Narcoossee Rd	0.5 Mi. S. Moss Park Rd	39,427	36,762	0.085	0.597	3,114	1,858	SB	1,256	4	45
6029	60	Narcoossee Rd	0.25 Mi. S. Greeneway (SR 417)	32,715	56,233	0.084	0.520	4,740	2,463	SB	2,277	6	45
7041	70	Narcoossee Rd	0.25 Mi. S. Tyson Rd	39,400	48,739	0.086	0.598	4,182	2,499	SB	1,683	6	45
7158	20	Narcoossee Rd	1.0 Mi. S. Lee Vista Bv	35,819	33,969	0.082	0.524	2,799	1,467	NB	1,332	4	45
198	10	Nela Av	300 Ft W. Indian Dr	2,362	2,799	0.138	0.739	385	284	WB	101	2	30
8009	10	New Independence Py	0.22 Mi. E Avalon Rd	4,065	4,446	0.097	0.687	429	295	WB	134	2	35
8193	15	New Independence Py	W. of Hamlin Groves Tr	-	16,306	0.093	0.556	1,516	843	EB	673	4	35
8079	20	New Independence Py	0.3 Mi. E. Hamlin Groves Tl	4,960	6,294	0.102	0.586	645	378	EB	267	4	35
8134	30	New Independence Py	50 Ft E. Avenue the Arbors	3,740	6,334	0.139	0.630	880	554	NB	326	2	35
8133	40	New Independence Py	100 Ft E. Avenue the Groves	2,772	3,390	0.175	0.519	593	308	EB	285	2	35
81	10	North Ln	0.3 Mi. E. Powers Dr	5,401	5,455	0.088	0.532	481	256	EB	225	2	35
321	10	Nova Rd	0.2 Mi. S. SR 520	1,163	1,165	0.089	0.578	103	59	SB	44	2	55
178	10	Oak Ridge Rd	1500 Ft E Millenia Bv	24,519	26,703	0.085	0.547	2,270	1,243	EB	1,027	4	40
6031	20	Oak Ridge Rd	400 Ft W. Eaglewood Dr	36,687	38,759	0.081	0.527	3,128	1,648	WB	1,480	4	45
179	30	Oak Ridge Rd	1500 Ft W. Orange Blossom Tl	31,276	35,692	0.082	0.552	2,923	1,614	EB	1,309	4	40
195	40	Oak Ridge Rd	150 Ft E. Luzon Pl	28,961	30,379	0.085	0.576	2,579	1,485	EB	1,094	4	45
119	10	Oakland Av	0.5 Mi. E. Florida's Turnpike	4,222	4,210	0.116	0.653	488	319	WB	169	2	35
118	20	Oakland Av	0.25 Mi. W. Avalon Rd	6,724	7,109	0.110	0.595	780	464	EB	316	2	35
27	10	Ocoee-Apopka Rd	0.14 Mi. S. Bradshaw Rd	8,738	9,159	0.089	0.563	816	460	NB	356	2	45
29	20	Ocoee-Apopka Rd	0.25 Mi. S. Harmon Rd	6,019	6,188	0.089	0.543	551	299	SB	252	4	45
71	30	Ocoee-Apopka Rd	0.8 Mi. S. Binion Rd	12,084	12,413	0.095	0.591	1,174	694	NB	480	2	35
73	40	Ocoee-Apopka Rd	1.0 Mile N. Silver Star Rd	9,011	9,463	0.089	0.620	844	523	NB	321	2	45
390	10	Old Cheney Hy	0.5 Mi. N. Colonial Dr (West)	6,071	6,181	0.090	0.521	559	291	SB	268	2	35
405	10	Old US441	0.15 Mi. N. Orange Blossom Tl	4,495	5,165	0.091	0.599	468	281	NB	187	2	45
8069	1	Old Wetherbee Rd	0.4 Mi. S. Palmbay Dr	9,061	9,435	0.082	0.621	776	482	SB	294	2	45
409	30	Old Wetherbee Rd	0.25 Mi. W. Palmbay St	8,286	8,814	0.079	0.631	699	441	SB	258	2	45
110.5	5	Old Winter Garden Rd	0.18 Mi. W. Bluford Av	26,648	27,347	0.082	0.593	2,237	1,326	WB	911	4	45
110	10	Old Winter Garden Rd	0.13 Mi. E. Bluford Av	31,239	31,746	0.084	0.573	2,651	1,520	WB	1,131	4	45
6038	20	Old Winter Garden Rd	0.41 Mi. E. East-West Ex (SR408)	27,531	29,762	0.082	0.580	2,446	1,419	WB	1,027	4	40
102	30	Old Winter Garden Rd	0.65 Mi. W. Hiawassee Rd	30,761	32,669	0.085	0.534	2,783	1,485	WB	1,298	4	40
100	40	Old Winter Garden Rd	0.45 Mi. W. Kirkman Rd	29,215	28,668	0.087	0.587	2,503	1,469	WB	1,034	4	40
1006	50	Old Winter Garden Rd	0.22 Mi. E. Pine Hills Rd	30,351	31,645	0.088	0.568	2,785	1,580	WB	1,205	4	35
6049	60	Old Winter Garden Rd	0.6 Mi. E. Ivey Ln	25,764	25,658	0.084	0.557	2,166	1,207	WB	959	4	30
6047	70	Old Winter Garden Rd	0.16 Mi. E. John Young Py	19,393	20,853	0.088	0.610	1,835	1,120	WB	715	4	30
8005	1	Old YMCA Rd (C.R. 341)	0.3 Mi NE. Lake Hickory Nut Dr	348	458	0.105	0.561	48	27	WB	21	2	30
8179	10	Ondich Rd	1200 Ft E. Plymouth Sorrento Rd	868	1,308	0.120	0.628	157	99	EB	58	2	30
7042	10	Orange Av	0.25 Mi. N. Orlando Av	16,427	16,547	0.076	0.610	1,263	770	SB	493	4	35
6070	20	Orange Av	150 Ft N. Westchester Av	15,029	15,269	0.082	0.558	1,251	698	SB	553	4	35
6069	30	Orange Av	450 Ft N. Winter Park St	22,497	22,283	0.083	0.585	1,849	1,081	SB	768	4	30

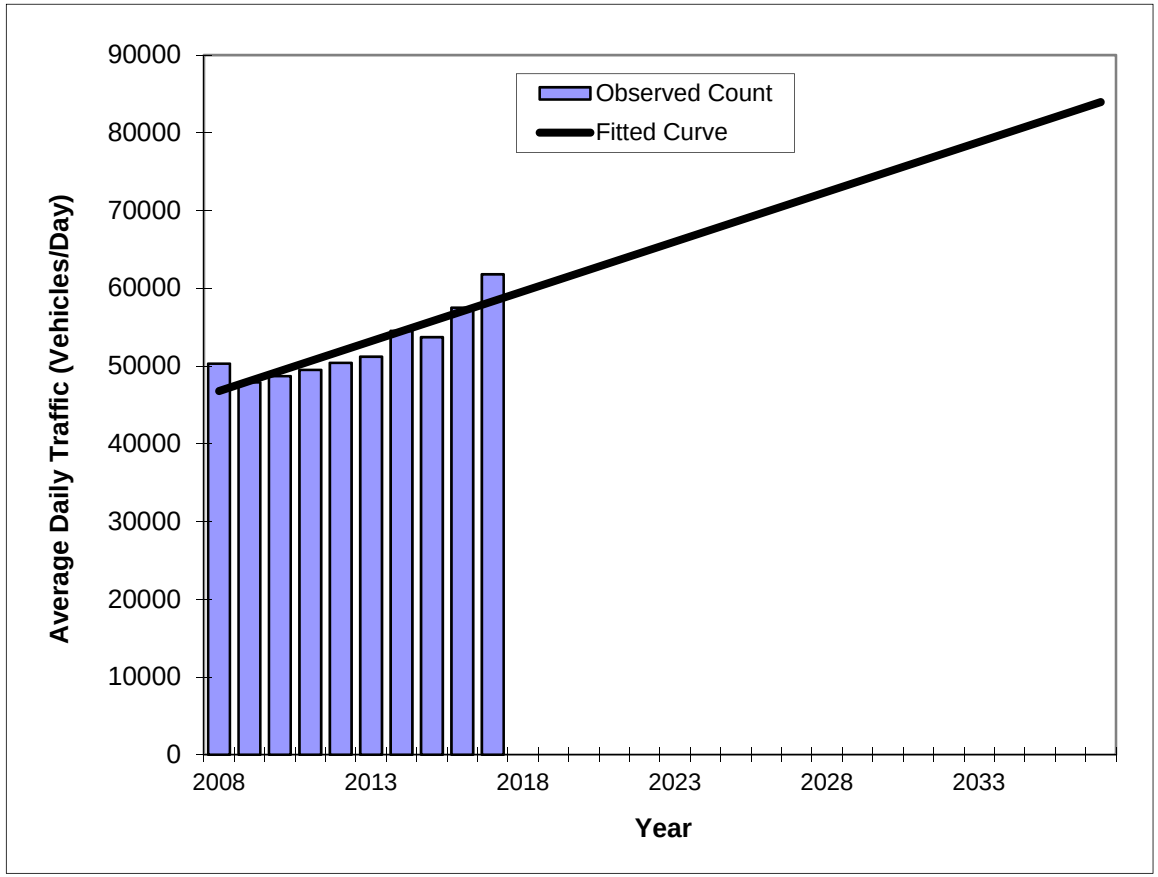
C.5. Orange County Historical Growth Trend

Traffic Trends - V2.0

SR-50 - 0.35 Mi E of Oakland Ave

PIN#	1
Location	1

County:	Orange (75)
Station #:	0
Highway:	SR-50



Year	Traffic (ADT/AADT) Count*	Trend**
2008	50300	46781.818
2009	47900	48063.636
2010	48700	49345.455
2011	49500	50627.273
2012	50400	51909.091
2013	51200	53190.909
2014	54500	54472.727
2015	53700	55754.545
2016	57500	57036.364
2017	61800	58318.182
2025 Opening Year Trend		
2025	N/A	68600
2026 Mid-Year Trend		
2026	N/A	69900
2027 Design Year Trend		
2027	N/A	71100
TRANPLAN Forecasts/Trends		

*Axle-Adjusted

** Annual Trend Increase:	1,282
Trend R-squared:	78.61%
Trend Annual Historic Growth Rate:	2.74%
Trend Growth Rate (2017 to Design Year):	2.19%
Printed:	25-Jul-18

Straight Line Growth Option

Appendix D. Synchro HCM Reports

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	3016	5	8	1340	3	9	1	39	49	1	17
Future Volume (veh/h)	28	3016	5	8	1340	3	9	1	39	49	1	17
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1792	1792	1900	1900	1863	1900	1900	1900	1900
Adj Flow Rate, veh/h	29	3175	5	8	1411	3	9	1	1	52	1	10
Adj No. of Lanes	1	3	0	1	3	0	0	1	0	0	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	6	6	6	2	2	2	0	0	0
Cap, veh/h	350	4252	7	89	4023	9	102	11	8	102	1	13
Arrive On Green	0.02	0.81	0.81	0.01	0.80	0.80	0.05	0.05	0.05	0.05	0.05	0.05
Sat Flow, veh/h	1774	5243	8	1707	5042	11	1241	216	146	1246	24	240
Grp Volume(v), veh/h	29	2052	1128	8	913	501	11	0	0	63	0	0
Grp Sat Flow(s),veh/h/ln	1774	1695	1861	1707	1631	1791	1603	0	0	1510	0	0
Q Serve(g_s), s	0.5	52.2	52.3	0.2	14.1	14.1	0.0	0.0	0.0	6.3	0.0	0.0
Cycle Q Clear(g_c), s	0.5	52.2	52.3	0.2	14.1	14.1	1.1	0.0	0.0	7.4	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.01	0.82		0.09	0.83		0.16
Lane Grp Cap(c), veh/h	350	2750	1510	89	2603	1429	121	0	0	116	0	0
V/C Ratio(X)	0.08	0.75	0.75	0.09	0.35	0.35	0.09	0.00	0.00	0.54	0.00	0.00
Avail Cap(c_a), veh/h	430	2750	1510	188	2603	1429	345	0	0	344	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	3.6	8.1	8.2	11.3	5.1	5.1	81.3	0.0	0.0	84.2	0.0	0.0
Incr Delay (d2), s/veh	0.1	1.9	3.4	0.4	0.4	0.7	0.3	0.0	0.0	3.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.5	32.8	36.4	0.2	10.6	11.6	1.0	0.0	0.0	5.8	0.0	0.0
LnGrp Delay(d),s/veh	3.7	10.0	11.6	11.7	5.5	5.8	81.6	0.0	0.0	88.1	0.0	0.0
LnGrp LOS	A	B	B	B	A	A	F			F		
Approach Vol, veh/h		3209			1422			11			63	
Approach Delay, s/veh		10.5			5.6			81.6			88.1	
Approach LOS		B			A			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.9	152.0		16.1	9.5	154.4		16.1
Change Period (Y+Rc), s	* 8.1	* 8.4		* 6.6	* 7.9	* 8.4		* 6.6
Max Green Setting (Gmax), s	* 12	* 1.1E2		* 37	* 12	* 1.1E2		* 37
Max Q Clear Time (g_c+I1), s	2.5	16.1		3.1	2.2	54.3		9.4
Green Ext Time (p_c), s	0.0	87.5		0.4	0.0	51.9		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	10.2
HCM 2010 LOS	B

Notes

User approved ignoring U-Turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Vol, veh/h	3106	1	3	1	1341	0	7
Future Vol, veh/h	3106	1	3	1	1341	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	-	None	-	None
Storage Length	-	-	-	295	-	-	0
Veh in Median Storage, #	0	-	-	-	0	0	-
Grade, %	0	-	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	3376	1	3	1	1458	0	8

Major/Minor	Major1		Major2			Minor1	
Conflicting Flow All	0	0	2465	3377	0	-	1689
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-
Critical Hdwy	-	-	5.64	5.34	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.32	3.12	-	-	3.92
Pot Cap-1 Maneuver	-	-	65	24	-	0	70
Stage 1	-	-	-	-	-	0	-
Stage 2	-	-	-	-	-	0	-
Platoon blocked, %	-	-			-		
Mov Cap-1 Maneuver	-	-	43	43	-	-	70
Mov Cap-2 Maneuver	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	62.6
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	70	-	-	43	-
HCM Lane V/C Ratio	0.109	-	-	0.101	-
HCM Control Delay (s)	62.6	-	-	97.4	-
HCM Lane LOS	F	-	-	F	-
HCM 95th %tile Q(veh)	0.4	-	-	0.3	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑↑		↱
Traffic Vol, veh/h	3116	0	0	1345	0	0
Future Vol, veh/h	3116	0	0	1345	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3387	0	0	1462	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	1693
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	70
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	70
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	0	-	-	-
HCM Lane LOS	A	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	3050	4	11	1293	142	6	3	36	230	2	46
Future Volume (veh/h)	78	3050	4	11	1293	142	6	3	36	230	2	46
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1792	1792	1792	1900	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	83	3245	4	12	1376	80	6	3	6	245	2	8
Adj No. of Lanes	1	3	0	1	3	1	0	1	1	1	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	6	6	6	2	2	2	2	2	2
Cap, veh/h	103	2829	3	22	2419	753	224	104	296	313	61	244
Arrive On Green	0.06	0.54	0.54	0.01	0.49	0.49	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1774	5245	6	1707	4893	1524	981	557	1583	1408	326	1306
Grp Volume(v), veh/h	83	2097	1152	12	1376	80	9	0	6	245	0	10
Grp Sat Flow(s),veh/h/ln	1774	1695	1862	1707	1631	1524	1538	0	1583	1408	0	1632
Q Serve(g_s), s	6.9	80.9	80.9	1.0	29.7	4.2	0.0	0.0	0.5	24.9	0.0	0.8
Cycle Q Clear(g_c), s	6.9	80.9	80.9	1.0	29.7	4.2	0.6	0.0	0.5	25.5	0.0	0.8
Prop In Lane	1.00		0.00	1.00		1.00	0.67		1.00	1.00		0.80
Lane Grp Cap(c), veh/h	103	1828	1004	22	2419	753	328	0	296	313	0	305
V/C Ratio(X)	0.80	1.15	1.15	0.54	0.57	0.11	0.03	0.00	0.02	0.78	0.00	0.03
Avail Cap(c_a), veh/h	179	1828	1004	81	2419	753	431	0	403	408	0	416
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	69.8	34.5	34.6	73.6	26.7	20.2	49.8	0.0	49.7	59.8	0.0	49.9
Incr Delay (d2), s/veh	13.5	73.0	78.2	18.4	1.0	0.3	0.0	0.0	0.0	7.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.8	101.0	113.6	1.1	19.6	3.3	0.6	0.0	0.4	16.0	0.0	0.6
LnGrp Delay(d),s/veh	83.3	107.6	112.8	92.0	27.7	20.5	49.8	0.0	49.8	67.1	0.0	49.9
LnGrp LOS	F	F	F	F	C	C	D		D	E		D
Approach Vol, veh/h		3332			1468			15			255	
Approach Delay, s/veh		108.8			27.8			49.8			66.4	
Approach LOS		F			C			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	16.6	81.4		36.9	9.9	88.2		36.9
Change Period (Y+Rc), s	* 7.9	7.3		8.8	7.9	* 7.3		8.8
Max Green Setting (Gmax), s	* 15	72.7		38.2	7.1	* 81		38.2
Max Q Clear Time (g_c+I1), s	8.9	31.7		2.6	3.0	82.9		27.5
Green Ext Time (p_c), s	0.1	40.0		0.8	0.0	0.0		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	83.0
HCM 2010 LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

User approved ignoring U-Turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	7	0	0	2
Future Vol, veh/h	0	0	7	0	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	8	0	0	2

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	10	8	0	0	8	0
Stage 1	8	-	-	-	-	-
Stage 2	2	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	1010	1074	-	-	1612	-
Stage 1	1015	-	-	-	-	-
Stage 2	1021	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	1010	1074	-	-	1612	-
Mov Cap-2 Maneuver	1010	-	-	-	-	-
Stage 1	1015	-	-	-	-	-
Stage 2	1021	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1612	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	1818	20	36	3022	9	15	2	16	14	6	28
Future Volume (veh/h)	42	1818	20	36	3022	9	15	2	16	14	6	28
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1881	1881	1900	1900	1900	1900	1900	1863	1900
Adj Flow Rate, veh/h	47	2020	22	40	3358	10	17	2	0	16	7	0
Adj No. of Lanes	1	3	0	1	3	0	0	1	0	0	1	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	1	1	1	0	0	0	2	2	2
Cap, veh/h	113	4148	45	227	4215	13	95	9	0	74	26	0
Arrive On Green	0.03	0.80	0.80	0.02	0.80	0.80	0.04	0.04	0.00	0.04	0.04	0.00
Sat Flow, veh/h	1774	5187	56	1792	5286	16	1356	224	0	951	648	0
Grp Volume(v), veh/h	47	1320	722	40	2174	1194	19	0	0	23	0	0
Grp Sat Flow(s),veh/h/ln	1774	1695	1853	1792	1712	1878	1581	0	0	1599	0	0
Q Serve(g_s), s	0.8	21.7	21.7	0.7	59.9	60.2	0.0	0.0	0.0	0.4	0.0	0.0
Cycle Q Clear(g_c), s	0.8	21.7	21.7	0.7	59.9	60.2	1.7	0.0	0.0	2.1	0.0	0.0
Prop In Lane	1.00		0.03	1.00		0.01	0.89		0.00	0.70		0.00
Lane Grp Cap(c), veh/h	113	2711	1482	227	2730	1498	104	0	0	101	0	0
V/C Ratio(X)	0.42	0.49	0.49	0.18	0.80	0.80	0.18	0.00	0.00	0.23	0.00	0.00
Avail Cap(c_a), veh/h	191	2711	1482	309	2730	1498	368	0	0	374	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	37.5	5.6	5.6	4.4	9.6	9.6	79.1	0.0	0.0	79.2	0.0	0.0
Incr Delay (d2), s/veh	2.4	0.6	1.1	0.4	2.5	4.5	0.8	0.0	0.0	1.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.3	15.6	17.1	0.6	37.5	41.7	1.6	0.0	0.0	2.0	0.0	0.0
LnGrp Delay(d),s/veh	39.9	6.2	6.7	4.8	12.1	14.1	79.9	0.0	0.0	80.4	0.0	0.0
LnGrp LOS	D	A	A	A	B	B	E			F		
Approach Vol, veh/h		2089			3408			19			23	
Approach Delay, s/veh		7.1			12.7			79.9			80.4	
Approach LOS		A			B			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.6	143.9		13.5	12.1	144.4		13.5
Change Period (Y+Rc), s	* 8.1	* 8.4		* 6.6	* 7.9	* 8.4		* 6.6
Max Green Setting (Gmax), s	* 12	* 98		* 37	* 12	* 98		* 37
Max Q Clear Time (g_c+I1), s	2.8	62.2		3.7	2.7	23.7		4.1
Green Ext Time (p_c), s	0.0	35.3		0.2	0.0	73.4		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	11.1
HCM 2010 LOS	B

Notes

User approved ignoring U-Turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Vol, veh/h	1847	1	3	3	3055	0	3
Future Vol, veh/h	1847	1	3	3	3055	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	-	None	-	None
Storage Length	-	-	-	295	-	-	0
Veh in Median Storage, #	0	-	-	-	0	0	-
Grade, %	0	-	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	2008	1	3	3	3321	0	3

Major/Minor	Major1		Major2		Minor1		
Conflicting Flow All	0	0	1466	2009	0	-	1004
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-
Critical Hdwy	-	-	5.64	5.34	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.32	3.12	-	-	3.92
Pot Cap-1 Maneuver	-	-	241	124	-	0	206
Stage 1	-	-	-	-	-	0	-
Stage 2	-	-	-	-	-	0	-
Platoon blocked, %	-	-			-		
Mov Cap-1 Maneuver	-	-	163	163	-	-	206
Mov Cap-2 Maneuver	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	22.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	206	-	-	163	-
HCM Lane V/C Ratio	0.016	-	-	0.04	-
HCM Control Delay (s)	22.8	-	-	28	-
HCM Lane LOS	C	-	-	D	-
HCM 95th %tile Q(veh)	0	-	-	0.1	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1853	0	0	3058	0	0
Future Vol, veh/h	1853	0	0	3058	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2014	0	0	3324	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	1007
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	205
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	205
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	0	-	-	-
HCM Lane LOS	A	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	1739	7	33	2904	295	7	1	22	160	4	144
Future Volume (veh/h)	69	1739	7	33	2904	295	7	1	22	160	4	144
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1881	1881	1881	1900	1900	1900	1845	1845	1900
Adj Flow Rate, veh/h	78	1976	8	38	3300	186	8	1	1	182	5	28
Adj No. of Lanes	1	3	0	1	3	1	0	1	1	1	1	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	1	1	1	0	0	0	3	3	3
Cap, veh/h	98	3233	13	49	3034	945	202	23	223	252	34	188
Arrive On Green	0.06	0.62	0.62	0.03	0.59	0.59	0.14	0.14	0.14	0.14	0.14	0.14
Sat Flow, veh/h	1774	5228	21	1792	5136	1599	1112	164	1615	1397	243	1361
Grp Volume(v), veh/h	78	1281	703	38	3300	186	9	0	1	182	0	33
Grp Sat Flow(s),veh/h/ln	1774	1695	1859	1792	1712	1599	1276	0	1615	1397	0	1604
Q Serve(g_s), s	6.1	32.5	32.5	3.0	82.7	7.5	0.4	0.0	0.1	14.2	0.0	2.5
Cycle Q Clear(g_c), s	6.1	32.5	32.5	3.0	82.7	7.5	3.0	0.0	0.1	17.2	0.0	2.5
Prop In Lane	1.00		0.01	1.00		1.00	0.89		1.00	1.00		0.85
Lane Grp Cap(c), veh/h	98	2097	1150	49	3034	945	225	0	223	252	0	222
V/C Ratio(X)	0.80	0.61	0.61	0.77	1.09	0.20	0.04	0.00	0.00	0.72	0.00	0.15
Avail Cap(c_a), veh/h	153	2097	1150	155	3034	945	244	0	245	271	0	243
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	65.4	16.4	16.4	67.6	28.7	13.3	53.4	0.0	52.0	59.1	0.0	53.1
Incr Delay (d2), s/veh	14.2	1.3	2.4	21.7	45.8	0.5	0.1	0.0	0.0	8.5	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.1	22.0	24.2	3.2	93.0	6.2	0.6	0.0	0.1	12.0	0.0	2.1
LnGrp Delay(d),s/veh	79.6	17.7	18.8	89.4	74.5	13.7	53.5	0.0	52.0	67.6	0.0	53.4
LnGrp LOS	E	B	B	F	F	B	D		D	E		D
Approach Vol, veh/h		2062			3524			10			215	
Approach Delay, s/veh		20.4			71.4			53.3			65.4	
Approach LOS		C			E			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	15.6	90.0		28.1	11.8	93.9		28.1
Change Period (Y+Rc), s	* 7.9	7.3		8.8	7.9	* 7.3		8.8
Max Green Setting (Gmax), s	* 12	82.7		21.2	12.1	* 83		21.2
Max Q Clear Time (g_c+I1), s	8.1	84.7		5.0	5.0	34.5		19.2
Green Ext Time (p_c), s	0.0	0.0		0.6	0.0	48.0		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	53.1
HCM 2010 LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

User approved ignoring U-Turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	3	0	0	4
Future Vol, veh/h	0	0	3	0	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	3	0	0	4

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	7	3	0	0	3	0
Stage 1	3	-	-	-	-	-
Stage 2	4	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	1014	1081	-	-	1619	-
Stage 1	1020	-	-	-	-	-
Stage 2	1019	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	1014	1081	-	-	1619	-
Mov Cap-2 Maneuver	1014	-	-	-	-	-
Stage 1	1020	-	-	-	-	-
Stage 2	1019	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1619	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	3478	6	9	1546	3	10	1	45	57	1	20
Future Volume (veh/h)	32	3478	6	9	1546	3	10	1	45	57	1	20
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1792	1792	1900	1900	1863	1900	1900	1900	1900
Adj Flow Rate, veh/h	34	3661	6	9	1627	3	11	1	8	60	1	14
Adj No. of Lanes	1	3	0	1	3	0	0	1	0	0	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	6	6	6	2	2	2	0	0	0
Cap, veh/h	265	4000	7	118	3940	7	78	14	39	111	1	17
Arrive On Green	0.02	0.76	0.76	0.04	0.78	0.78	0.06	0.06	0.06	0.06	0.06	0.06
Sat Flow, veh/h	1774	5243	9	1707	5044	9	760	235	664	1225	20	286
Grp Volume(v), veh/h	34	2367	1300	9	1052	578	20	0	0	75	0	0
Grp Sat Flow(s),veh/h/ln	1774	1695	1861	1707	1631	1791	1660	0	0	1532	0	0
Q Serve(g_s), s	0.9	93.2	93.4	0.0	17.7	17.7	0.0	0.0	0.0	6.3	0.0	0.0
Cycle Q Clear(g_c), s	0.9	93.2	93.4	0.0	17.7	17.7	1.9	0.0	0.0	8.1	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.01	0.55		0.40	0.80		0.19
Lane Grp Cap(c), veh/h	265	2587	1420	118	2548	1399	131	0	0	129	0	0
V/C Ratio(X)	0.13	0.91	0.92	0.08	0.41	0.41	0.15	0.00	0.00	0.58	0.00	0.00
Avail Cap(c_a), veh/h	276	2587	1420	118	2548	1399	151	0	0	149	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.7	15.8	15.9	63.6	6.0	6.0	76.1	0.0	0.0	78.9	0.0	0.0
Incr Delay (d2), s/veh	0.2	6.4	10.7	0.3	0.5	0.9	0.5	0.0	0.0	4.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.8	56.4	63.3	0.7	12.7	13.9	1.6	0.0	0.0	6.6	0.0	0.0
LnGrp Delay(d),s/veh	8.0	22.2	26.6	63.9	6.5	6.9	76.6	0.0	0.0	83.1	0.0	0.0
LnGrp LOS	A	C	C	E	A	A	E			F		
Approach Vol, veh/h		3701			1639			20			75	
Approach Delay, s/veh		23.6			7.0			76.6			83.1	
Approach LOS		C			A			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.1	141.2		16.7	15.2	138.1		16.7
Change Period (Y+Rc), s	* 8.1	* 8.4		* 6.6	* 8.4	* 8.4		* 6.6
Max Green Setting (Gmax), s	* 5.1	* 1.3E2		* 12	* 5	* 1.3E2		* 12
Max Q Clear Time (g_c+I1), s	2.9	19.7		3.9	2.0	95.4		10.1
Green Ext Time (p_c), s	0.0	27.9		0.2	2.6	32.6		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	19.6
HCM 2010 LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

User approved ignoring U-Turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Vol, veh/h	3582	1	3	1	1548	0	7
Future Vol, veh/h	3582	1	3	1	1548	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	-	None	-	None
Storage Length	-	-	-	295	-	-	0
Veh in Median Storage, #	0	-	-	-	0	0	-
Grade, %	0	-	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	3893	1	3	1	1683	0	8

Major/Minor	Major1		Major2			Minor1	
Conflicting Flow All	0	0	2843	3895	0	-	1947
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-
Critical Hdwy	-	-	5.64	5.34	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.32	3.12	-	-	3.92
Pot Cap-1 Maneuver	-	-	39	12	-	0	47
Stage 1	-	-	-	-	-	0	-
Stage 2	-	-	-	-	-	0	-
Platoon blocked, %	-	-			-		
Mov Cap-1 Maneuver	-	-	23	23	-	-	47
Mov Cap-2 Maneuver	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	95.9
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	47	-	-	23	-
HCM Lane V/C Ratio	0.162	-	-	0.189	-
HCM Control Delay (s)	95.9	-	-	195.4	-
HCM Lane LOS	F	-	-	F	-
HCM 95th %tile Q(veh)	0.5	-	-	0.6	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	3592	0	0	1552	0	0
Future Vol, veh/h	3592	0	0	1552	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3904	0	0	1687	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	1952
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	46
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	46
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	0	-	-	-
HCM Lane LOS	A	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	3518	5	12	1491	164	7	3	42	266	2	54
Future Volume (veh/h)	90	3518	5	12	1491	164	7	3	42	266	2	54
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1792	1792	1792	1900	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	96	3743	5	13	1586	98	7	3	6	283	2	6
Adj No. of Lanes	1	3	0	1	3	1	0	1	1	1	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	6	6	6	2	2	2	2	2	2
Cap, veh/h	158	3484	5	23	2899	902	206	82	263	278	68	205
Arrive On Green	0.18	1.00	1.00	0.01	0.59	0.59	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	1774	5245	7	1707	4893	1524	1028	497	1583	1408	411	1234
Grp Volume(v), veh/h	96	2419	1329	13	1586	98	10	0	6	283	0	8
Grp Sat Flow(s),veh/h/ln	1774	1695	1862	1707	1631	1524	1525	0	1583	1408	0	1645
Q Serve(g_s), s	8.5	112.9	112.9	1.3	33.2	4.8	0.0	0.0	0.5	27.4	0.0	0.7
Cycle Q Clear(g_c), s	8.5	112.9	112.9	1.3	33.2	4.8	0.8	0.0	0.5	28.2	0.0	0.7
Prop In Lane	1.00		0.00	1.00		1.00	0.70		1.00	1.00		0.75
Lane Grp Cap(c), veh/h	158	2252	1237	23	2899	902	289	0	263	278	0	273
V/C Ratio(X)	0.61	1.07	1.07	0.56	0.55	0.11	0.03	0.00	0.02	1.02	0.00	0.03
Avail Cap(c_a), veh/h	178	2252	1237	51	2899	902	289	0	263	278	0	273
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	67.1	0.0	0.0	83.4	20.9	15.1	59.5	0.0	59.4	73.0	0.0	59.4
Incr Delay (d2), s/veh	4.7	42.4	48.2	19.9	0.7	0.2	0.0	0.0	0.0	59.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
%ile BackOfQ(95%),veh/ln	7.8	23.9	29.8	1.3	21.6	3.7	0.7	0.0	0.4	31.7	0.0	0.6
LnGrp Delay(d),s/veh	71.9	42.4	48.2	103.2	21.6	15.3	59.5	0.0	59.4	132.2	0.0	59.5
LnGrp LOS	E	F	F	F	C	B	E		E	F		E
Approach Vol, veh/h		3844			1697			16			291	
Approach Delay, s/veh		45.2			21.9			59.5			130.2	
Approach LOS		D			C			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	23.0	108.0		37.0	10.2	120.8		37.0
Change Period (Y+Rc), s	7.9	* 7.3		8.8	7.9	* 7.9		8.8
Max Green Setting (Gmax), s	17.1	* 1E2		28.2	5.1	* 1.1E2		28.2
Max Q Clear Time (g_c+I1), s	10.5	35.2		2.8	3.3	114.9		30.2
Green Ext Time (p_c), s	4.8	16.9		0.9	0.0	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	42.7
HCM 2010 LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

User approved ignoring U-Turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	7	0	0	2
Future Vol, veh/h	0	0	7	0	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	8	0	0	2

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	10	8	0	0	8	0
Stage 1	8	-	-	-	-	-
Stage 2	2	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	1010	1074	-	-	1612	-
Stage 1	1015	-	-	-	-	-
Stage 2	1021	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	1010	1074	-	-	1612	-
Mov Cap-2 Maneuver	1010	-	-	-	-	-
Stage 1	1015	-	-	-	-	-
Stage 2	1021	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1612	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	2097	23	42	3485	10	17	2	19	16	7	33
Future Volume (veh/h)	60	2097	23	42	3485	10	17	2	19	16	7	33
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1881	1881	1900	1900	1900	1900	1900	1863	1900
Adj Flow Rate, veh/h	67	2330	25	47	3872	11	19	2	0	18	8	5
Adj No. of Lanes	1	3	0	1	3	0	0	1	0	0	1	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	1	1	1	0	0	0	2	2	2
Cap, veh/h	93	4075	44	209	4250	12	96	8	0	62	25	11
Arrive On Green	0.03	0.79	0.79	0.04	0.80	0.80	0.04	0.04	0.00	0.04	0.04	0.04
Sat Flow, veh/h	1774	5188	56	1792	5287	15	1413	203	0	747	601	259
Grp Volume(v), veh/h	67	1522	833	47	2506	1377	21	0	0	31	0	0
Grp Sat Flow(s),veh/h/ln	1774	1695	1853	1792	1712	1879	1615	0	0	1608	0	0
Q Serve(g_s), s	2.1	31.4	31.5	0.0	96.5	97.0	0.0	0.0	0.0	1.2	0.0	0.0
Cycle Q Clear(g_c), s	2.1	31.4	31.5	0.0	96.5	97.0	2.0	0.0	0.0	3.2	0.0	0.0
Prop In Lane	1.00		0.03	1.00		0.01	0.90		0.00	0.58		0.16
Lane Grp Cap(c), veh/h	93	2663	1456	209	2752	1510	105	0	0	98	0	0
V/C Ratio(X)	0.72	0.57	0.57	0.22	0.91	0.91	0.20	0.00	0.00	0.32	0.00	0.00
Avail Cap(c_a), veh/h	114	2663	1456	209	2752	1510	114	0	0	108	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	53.8	7.5	7.5	16.6	12.9	13.0	83.7	0.0	0.0	84.2	0.0	0.0
Incr Delay (d2), s/veh	15.7	0.9	1.6	0.5	5.8	9.9	0.9	0.0	0.0	1.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.7	21.2	23.3	2.2	58.4	65.5	1.9	0.0	0.0	2.8	0.0	0.0
LnGrp Delay(d),s/veh	69.6	8.4	9.2	17.2	18.8	22.9	84.6	0.0	0.0	86.1	0.0	0.0
LnGrp LOS	E	A	A	B	B	C	F			F		
Approach Vol, veh/h		2422			3930			21			31	
Approach Delay, s/veh		10.4			20.2			84.6			86.1	
Approach LOS		B			C			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.9	153.1		14.0	16.2	149.8		14.0
Change Period (Y+Rc), s	* 8.1	* 8.4		* 6.6	* 8.4	* 8.4		* 6.6
Max Green Setting (Gmax), s	* 6.9	* 1.4E2		* 8.6	* 7.1	* 1.4E2		* 8.6
Max Q Clear Time (g_c+I1), s	4.1	99.0		4.0	2.0	33.5		5.2
Green Ext Time (p_c), s	0.0	42.1		0.1	3.2	37.3		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	17.0
HCM 2010 LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

User approved ignoring U-Turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Vol, veh/h	2131	1	3	3	3521	0	3
Future Vol, veh/h	2131	1	3	3	3521	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	-	None	-	None
Storage Length	-	-	-	295	-	-	0
Veh in Median Storage, #	0	-	-	-	0	0	-
Grade, %	0	-	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	2316	1	3	3	3827	0	3

Major/Minor	Major1		Major2			Minor1	
Conflicting Flow All	0	0	1691	2317	0	-	1159
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-
Critical Hdwy	-	-	5.64	5.34	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.32	3.12	-	-	3.92
Pot Cap-1 Maneuver	-	-	180	86	-	0	162
Stage 1	-	-	-	-	-	0	-
Stage 2	-	-	-	-	-	0	-
Platoon blocked, %	-	-			-		
Mov Cap-1 Maneuver	-	-	116	116	-	-	162
Mov Cap-2 Maneuver	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	27.7
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	162	-	-	116	-
HCM Lane V/C Ratio	0.02	-	-	0.056	-
HCM Control Delay (s)	27.7	-	-	37.9	-
HCM Lane LOS	D	-	-	E	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	2137	0	0	3527	0	0
Future Vol, veh/h	2137	0	0	3527	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2323	0	0	3834	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	1161
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	162
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	162
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	0	-	-	-
HCM Lane LOS	A	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	2006	8	38	3349	340	8	1	26	184	5	167
Future Volume (veh/h)	79	2006	8	38	3349	340	8	1	26	184	5	167
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1881	1881	1881	1900	1900	1900	1845	1845	1900
Adj Flow Rate, veh/h	90	2280	9	43	3806	258	9	1	0	209	6	112
Adj No. of Lanes	1	3	0	1	3	1	0	1	1	1	1	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	1	1	1	0	0	0	3	3	3
Cap, veh/h	90	3649	14	55	3501	1090	116	11	217	248	11	202
Arrive On Green	0.10	1.00	1.00	0.03	0.68	0.68	0.13	0.13	0.00	0.13	0.13	0.13
Sat Flow, veh/h	1774	5229	21	1792	5136	1599	578	82	1615	1397	80	1500
Grp Volume(v), veh/h	90	1478	811	43	3806	258	10	0	0	209	0	118
Grp Sat Flow(s),veh/h/ln	1774	1695	1859	1792	1712	1599	660	0	1615	1397	0	1580
Q Serve(g_s), s	9.1	0.0	0.0	4.3	122.7	11.0	1.0	0.0	0.0	10.7	0.0	12.6
Cycle Q Clear(g_c), s	9.1	0.0	0.0	4.3	122.7	11.0	13.5	0.0	0.0	24.2	0.0	12.6
Prop In Lane	1.00		0.01	1.00		1.00	0.90		1.00	1.00		0.95
Lane Grp Cap(c), veh/h	90	2366	1298	55	3501	1090	127	0	217	248	0	212
V/C Ratio(X)	1.00	0.62	0.63	0.78	1.09	0.24	0.08	0.00	0.00	0.84	0.00	0.56
Avail Cap(c_a), veh/h	90	2366	1298	91	3501	1090	127	0	217	248	0	212
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	80.9	0.0	0.0	86.6	28.7	10.9	76.2	0.0	0.0	77.5	0.0	72.9
Incr Delay (d2), s/veh	96.0	1.3	2.3	20.2	44.8	0.5	0.3	0.0	0.0	22.5	0.0	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	12.3	0.7	1.5	4.4	130.0	8.7	0.9	0.0	0.0	17.6	0.0	9.6
LnGrp Delay(d),s/veh	176.9	1.3	2.3	106.8	73.5	11.4	76.4	0.0	0.0	100.0	0.0	76.0
LnGrp LOS	F	A	A	F	F	B	E			F		E
Approach Vol, veh/h		2379			4107			10			327	
Approach Delay, s/veh		8.3			69.9			76.4			91.3	
Approach LOS		A			E			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	17.0	130.0		33.0	13.5	133.5		33.0
Change Period (Y+Rc), s	7.9	* 7.3		8.8	7.9	* 7.9		8.8
Max Green Setting (Gmax), s	9.1	* 1.2E2		24.2	9.1	* 1.2E2		24.2
Max Q Clear Time (g_c+I1), s	11.1	124.7		15.5	6.3	2.0		26.2
Green Ext Time (p_c), s	0.0	0.0		0.8	0.0	36.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	49.5
HCM 2010 LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

User approved ignoring U-Turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	3	0	0	4
Future Vol, veh/h	0	0	3	0	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	3	0	0	4

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	7	3	0	0	3	0
Stage 1	3	-	-	-	-	-
Stage 2	4	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	1014	1081	-	-	1619	-
Stage 1	1020	-	-	-	-	-
Stage 2	1019	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	1014	1081	-	-	1619	-
Mov Cap-2 Maneuver	1014	-	-	-	-	-
Stage 1	1020	-	-	-	-	-
Stage 2	1019	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1619	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	3494	6	9	1565	3	10	1	45	57	1	20
Future Volume (veh/h)	32	3494	6	9	1565	3	10	1	45	57	1	20
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1792	1792	1900	1900	1863	1900	1900	1900	1900
Adj Flow Rate, veh/h	34	3678	6	9	1647	3	11	1	8	60	1	14
Adj No. of Lanes	1	3	0	1	3	0	0	1	0	0	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	6	6	6	2	2	2	0	0	0
Cap, veh/h	261	4000	7	118	3941	7	78	14	39	111	1	17
Arrive On Green	0.02	0.76	0.76	0.04	0.78	0.78	0.06	0.06	0.06	0.06	0.06	0.06
Sat Flow, veh/h	1774	5243	9	1707	5044	9	760	236	664	1225	20	286
Grp Volume(v), veh/h	34	2378	1306	9	1065	585	20	0	0	75	0	0
Grp Sat Flow(s),veh/h/ln	1774	1695	1861	1707	1631	1791	1660	0	0	1532	0	0
Q Serve(g_s), s	0.9	94.6	94.9	0.0	18.0	18.0	0.0	0.0	0.0	6.3	0.0	0.0
Cycle Q Clear(g_c), s	0.9	94.6	94.9	0.0	18.0	18.0	1.9	0.0	0.0	8.1	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.01	0.55		0.40	0.80		0.19
Lane Grp Cap(c), veh/h	261	2587	1420	118	2549	1399	131	0	0	129	0	0
V/C Ratio(X)	0.13	0.92	0.92	0.08	0.42	0.42	0.15	0.00	0.00	0.58	0.00	0.00
Avail Cap(c_a), veh/h	272	2587	1420	118	2549	1399	151	0	0	149	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.8	16.0	16.0	65.1	6.0	6.0	76.1	0.0	0.0	78.9	0.0	0.0
Incr Delay (d2), s/veh	0.2	6.7	11.1	0.3	0.5	0.9	0.5	0.0	0.0	4.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.8	57.1	64.6	0.7	12.9	14.1	1.6	0.0	0.0	6.6	0.0	0.0
LnGrp Delay(d),s/veh	8.0	22.7	27.2	65.3	6.5	7.0	76.6	0.0	0.0	83.1	0.0	0.0
LnGrp LOS	A	C	C	E	A	A	E			F		
Approach Vol, veh/h		3718			1659			20			75	
Approach Delay, s/veh		24.1			7.0			76.6			83.1	
Approach LOS		C			A			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.1	141.2		16.7	15.2	138.1		16.7
Change Period (Y+Rc), s	* 8.1	* 8.4		* 6.6	* 8.4	* 8.4		* 6.6
Max Green Setting (Gmax), s	* 5.1	* 1.3E2		* 12	* 5	* 1.3E2		* 12
Max Q Clear Time (g_c+I1), s	2.9	20.0		3.9	2.0	96.9		10.1
Green Ext Time (p_c), s	0.0	28.5		0.0	0.0	31.4		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	19.9
HCM 2010 LOS	B

Notes

User approved pedestrian interval to be less than phase max green.
User approved ignoring U-Turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	4.1

Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Vol, veh/h	3590	9	6	4	1567	0	39
Future Vol, veh/h	3590	9	6	4	1567	0	39
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	-	None	-	None
Storage Length	-	-	-	295	-	-	0
Veh in Median Storage, #	0	-	-	-	0	0	-
Grade, %	0	-	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	3902	10	7	4	1703	0	42

Major/Minor	Major1		Major2			Minor1	
Conflicting Flow All	0	0	2856	3912	0	-	1956
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-
Critical Hdwy	-	-	5.64	5.34	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.32	3.12	-	-	3.92
Pot Cap-1 Maneuver	-	-	39	12	-	0	46
Stage 1	-	-	-	-	-	0	-
Stage 2	-	-	-	-	-	0	-
Platoon blocked, %	-	-			-		
Mov Cap-1 Maneuver	-	-	8	8	-	-	46
Mov Cap-2 Maneuver	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	7.3	246.6
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	46	-	-	8	-
HCM Lane V/C Ratio	0.922	-	-	1.359	-
HCM Control Delay (s)	246.6	-	-	$ 1154.6	-
HCM Lane LOS	F	-	-	F	-
HCM 95th %tile Q(veh)	3.8	-	-	2.2	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	3624	12	0	1578	0	32
Future Vol, veh/h	3624	12	0	1578	0	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3939	13	0	1715	0	35

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	1976
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	44
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	44
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	216.7
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	44	-	-	-
HCM Lane V/C Ratio	0.791	-	-	-
HCM Control Delay (s)	216.7	-	-	-
HCM Lane LOS	F	-	-	-
HCM 95th %tile Q(veh)	3.1	-	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	111	3561	5	12	1498	164	7	3	42	266	2	54
Future Volume (veh/h)	111	3561	5	12	1498	164	7	3	42	266	2	54
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1792	1792	1792	1900	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	118	3788	5	13	1594	98	7	3	6	283	2	6
Adj No. of Lanes	1	3	0	1	3	1	0	1	1	1	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	6	6	6	2	2	2	2	2	2
Cap, veh/h	158	3483	5	23	2899	902	206	82	263	278	68	205
Arrive On Green	0.18	1.00	1.00	0.01	0.59	0.59	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	1774	5245	7	1707	4893	1524	1028	497	1583	1408	411	1234
Grp Volume(v), veh/h	118	2448	1345	13	1594	98	10	0	6	283	0	8
Grp Sat Flow(s),veh/h/ln	1774	1695	1862	1707	1631	1524	1525	0	1583	1408	0	1645
Q Serve(g_s), s	10.7	0.0	112.3	1.3	33.5	4.8	0.0	0.0	0.5	27.4	0.0	0.7
Cycle Q Clear(g_c), s	10.7	0.0	112.3	1.3	33.5	4.8	0.8	0.0	0.5	28.2	0.0	0.7
Prop In Lane	1.00		0.00	1.00		1.00	0.70		1.00	1.00		0.75
Lane Grp Cap(c), veh/h	158	2251	1236	23	2899	902	289	0	263	278	0	273
V/C Ratio(X)	0.75	1.09	1.09	0.56	0.55	0.11	0.03	0.00	0.02	1.02	0.00	0.03
Avail Cap(c_a), veh/h	178	2251	1236	51	2899	902	289	0	263	278	0	273
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	68.1	0.0	0.0	83.4	20.9	15.1	59.5	0.0	59.4	73.0	0.0	59.4
Incr Delay (d2), s/veh	14.2	47.5	53.0	19.9	0.8	0.2	0.0	0.0	0.0	59.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
%ile BackOfQ(95%),veh/ln	9.8	26.7	32.8	1.3	21.7	3.7	0.7	0.0	0.4	31.7	0.0	0.6
LnGrp Delay(d),s/veh	82.3	47.5	53.0	103.2	21.7	15.3	59.5	0.0	59.4	132.2	0.0	59.5
LnGrp LOS	F	F	F	F	C	B	E		E	F		E
Approach Vol, veh/h		3911			1705			16			291	
Approach Delay, s/veh		50.5			22.0			59.5			130.2	
Approach LOS		D			C			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	23.0	108.0		37.0	10.2	120.8		37.0
Change Period (Y+Rc), s	7.9	* 7.3		8.8	7.9	* 7.9		8.8
Max Green Setting (Gmax), s	17.1	* 1E2		28.2	5.1	* 1.1E2		28.2
Max Q Clear Time (g_c+I1), s	12.7	35.5		2.8	3.3	114.3		30.2
Green Ext Time (p_c), s	0.1	17.0		0.0	0.0	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	46.2
HCM 2010 LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
User approved ignoring U-Turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	6.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	32	7	0	11	2
Future Vol, veh/h	0	32	7	0	11	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	35	8	0	12	2

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	34	8	0	0	8	0
Stage 1	8	-	-	-	-	-
Stage 2	26	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	979	1074	-	-	1612	-
Stage 1	1015	-	-	-	-	-
Stage 2	997	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	972	1074	-	-	1612	-
Mov Cap-2 Maneuver	972	-	-	-	-	-
Stage 1	1008	-	-	-	-	-
Stage 2	997	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.5	0	6.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1074	1612	-
HCM Lane V/C Ratio	-	-	0.032	0.007	-
HCM Control Delay (s)	-	-	8.5	7.2	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	2121	23	42	3512	10	17	2	19	16	7	33
Future Volume (veh/h)	60	2121	23	42	3512	10	17	2	19	16	7	33
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1881	1881	1900	1900	1900	1900	1900	1863	1900
Adj Flow Rate, veh/h	67	2357	25	47	3902	11	19	2	0	18	8	5
Adj No. of Lanes	1	3	0	1	3	0	0	1	0	0	1	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	1	1	1	0	0	0	2	2	2
Cap, veh/h	92	4076	43	206	4250	12	96	8	0	62	25	11
Arrive On Green	0.03	0.79	0.79	0.04	0.80	0.80	0.04	0.04	0.00	0.04	0.04	0.04
Sat Flow, veh/h	1774	5188	55	1792	5287	15	1413	203	0	747	601	259
Grp Volume(v), veh/h	67	1539	843	47	2525	1388	21	0	0	31	0	0
Grp Sat Flow(s),veh/h/ln	1774	1695	1853	1792	1712	1879	1615	0	0	1608	0	0
Q Serve(g_s), s	2.1	32.1	32.2	0.0	99.3	99.9	0.0	0.0	0.0	1.2	0.0	0.0
Cycle Q Clear(g_c), s	2.1	32.1	32.2	0.0	99.3	99.9	2.0	0.0	0.0	3.2	0.0	0.0
Prop In Lane	1.00		0.03	1.00		0.01	0.90		0.00	0.58		0.16
Lane Grp Cap(c), veh/h	92	2663	1456	206	2752	1510	105	0	0	98	0	0
V/C Ratio(X)	0.72	0.58	0.58	0.23	0.92	0.92	0.20	0.00	0.00	0.32	0.00	0.00
Avail Cap(c_a), veh/h	113	2663	1456	206	2752	1510	114	0	0	108	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	54.6	7.6	7.6	17.2	13.2	13.3	83.7	0.0	0.0	84.2	0.0	0.0
Incr Delay (d2), s/veh	16.4	0.9	1.7	0.6	6.2	10.5	0.9	0.0	0.0	1.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.7	21.7	23.8	2.3	60.1	67.5	1.9	0.0	0.0	2.8	0.0	0.0
LnGrp Delay(d),s/veh	71.0	8.5	9.3	17.7	19.5	23.8	84.6	0.0	0.0	86.1	0.0	0.0
LnGrp LOS	E	A	A	B	B	C	F			F		
Approach Vol, veh/h		2449			3960			21			31	
Approach Delay, s/veh		10.5			20.9			84.6			86.1	
Approach LOS		B			C			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.9	153.1		14.0	16.2	149.8		14.0
Change Period (Y+Rc), s	* 8.1	* 8.4		* 6.6	* 8.4	* 8.4		* 6.6
Max Green Setting (Gmax), s	* 6.9	* 1.4E2		* 8.6	* 7.1	* 1.4E2		* 8.6
Max Q Clear Time (g_c+I1), s	4.1	101.9		4.0	2.0	34.2		5.2
Green Ext Time (p_c), s	0.0	39.3		0.0	0.0	38.4		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	17.5
HCM 2010 LOS	B

Notes

User approved pedestrian interval to be less than phase max green.
User approved ignoring U-Turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.7

Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Vol, veh/h	2143	13	23	24	3548	0	24
Future Vol, veh/h	2143	13	23	24	3548	0	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	-	None	-	None
Storage Length	-	-	-	295	-	-	0
Veh in Median Storage, #	0	-	-	-	0	0	-
Grade, %	0	-	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	2329	14	25	26	3857	0	26

Major/Minor	Major1		Major2			Minor1	
Conflicting Flow All	0	0	1711	2343	0	-	1172
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-
Critical Hdwy	-	-	5.64	5.34	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.32	3.12	-	-	3.92
Pot Cap-1 Maneuver	-	-	176	83	-	0	159
Stage 1	-	-	-	-	-	0	-
Stage 2	-	-	-	-	-	0	-
Platoon blocked, %	-	-			-		
Mov Cap-1 Maneuver	-	-	106	106	-	-	159
Mov Cap-2 Maneuver	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	32
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	159	-	-	106	-
HCM Lane V/C Ratio	0.164	-	-	0.482	-
HCM Control Delay (s)	32	-	-	67.2	-
HCM Lane LOS	D	-	-	F	-
HCM 95th %tile Q(veh)	0.6	-	-	2.1	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	2158	32	0	3595	0	20
Future Vol, veh/h	2158	32	0	3595	0	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2346	35	0	3908	0	22

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	1191
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	154
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	154
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	32.2
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	154	-	-	-
HCM Lane V/C Ratio	0.141	-	-	-
HCM Control Delay (s)	32.2	-	-	-
HCM Lane LOS	D	-	-	-
HCM 95th %tile Q(veh)	0.5	-	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	106	2020	8	38	3388	340	8	1	26	184	5	169
Future Volume (veh/h)	106	2020	8	38	3388	340	8	1	26	184	5	169
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1881	1881	1881	1900	1900	1900	1845	1845	1900
Adj Flow Rate, veh/h	120	2295	9	43	3850	258	9	1	0	209	6	114
Adj No. of Lanes	1	3	0	1	3	1	0	1	1	1	1	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	1	1	1	0	0	0	3	3	3
Cap, veh/h	90	3650	14	55	3501	1090	114	11	217	248	11	202
Arrive On Green	0.10	1.00	1.00	0.03	0.68	0.68	0.13	0.13	0.00	0.13	0.13	0.13
Sat Flow, veh/h	1774	5229	20	1792	5136	1599	565	80	1615	1397	79	1501
Grp Volume(v), veh/h	120	1488	816	43	3850	258	10	0	0	209	0	120
Grp Sat Flow(s),veh/h/ln	1774	1695	1859	1792	1712	1599	646	0	1615	1397	0	1580
Q Serve(g_s), s	9.1	0.0	0.0	4.3	122.7	11.0	1.0	0.0	0.0	10.4	0.0	12.8
Cycle Q Clear(g_c), s	9.1	0.0	0.0	4.3	122.7	11.0	13.8	0.0	0.0	24.2	0.0	12.8
Prop In Lane	1.00		0.01	1.00		1.00	0.90		1.00	1.00		0.95
Lane Grp Cap(c), veh/h	90	2366	1298	55	3501	1090	125	0	217	248	0	212
V/C Ratio(X)	1.34	0.63	0.63	0.78	1.10	0.24	0.08	0.00	0.00	0.84	0.00	0.56
Avail Cap(c_a), veh/h	90	2366	1298	91	3501	1090	125	0	217	248	0	212
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	80.9	0.0	0.0	86.6	28.7	10.9	76.3	0.0	0.0	77.5	0.0	73.0
Incr Delay (d2), s/veh	209.7	1.3	2.3	20.2	50.0	0.5	0.3	0.0	0.0	22.3	0.0	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	17.4	0.8	1.5	4.4	133.0	8.7	0.9	0.0	0.0	17.6	0.0	9.8
LnGrp Delay(d),s/veh	290.6	1.3	2.3	106.8	78.6	11.4	76.6	0.0	0.0	99.8	0.0	76.4
LnGrp LOS	F	A	A	F	F	B	E			F		E
Approach Vol, veh/h		2424			4151			10			329	
Approach Delay, s/veh		16.0			74.7			76.6			91.3	
Approach LOS		B			E			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	17.0	130.0		33.0	13.5	133.5		33.0
Change Period (Y+Rc), s	7.9	* 7.3		8.8	7.9	* 7.9		8.8
Max Green Setting (Gmax), s	9.1	* 1.2E2		24.2	9.1	* 1.2E2		24.2
Max Q Clear Time (g_c+I1), s	11.1	124.7		15.8	6.3	2.0		26.2
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	35.9		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	54.9
HCM 2010 LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
User approved ignoring U-Turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	6.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	21	3	0	33	4
Future Vol, veh/h	0	21	3	0	33	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	23	3	0	36	4

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	79	3	0	0	3	0
Stage 1	3	-	-	-	-	-
Stage 2	76	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	924	1081	-	-	1619	-
Stage 1	1020	-	-	-	-	-
Stage 2	947	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	904	1081	-	-	1619	-
Mov Cap-2 Maneuver	904	-	-	-	-	-
Stage 1	998	-	-	-	-	-
Stage 2	947	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.4	0	6.5
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1081	1619	-
HCM Lane V/C Ratio	-	-	0.021	0.022	-
HCM Control Delay (s)	-	-	8.4	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Chris Russo (PE), Atkins
Atkins North America, Inc.
482 South Keller Road
Orlando, FL 32810-6101

Tel: +1 407 647 7275/+1 800 284 5182
Fax: +1 407 806 4500
Christopher.Russo@atkinsglobal.com

Appendix D. Environmental Assessment

1.0 Introduction

Atkins completed an environmental site evaluation in July 2018 for the approximate 14-acre LIV Oakland Project site in Orange and Lake County, Florida near the City of Oakland (**Exhibit 1**). This site is located south of West Colonial Drive, east of Lake Boulevard, and west of Deer Isle Drive, within Section 30, Township 22 South, Range 27 East, Orange and Lake County, Florida.

This Environmental Assessment includes the following information:

- Site assessment methodology
- General site conditions including land use, soil, and surface waters
- Listed wildlife species
- Review of environmental constraints

2.0 Site Assessment Methodology

This site evaluation provides an assessment of the site's ecological conditions, with emphasis on the occurrence or potential occurrence of wetlands/surface waters and listed wildlife. Wildlife designated as *Threatened or Endangered* and *Species of Special Concern* are listed for purposes of this report. Wetlands are areas that are considered jurisdictional by the Saint Johns River Water Management District (SJRWMD) or U.S. Army Corps of Engineers (ACOE) pursuant to either Chapter 62-340 Florida Administrative Code (F.A.C.) or the 1987 Federal Wetlands Delineation Manual.

Preceding the on-site evaluation published data resources were reviewed, including:

- Soil Survey, Natural Resources Conservation Service (NRCS) map (**Exhibit 2**)
- High-resolution aerial photographs of the project site and vicinity
- Florida Land Use, Cover and Forms Classification System (FLUCCS) map (**Exhibit 3**)
- National Wetland Inventory, U.S. Fish and Wildlife Service (USFWS)
- Florida Natural Areas Inventory (FNAI) Biodiversity Matrix (**Exhibit 4**)
- USFWS Information for Planning and Consultation (IPaC) site

The on-site assessment was conducted on July 5, 2018 by qualified biologists with experience in habitat assessment, wetland delineation, listed species survey and aerial photo interpretation. During the assessment, photographs of the project site were taken to document any special habitat features and record the general condition of the site (**Exhibit 5**). To insure proper coverage and thorough reconnaissance of the site, the evaluation included a 100% survey. Habitat types and special habitat features were recorded in a field notebook. The field notes, and published data resources were subsequently used to complete this report.

3.0 General Site Conditions

The project area abuts West Colonial Drive, Orange Ave, and Johns Lake. Intermittent residential housing and upland hardwood forest also border the site.

Vegetation within the workspace consists of a herbaceous ground cover of bahiagrass (*Paspalum notatum*), beggarticks (*Bidens alba*), pricklypear cactus (*Opuntia humifusa*), common ragweed (*Ambrosia artemisiifolia*), sandspur (*Cenchrus* sp.), Lantana (*Lantana strigocamara*),

cottonweed (*Froelichia floridana*), rose natalgrass (*Melinis repens*), guineagrass (*Urochloa maximus*), goldenaster (*Chrysopsis floridana*); and with a canopy of laurel oak (*Quercus laurifolia*), live oak (*Quercus virginiana*), sycamore (*Platanus occidentalis*), sabal palm (*Sabal palmetto*) and cherry tree (*Prunus sp.*).

The project area also supports the littoral zone of Johns Lake. This lake is located on the southern side of the site and encompasses approximately 0.47 acres of the project area.

3.1 Land Use

Land uses within the project area were classified using the FLUCCS developed by the Florida Department of Transportation. Digital GIS data taken from the SJRWMD (2009) website classifies the land use for proposed workspace as: 1100-Residential, low density - less than 2 dwelling units/acres, 2110-Improved Pastures, 2130-Woodland Pastures, 4340-Upland Coniferous/hardwoods, and 6410-Freshwater Marshes. The onsite evaluation showed these land uses to be correct.

3.2 Soils

The soils within the proposed project area were identified using maps and definitions formulated by the U.S. Department of Agriculture, NRCS (**Exhibit 2**). Soil units include: 1) Candler fine sand, 0 to 5 percent slopes, 2) Candler fine sand, 5 to 12 percent slopes, 3) Candler sand, 5 to 12 percent slopes, 4) Immokalee fine sand, and 5) Zolfo fine sand, 0 to 2 percent slopes.

The table below provides information on the soil identified within the project limits and includes the I.D., soil unit number and name, and hydric classification as determined by the Florida Association of Professional Soil Classifiers Hydric Soils of Florida Handbook (2007).

NRCS Map Unit Number and Name (Orange County)	***Hydric Soil***	***Hydric Soil Group***
4- Candler fine sand, 0 to 5 percent slopes	*No*	*A*
5- Candler fine sand, 5 to 12 percent slopes	*No*	*A*
20- Immokalee fine sand	*No*	*B/D*
54- Zolfo fine sand, 0-2 percent slopes	*No*	*A*
NRCS Map Unit Number and Name (Lake County)	***Hydric Soil***	***Hydric Soil Group***
9- Candler sand, 5 to 12 percent slopes	*No*	*A*

3.3 Wetlands and Surface Waters

Review of the National Wetlands Inventory, topographic surveys, NRCS Soil Survey data and the July 2018 site inspection confirmed that the only surface water or wetland feature onsite is the littoral zone of Johns Lake (**Exhibit 6**).

Approximately 0.47 acres of the lake is within the project area. Vegetation along the lake shore consists of American lotus (*Nelumbo lutea),* cattail (*Typha* sp.), torpedograss (*Panicum repens*), smartweed (*Polygonum* sp), alligatorweed (*Alternanthera philoxeroides*), paragrass (*Urochloa mutica*), dogfennel (*Eupatorium capillifolium*), primrose willow (*Ludwigia peruviana*), arrowhead (*Sagittaria lancifolia*), fogfruit (*Phyla nodiflora*), and Bermudagrass (*Cynodon dactylon*). Uniform Mitigation Assessment Method (UMAM) sheets have been initiated for the proposed project and are included as **Exhibit 7**.

In addition to the surface water feature, biologists also identified a 3ft wide drainage plume on the north-west side of the property. It appeared that this drainage feature was installed to convey water from the adjacent road into the upland hardwood forest on the west side of the project area.

4.0 Listed Wildlife Species

Based upon observations during the site visit and the desktop review of the IPaC site, and the FNAI biodiversity matrix for Orange and Lake County, there is potential for State and Federal Threatened and Endangered species and/or Species of Special Concern to occur within or near the proposed project area. A table has been included below and lists the potential for occurrence of both state and federally listed species (vertebrates) within the project area based on observations from the site visit and online data.

Common Name	***Scientific Name***	***Protection Status***	***Preferred Habitat***	***Potential to Occur in Study Area (high, moderate, low)***
Audubon's Crested Caracara	*Polyborus plancus audubonii*	FT	Dry prairie and pasture lands with cabbage palm, live oak hammocks and shallow ponds	Low. No habitat exists.
Eastern Indigo Snake	*Drymarchon corais couperi*	FT	Broad range	Moderate. Suitable habitat exists.
Everglade Snail Kite	*Rostrhamus sociabilis plumbeus*	FE	Shallow water lakes, large freshwater marshes	Moderate. Suitable habitat exists. Within consultation area
Florida Burrowing Owl	*Athene cunicularia floridana*	SSC	Dry prairie and sandhill	Moderate. Suitable habitat exists.
Florida Mouse	*Podomys floridanus*	SSC	Gopher tortoise commensal species	Low. No habitat present.
Florida Sandhill Crane	*Grus canadensis pratensis*	ST	Prairies, freshwater marshes, and pasture lands	High. Suitable habitat exists.
Florida Scrub Jay	*Aphelocoma coerulescens*	FT	Low growing scrub	Low. No habitat present. Within consultation area.
Gopher Tortoise	*Gopherus*	ST	Uplands	Moderate. Suitable

	polyphemus			habitat exists.
Gopher Frog	*Podomys floridanus*	SSC	Gopher tortoise commensal species	Low. No habitat present.
Pine Snake	*Pituophis melanoleucus*	SSC	Gopher tortoise commensal species	Low. No habitat present.
Red-cockaded Woodpecker	*Picoides borealis*	FE	Open, mature pine woodlands	Low. No habitat present. Within consultation area
Sand Skink	*Neoseps reynoldsi*	FT	Sandy soils at high elevations	High. Suitable habitat exists. Within consultation area.
Sherman's Fox Squirrel	*Sciurus niger shermani*	SSC	Sandhills, pine flatwoods, and pastures and other open habitats	Moderate. Suitable habitat exists.
Wood Stork	*Mycteria americana*	FT	Shallow waters (foraging), inundated forested wetlands (nesting)	High. Suitable habitat exists. Within core foraging area.
FE-Federally endangered; FT-Federally threatened' ST-State threatened; SSC- State species of special concern				

Twenty-eight listed plant species were also identified in the FNAI matrix and IPaC database as potentially occurring near the project area and within Orange and Lake County; however, no listed plant species were observed during the site visit.

A brief description of each of the state and federally listed species with a moderate or high potential of occurrence can be found below:

Eastern Indigo Snake (*Drymarchon corais couperi*)
Federally Listed: Threatened

The eastern indigo snake occurs in a wide range of habitat types including pine flatwoods, scrubby flatwoods, high pine, dry prairie, tropical hardwood hammocks, edges of freshwater marshes, agricultural fields, coastal dunes and human altered habitats. Additional documentation supports that this species can occur within almost all-natural ecosystems in Florida, with the exception of marine environments. Currently, the indigo snake does not have a designated critical habitat.

Due to the broad range of the species, it is assumed that all undeveloped upland portions of the site could potentially support the indigo snake.

Federal guidelines require that the *USFWS's Eastern Indigo Snake Protection Measures* be implemented for all construction projects that have the possibility of impacting an eastern indigo snake. The protection measures require that an educational plan is developed to instruct construction personnel of the protected status of the indigo snake and the protocol to be followed should one be observed in or around the project site.

Everglade Snail Kite (*Rostrhamus sociabilis plumbeus*)
Federally Listed: Endangered

The snail kite is a medium-sized raptor found in central and southern Florida. Large open freshwater marshes and lakes with shallow water, < 4 ft. deep, and a low density of emergent vegetation are preferred foraging habitat. They are dependent upon apple snails (*Pomacea paludosa*) caught at the water surface. Snail kites usually nest over water in a low tree or shrub.

In addition, the project area falls within the USFWS consultation area for the everglade snail kite. Although no snail kites were observed during the site visit, there is suitable foraging in the project area. A formal survey may be required by the USFWS or another agency to determine if any snail kites utilize any portions of the site.

Florida Burrowing Owl (*Athene cunicularia floridana*)
State Listed: Species of Special Concern

The Florida burrowing owl is predominately nonmigratory; maintaining its home ranges and territories while nesting. The largest populations occur in southwest and southeast Florida. The Florida burrowing owl forages in high, sparsely vegetated, sandy ground. Natural habitats include dry prairie and sandhills. However, they make extensive use of ruderal areas such as pastures, airports, ball fields, parks, school grounds, university campuses, road right-of-way, and vacant spaces in residential areas.

Burrowing owls use burrows year-round; for roosting during the winter and for raising young during the breeding season (Feb - July). Florida's owls typically dig their own burrows but will use gopher tortoise or armadillo burrows. Burrows extend 4 to 8 feet underground and are lined with materials such as grass clippings, feathers, paper, and manure. The project area contains both foraging and nesting habitat for the Florida burrowing owl; however, no burrows were found during the recent site visit. Therefore, the project is not expected to affect this species.

Florida Sandhill Crane (*Grus canadensis pratensis*)
State Listed: Threatened

Florida sandhill cranes are tall, heavy-bodied birds typically found foraging in wide-open prairies or pasture land. Nesting occurs in freshwater herbaceous wetlands with maidencane (*Panicum hemitomon*), pickerelweed (*Pontederia cordata*), smartweeds (*Polygonum* spp.), and rushes (*Scirpus* spp.) as the dominant wetland vegetation. Nesting season can extend from January through August, with peak nesting occurring from January through June.

The Florida Fish and Wildlife Conservation Commission (FFWCC) has an established surveying and management methodology for sandhill crane nest sites. A 400-foot protection buffer around active nest sites have been established. No nests were found during the recent field evaluation. The littoral zone of Johns Lake appears to be suitable sandhill crane nesting habitat.

If any sandhill crane nest sites are discovered within or within 400 feet of the project limits, coordination with FFWCC would be conducted. Because no sandhills were observed during the

field visit, this project is not expected to adversely affect this species.

Gopher Tortoise *(Gopherus polyphemus)*
State Listed: Threatened

Gopher tortoises are typically found in areas that have three environmental components, namely: well-drained soils, adequate herbaceous vegetation for foraging, and open sunny areas for nesting. The gopher tortoise's preferred natural habitat is pine flatwoods, longleaf pine /xeric oak and xeric oak scrub. They can also be found in almost any other natural upland community type and in disturbed sites such as roadsides, fencerows, clearings, and old fields.

FFWCC has an established permitting program to deal with gopher tortoises occurring on lands slated for development or impact. The gopher tortoise burrow has a 25-foot protection zone that surrounds the burrow. No permitting is required if the 25-foot buffer will not be impacted. If a burrow is anticipated to be impacted, a gopher tortoise on-site or off-site relocation authorization must be obtained from the FFWCC. No gopher tortoises or gopher tortoise burrows were identified onsite.

Sand Skink (*Neoseps reynoldsi*)
Federally Listed: Threatened

The subject site falls within the sand skink consultation area for the USFWS. The sand skink exists in areas of high elevations (80'+) with loose sand and large patches of sparse to no groundcover or canopy. They mainly inhabit areas with rosemary scrub (*Ceratiola ericoides*), sand pine (*Pinus clasua*), turkey oak ridges (*Quercus laevis*), and scrubby flatwoods. The USFWS believes all areas within the consultation area that are at the appropriate elevation and contain suitable soils are areas of potential sand skink habitat.

Approximately 11.63 acres of suitable sand skink habitat lie within the project area. When impacts to skink habitat occur, mitigation must be purchased from a mitigation bank to offset the incidental take (2-1 ratio). In addition, a sand skink survey (cover board survey) can be performed to determine the presence or absence of the species. Surveys can be completed between March 1 and May 15.

Sherman's Fox Squirrel (*Sciurus niger shermani*)
State Listed: Threatened

Sherman fox squirrels are large squirrels with highly variable coat colors and typically inhabit sandhills, pine flatwoods, and pastures and other open, ruderal habitats with scattered pines and oaks. Nests are typically constructed in oak trees and are constructed of oak leaves and Spanish moss. Fox squirrels generally have two breeding seasons per year. Most breeding occurs - December through February and May through June of each year.

Potential suitable fox squirrel habitat does occur within the project limits within the 4340-upland coniferous/hardwoods. If Sherman's fox squirrels are observed within the project boundary, coordination with the FFWCC will be initiated. No fox squirrels were observed within or adjacent to the project during the recent field surveys; therefore, this project is not expected to adversely affect any regional populations of the Sherman's fox squirrel.

Wood Stork (*Mycteria americana*)
Federally Listed: Endangered

Wood storks are colonial nesters and may roost in a variety of inundated forested wetlands, including cypress strands and domes, mixed hardwood swamps, sloughs, and mangroves. Increasingly, they are nesting in artificial habitats (e.g. impoundments and dredged areas with native or exotic vegetation) in north and central Florida. The wood storks forage in shallow water in freshwater marshes, swamps, lagoons, ponds, tidal creeks, flooded pastures and ditches, where they are attracted to falling water levels that concentrate their main food source of fish. These birds are especially sensitive to manipulation of water regimes and loss of wetland habitat, which affect both nesting sites and feeding areas. Currently, no critical habitat has been identified in Florida for the wood stork.

The USFWS Wood Stork Nesting Colonies Map and supporting data files, show that the proposed project falls within the core foraging area (CFA) for one wood stork nesting colony. Suitable foraging habitat (SFH) for the wood stork is present within the project area. If impacts to the surface water is expected to occur, purchasing mitigation in basin or recreating SFH will offset the impacts. Consequently, this project should not adversely affect any regional populations of wood storks.

5.0 Conclusion

Prior to commencing work onsite, coordination with the SJRWMD, ACOE, FFWCC or USFWS may need to occur.

SJRWMD

An Environmental Resource Permit will be required through the District for all surface water impacts in association with the proposed development of the site. UMAM sheets have been started for the proposed project and are included in **Exhibit 7**. Once the acreage of impacts is determined, the functional loss can be calculated. If impacts will not occur within a minimum of 15ft or an average of 25ft, no mitigation will be required for the proposed project.

ACOE

A separate Department of Army Application must be submitted to the ACOE for any impacts to the onsite surface water. It is anticipated that the ACOE will consider Johns Lake a navigable waterway. Any work occurring in, on, over, or under the water must receive a Section 10 permit from the ACOE.

USFWS and FFWCC

Due to the presence of suitable sand skink habitat within the project area, consultation must occur with the USFWS. Consultation is normally coordinated through the ACOE during the permitting process; however, if permitting with the ACOE is not required, direct consultation (Section 10) should be initiated with the USFWS. The USFWS will make the final determination on species surveys dependent on appropriate habitat and history of occurrence in the area. If any

of the state listed species identified in section 4 above are identified onsite, coordination with the FFWCC would be needed.

The environmental conditions and constraints described in this report are based on observation and technical information available from the July 2018 site visit. The absence of any wildlife during the site visit does not preclude the potential for their presence in the future. If the project will impact the littoral zone of Johns Lake (surface water), UMAM scores and the limits of the waterbody must be verified by the pertinent regulatory agencies. This report is for general planning purposes only. Should you have any questions or require any additional information, please contact our office at 407.647.7275.

Regards,

Amanda Glaze
Senior Scientist

Location Map
Orange and Lake County, Florida

LIV Oakland Project
LIV Development, LLC

Approximate Project Area

Exhibit 1

0 125 250 Feet

Date: 7/10/2018

N

Section: 30
Township: 22 South
Range: 27 East

SNC·LAVALIN ATKINS

Soil ID	Name
4	Candler Fine Sand, 0 to 5 percent slopes
5	Candler Fine Sand, 5 to 12 percent slopes
9	Candler Sand, 0 to 5 percent slopes
20	Immokalee Fine Sand
54	Zolfo Fine Sand, 0-2 percent slopes
99	Water

Natural Resource Conservation Service (NRCS) Soil Map
Orange and Lake County, Florida

LIV Oakland Project
LIV Development, LLC

Approximate Project Area

NRCS Soil Boundary (2015)

Exhibit 2

0 125 250 Feet

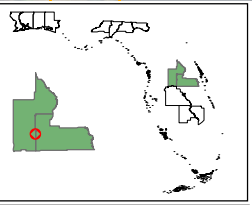
Date: 7/10/2018

N

Section: 30
Township: 22 South
Range: 27 East

SNC·LAVALIN ATKINS

FLUCCS ID	Name
1100	Residential, Low Density- less than 2 dwelling units/acres
1200	Residential, Low Density- 2-5 dwelling units/acres
1400	Commercial Services
1550	Other Light Industrial
1620	Sand and Gravel Pits
2110	Improved Pastures
2130	Woodland Pastures
3100	Herbaceous Upland Nonforested
4340	Upland Mixed Coniferous/Hardwoods
5200	Lakes
6410	Freshwater Marshes
8140	Roads and Highways (divided 4-lanes with medians)
8370	Surface Water Collection Basins



SNC·LAVALIN ATKINS

Florida Land Use, and Cover Classification System (FLUCCS) Map
Orange and Lake County, Florida

LIV Oakland Project
LIV Development, LLC

Approximate Project Area

FLUCCS Boundary (SJRWMD 2009)

Exhibit 3

0 125 250 Feet

Date: 7/10/2018

N

Section: 30
Township: 22 South
Range: 27 East

Exhibit 4

1018 Thomasville Road
Suite 200-C
Tallahassee, FL 32303
850-224-8207
850-681-9364 fax
www.fnai.org

Florida Natural Areas Inventory

Biodiversity Matrix Query Results

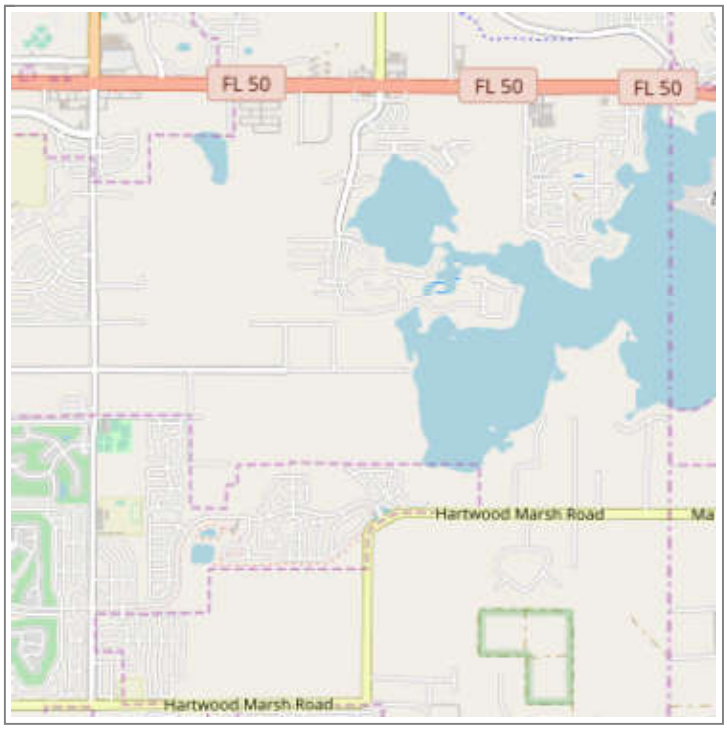
UNOFFICIAL REPORT

Created 7/9/2018

(Contact the FNAI Data Services Coordinator at 850.224.8207 or kbrinegar@fnai.fsu.edu for information on an official Standard Data Report)

NOTE: The Biodiversity Matrix includes only rare species and natural communities tracked by FNAI.

Report for 2 Matrix Units: 40702 , 41072



Descriptions

DOCUMENTED - There is a documented occurrence in the FNAI database of the species or community within this Matrix Unit.

DOCUMENTED-HISTORIC - There is a documented occurrence in the FNAI database of the species or community within this Matrix Unit; however the occurrence has not been observed/reported within the last twenty years.

LIKELY - The species or community is *known* to occur in this vicinity, and is considered likely within this Matrix Unit because:

1. documented occurrence overlaps this and adjacent Matrix Units, but the documentation isn't precise enough to indicate which of those Units the species or community is actually located in; *or*
2. there is a documented occurrence in the vicinity and there is suitable habitat for that species or community within this Matrix Unit.

POTENTIAL - This Matrix Unit lies within the known or predicted range of the species or community based on expert knowledge and environmental variables such as climate, soils, topography, and landcover.

Matrix Unit ID: 40702

0 **Documented** Elements Found

0 **Documented-Historic** Elements Found

2 **Likely** Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
Mycteria americana Wood Stork	G4	S2	LT	FT

Sandhill upland lake	G3	S2	N	N

Matrix Unit ID: 41072

0 **Documented** Elements Found

0 **Documented-Historic** Elements Found

2 **Likely** Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
Mycteria americana Wood Stork	G4	S2	LT	FT
Sandhill upland lake	G3	S2	N	N

Matrix Unit IDs: 40702 , 41072

47 **Potential** Elements Common to Any of the 2 Matrix Units

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
Agrimonia incisa Incised Groove-bur	G3	S2	N	T
Arnoglossum diversifolium Variable-leaved Indian-plantain	G2	S2	N	T
Athene cunicularia floridana Florida Burrowing Owl	G4T3	S3	N	SSC
Bonamia grandiflora Florida Bonamia	G3	S3	LT	E
Calamintha ashei Ashe's Savory	G3	S3	N	T
Calopogon multiflorus Many-flowered Grass-pink	G2G3	S2S3	N	T
Centrosema arenicola Sand Butterfly Pea	G2Q	S2	N	E
Chionanthus pygmaeus Pygmy Fringe Tree	G2G3	S2S3	LE	E
Clitoria fragrans Scrub Pigeon-wing	G3	S3	LT	E
Coelorachis tuberculosa Piedmont Jointgrass	G3	S3	N	T
Drymarchon couperi Eastern Indigo Snake	G3	S3	LT	FT
Eriogonum longifolium var. gnaphalifolium Scrub Buckwheat	G4T3	S3	LT	E
Gopherus polyphemus Gopher Tortoise	G3	S3	C	ST
Grus canadensis pratensis Florida Sandhill Crane	G5T2T3	S2S3	N	ST
Gymnopogon chapmanianus Chapman's Skeletongrass	G3	S3	N	N
Hartwrightia floridana Hartwrightia	G2	S2	N	T
Heterodon simus Southern Hognose Snake	G2	S2	N	N
Illicium parviflorum Star Anise	G2	S2	N	E
Lechea cernua Nodding Pinweed	G3	S3	N	T
	G2	S2	LE	E

Liatris ohlingerae Florida Blazing Star				
Lithobates capito Gopher Frog	G3	S3	N	SSC
Lupinus aridorum Scrub Lupine	G1	S1	LE	E
Matelea floridana Florida Spiny-pod	G2	S2	N	E
Mustela frenata peninsulae Florida Long-tailed Weasel	G5T3	S3	N	N
Myotis austroriparius Southeastern Bat	G3G4	S3	N	N
Nemastylis floridana Celestial Lily	G2	S2	N	E
Neofiber alleni Round-tailed Muskrat	G3	S3	N	N
Nolina brittoniana Britton's Beargrass	G3	S3	LE	E
Notophthalmus perstriatus Striped Newt	G2G3	S2	C	N
Panicum abscissum Cutthroat Grass	G3	S3	N	E
Paronychia chartacea ssp. chartacea Paper-like Nailwort	G3T3	S3	LT	E
Peucaea aestivalis Bachman's Sparrow	G3	S3	N	N
Phyllophaga okeechobea Diurnal Scrub June Beetle	G2	S2	N	N
Picoides borealis Red-cockaded Woodpecker	G3	S2	LE	FE
Pituophis melanoleucus mugitus Florida Pine Snake	G4T3	S3	N	SSC
Podomys floridanus Florida Mouse	G3	S3	N	SSC
Polygala lewtonii Lewton's Polygala	G2G3	S2S3	LE	E
Polygonella myriophylla Small's Jointweed	G3	S3	LE	E
Prunus geniculata Scrub Plum	G3	S3	LE	E
Pteroglossaspis ecristata Giant Orchid	G2G3	S2	N	T
Salix floridana Florida Willow	G2	S2	N	E
Sceloporus woodi Florida Scrub Lizard	G2G3	S2S3	N	N
Sciurus niger shermani Sherman's Fox Squirrel	G5T3	S3	N	SSC
Selonodon floridensis Florida Cebrionid Beetle	G2G4	S2S4	N	N
Ursus americanus floridanus Florida Black Bear	G5T2	S2	N	N
Warea amplexifolia Clasping Warea	G1	S1	LE	E
Warea carteri Carter's Warea	G3	S3	LE	E

Disclaimer

The data maintained by the Florida Natural Areas Inventory represent the single most comprehensive source of information available on the locations of rare species and other significant ecological resources statewide. However, the data are not always based on comprehensive or site-specific field surveys. Therefore, this information should not be regarded as a final statement on the biological resources of the site being considered, nor should it be substituted for on-site surveys. FNAI shall not be held liable for the accuracy and completeness of these data, or opinions or conclusions drawn from these data. FNAI is not inviting reliance on these data. Inventory data are designed for the purposes of conservation planning and scientific research and are not intended for use as the primary criteria for regulatory decisions.

Unofficial Report

These results are considered unofficial. FNAI offers a Standard Data Request option for those needing certifiable data.

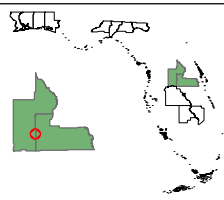
Exhibit 5

Improved Pasture - Taken from west side of project area, looking east

Woodland Pasture- Taken from northeast side of project area, looking south

Johns Lake- looking southwest

Johns Lake- looking south



Surface Water Identification Map
Orange and Lake County, Florida

LIV Oakland Project
LIV Development, LLC

SNC·LAVALIN ATKINS

Approximate Project Area

Surface Water = 0.47 acres

Exhibit 6

0 125 250 Feet

Date: 7/10/2018

N

Section: 30
Township: 22 South
Range: 27 East

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
LIV Oakland Project		Surface Water 1 (Johns Lake)

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
6410 Freshwater Marsh	Surface Water	Impact	0.47 acres

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
03080102- Ocklawaha	Class III	Navigable Waterway

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Johns Lake is located south of Lake Apopka and is divided into east and west pools with a connecting channel. The east side of Johns Lake is mostly undeveloped. The assessment area is part of the littoral zone that surrounds the lake and is best described as a freshwater marsh with a ~130ft of littoral shelf present before reaching open water.

Assessment area description

The assessment area is the littoral zone of Johns Lake, a class III water, dominated throughout by American lotus (*Nelumbo lutea*), cattail (*Typha sp.*), torpedograss (*Panicum repens*), smartweed (*Polygonum* sp), alligatorweed (*Alternanthera philoxeroides*), paragrass (*Urochloa mutica*), dogfennel (*Eupatorium capillifolium*), primrose willow *(Ludwigia peruviana*), arrowhead (S*agittaria lancifolia*), fogfruit (P*hyla nodiflora*), and Bermudagrass (*Cynodon dactylon*).

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Lake Apopka, State Road 50, Florida's Turnpike, Black Lake	This lake system is not considered rare in Central Florida

Functions	Mitigation for previous permit/other historic use
The wetland provide habitat for fish; foraging for wading birds and ducks; cover, refuge, breeding, foraging for reptiles and amphibians; foraging for mammals.	Unknown

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
A variety of freshwater fish; amphibians (gopher frog, cricket frog, bullfrog, pig frog, leopard frog, two-toed amphiuma), reptiles (alligator, common snapping turtle, Florida cooter, yellow belly turtle, eastern mud turtle, musk turtle, softshell turtle, mud snake, variety of water snakes, cottonmouth); wading birds (snowy egret, great egret, little blue heron, great blue heron, wood stork, green-back heron); raptors (osprey, snail kite); ducks (gadwall, mallard, mottled duck, blue-winged teal, green-winged teal, American widgeon, wood duck, ring-necked duck); mammals (river otter)	gopher frog (SSC) - breeding, not ideal habitat for the gopher frog but a low potential for utilization due to the surrounding upland; wood stork (FE) - foraging, high potential for utilization; snail kite (FE)- foraging, high potential for utilization; Florida Sandhill Crane (ST)- foraging and nesting, high potential for utilization

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

Green anole, Blue jay, Tufted titmouse, Red-winged blackbird, Common gallinule

Additional relevant factors:

Assessment conducted by:	Assessment date(s):
Mike Ray, Amanda Glaze	7/5/2018

Form 62-345.900(1), F.A.C. [effective date 02-04-2004]

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
LIV Oakland Project		Surface Water 1 (Johns Lake)
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Impact	MG/MR	7/5/2018

Scoring Guidance	**Optimal (10)**	**Moderate(7)**	**Minimal (4)**	**Not Present (0)**
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support

Because the east side of the lake remains undeveloped and the other portions of the lake near the project area are surrounded by smaller residential lots, the assessment area maintains a minimal to moderate beneficial function.

w/o pres or current	with
7	

.500(6)(b)Water Environment (n/a for uplands)

The hydrology of this system appears to be close to optimal. Vegetation did not appear hydrologically stressed, nor did the surface water exhibit signs of water quality degradation. Wading bird and water fowl utilization was consistent with the expected hydrologic conditions for this system.

w/o pres or current	with
7	

.500(6)(c)Community structure

1. Vegetation and/or
2. Benthic Community

The majority of the plant cover in the littoral zone is hydrophytically appropriate for a system of this type. Predominant nuisance vegetation was torpedograss. Plant condition is generally good. The landward littoral zone was being maintained at the time of the site visit which altered its natural structure. Evidence of natural recruitment.

w/o pres or current	with
6	

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres	with
0.7	0.0

Delta = [with-current]
-0.70

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

If mitigation
Time lag (t-factor) =
Risk factor =

For impact assessment areas
FL = -0.70 x Acres=

For mitigation assessment areas
RFG = delta/(t-factor x risk) =

Form 62-345.900(2), F.A.C. [effective date 02-04-2004]

Appendix E. Archaeological and Historic Assessment

T.B.D.

Appendix F. Site Photographs

Figure 1: Looking S from NW corner along Orange Ave.

Figure 2: Looking SE from W on Orange Ave.

Figure 3: Looking SE from SW corner of property.

Figure 4: Looking SE from S corner of property.

Figure 5: Looking NW from S corner

Figure 6: Looking NE from S corner

Figure 7: Looking NW on property

Figure 8: Looking E towards existing driveway

Figure 9: Looking N towards existing storage building

Figure 10: Looking SE from property

Figure 11: Looking E towards existing road

Figure 12: Looking N from Driveway entrance

Figure 13: Looking N from property

Figure 14: Looking S towards existing road

Figure 15: Looking W from SE corner

Figure 16: Looking W from E part of property

Figure 17: Looking S from North bounday of property

Figure 18: Looking W along North boundary of property

Figure 19: Looking NW along North boundary of property

Figure 20: Looking NE towards corner of property

Figure 21: Looking S from North boundary

Figure 22: Looking W towards NW corner

Figure 23: Looking E along North boundary

Figure 24: Looking N on Orange Avenue

Figure 25: Looking W along S.R. 50 ROW from NW corner

Figure 26: Looking E along S.R. 50 ROW from NW corner

Appendix G. Informal School Capacity Determination

February 13, 2019

VIA E-MAIL: WILLIAM.WALKER@ATKINSGLOBAL.COM
Brain Walker
Atkins North America, Inc.
482 S. Keller Road
Orlando, Florida 32810

RE: Informal Capacity Inquiry for Liv Oakland, INF-OC-19-001
Property ID #30-22-27-2392-00-010, 30-22-27-4180-00-030

Dear Mr. Walker,

Attached are the results of the Informal Capacity Inquiry you requested for Liv Oakland project.

This informal review shows that if your project were to undergo a formal capacity enhancement analysis based on 242 multi-family units, a Capacity Enhancement Agreement would not be needed. Capacity is available at all of the affected schools.

This informal review also shows that if your project were to undergo a formal concurrency analysis today, your project would likely pass concurrency. Capacity is available at all of the affected Concurrency Service Areas.

Please be advised that the information contained in this analysis is non-binding and subject to change based on the adoption of a new capital budget, adjustments in capacity due to school renovations, new enrollment levels, and other development activity in the area.

If you have any questions, please call me at (407) 317-3700, ext. 2022139.

Sincerely,

Julie C. Salvo, AICP
Senior Administrator
OCPS Facilities Planning

VJ/jcs

Attached – Non-Binding Capacity Determination

ORANGE COUNTY PUBLIC SCHOOLS

Planning & Governmental Relations

Preliminary NON-BINDING Capacity Determination

February 12, 2019 08:23:35

Project ID: **INF – OC – 19 – 001** 00109591

Project Name:	***LIV OAKLAND***	
Unvested Units	Single Family Units:	0
	Multi Family Units:	242
	Town Homes Units:	0
	Mobile Homes Units:	0

School Level	Elementary	Middle	High
CSA:	FF		
School:	TILDENVILLE ES	LAKEVIEW MS	WEST ORANGE HS

Concurrency

Analysis of Existing Conditions			
School Level	Elementary	Middle	High
CSA Capacity (2018-2019)	2,192	1,168	2,994
Enrollment (2018-2019)	1,422	909	2,472
Utilization (2018-2019)	64.9%	77.8%	82.6%
LOS Standard	110.0%	100.0%	100.0%
Available Seats	989	259	522
Analysis of Reserved Capacity			
School Level	Elementary	Middle	High
Encumbered Capacity	133	138	76
Reserved Capacity	6	28	27
Adjusted Utilization	71.2%	92.0%	86.0%
Adjusted Available Seats	850	93	419
Analysis of Proposed Development			
School Level	Elementary	Middle	High
Students Generated	36.058	15.246	16.940
Adjusted Utilization	72.9%	93.3%	86.6%
PASS/FAIL	PASS	PASS	PASS
Number of Seats to Mitigate	0.000	0.000	0.000

Capacity Enhancement

Analysis of Existing Conditions			
School Level	Elementary	Middle	High
School Capacity (2018-2019)	792	1,168	2,994
Enrollment (2018-2019)	541	909	2,472
Utilization (2018-2019)	68.0%	78.0%	83.0%
LOS Standard	110.0%	100.0%	100.0%
Available Seats	330	259	522
Analysis of Reserved Capacity			
School Level	Elementary	Middle	High
Encumbered Capacity	133	138	76
Reserved Capacity	6	28	27
Adjusted Utilization	85.9%	92.0%	86.0%
Adjusted Available Seats	191	93	419
Analysis of Proposed Development			
School Level	Elementary	Middle	High
Students Generated	36	15	17
Adjusted Utilization	90.4%	93.3%	86.6%
PASS/FAIL	PASS	PASS	PASS

MEMORANDUM

TO: Jay R. Marder, AICP, Director
FROM: Joseph T. Roviaro
DATE: February 12, 2019
RE: Continuing Transportation Planning and Engineering Services – Updated Review of the LIV Oakland Residential TIS, 2/6/2019 (*LTEC № 16-4302*)

The purpose of this memorandum is to provide a review of the updated February 6, 2019 traffic study for the LIV Oakland Residential development to be located in the southeast quadrant of Colonial Drive (SR 50) and Orange Avenue. This review is a continuation of the original traffic study dated July 26, 2018 and the September 7, 2018 revised report. Any new findings based on the updated 2019 traffic report are provided in *italic* below.

Introduction

Per the updated study, the proposed development will consist of a *242-unit multi-family 3-story residential gated* development on a ±11.60 acre's parcel. The parcel is currently vacant. Access to the study parcel will be via two (2) access driveway connections; a full access connection onto Orange Avenue (a substandard 14-foot roadway) and a right-in/right-out *gated* driveway onto Colonial Drive (SR 50) at an existing right-in/right-out driveway. Estimated build-out date is 2025.

Background Data Collection/Analysis

The study area roadways and intersections are acceptable.

The existing conditions data and analysis is correct and acceptable.

The use of 10 years of historical counts to develop future traffic volumes is reasonable and acceptable.

As noted, SR 50 between the Lake County line and Florida Turnpike operates at a deficient level of service (LOS). East of the Turnpike, SR 50 will operate at an acceptable LOS.

Trip Generation

The ***10th Edition ITE Trip Generation Report*** estimated Project trips is correct and acceptable.

Trip Distribution

The use of existing travel patterns to determine Project trip distribution is acceptable.

Capacity Analysis

The roadway segment significance analysis is correct and acceptable.

The roadway segment daily, AM and PM analysis tables are correct and acceptable.

While Table 5.6 Intersection Delay Summary: SR-50 at Orange Avenue (TWSC) results are correct as stated, they do not include the major street westbound left turn lane results. When the major street roadway left turn lane results are included they show that the Existing, Background and Build conditions all operate at a LOS F condition.

Site Access Evaluation

We agree with the auxiliary left-turn lane queue analysis findings. The eastbound left-turn lane at SR 50 and Oakland Avenue should be extended by 220 feet.

We concur with the Applicants argument that the FDOT Driveway Handbook guidelines state that the 55-vehicle threshold is most appropriate for multi-lane highways and thus, an auxiliary right turn lane is not recommended for the SR 50 and Orange Avenue intersection. However, we do recommend an auxiliary right turn lane for the gated SR 50 and right-in/right-out access driveway. This is based on the FDOT Driveway Handbook Section 7.4 "Requiring Right Turn Lane Outside These Guidelines." Because this is a gated community, in order to avoid traffic backing up onto SR 50 an auxiliary right turn lane is recommended.

Conclusions and Recommendations

We agree that the roadway segments of SR 50 west of the Florida Turnpike are currently operating at a deficient level of service. Project trips, on SR 50, represent a maximum of *2.3%* of the adopted maximum roadway service volume, adjacent to the development parcel.

The SR 50 and Orange Avenue intersection is projected to operate with LOS F conditions for both the Major street westbound left and the minor street right turn movements. The SR 50 and Project Entrance Right-in/Right-out intersection is projected to operate with a LOS F condition for the minor street right turn movement.

An auxiliary right turn lane is recommended for SR 50 and Project Right-in/Right-out intersection to ensure that entering resident vehicles do not back up onto SR 50 while waiting for the gate to open.

We agree that the eastbound left-turn lane at SR 50 and Oakland Avenue should be extended by 220 feet to accommodate the proposed Project traffic.

This concludes our review of the updated February 6, 2019 *LIV Oakland Residential - Traffic Impact Study*. If you have any questions, please call.

Town of Oakland
Town Commission Agenda Item

Date: 7/11/19 **Meeting Date:** 7/23/19

Item Type: Ordinance

Advertised Date: 7/11/19 **Paper where advertised:** West Org. Times Observer

From: Jay R. Marder, AICP

Title: Planning and Zoning Director

To: Stephen Koontz

Title Town Manager

Subject: Rezone LIV Development to Planned Unit Development

Budget Impact:

Background Summary:

On July 9, 2019 the Town Commission denied Ordinance No. 2019-04 on first reading to rezone 11.3 acres by Gary English/LIV Development. The Final Order was signed July 9, 2019.

The published advertisement for second reading could not be withdrawn in time for this meeting. Therefore, this memorandum provides an explanation for that notice. No other notice was provided included posting and letters to adjacent owners.

Recommended Action:

None.

Attachments: Final Order

FINAL ORDER ON PUBLIC HEARING
FIRST READING, ORDINANCE 2019-04

A public hearing was held at the regular Town Commission Meeting on Tuesday, July 9, 2019, 7:00 p.m. at the Town Meeting Hall, 221 N. Arrington Street, Oakland, Florida, on the first reading of Ordinance 2019-04, as to the rezoning of property generally located west of the Florida Turnpike, south of State Road 50/West Colonial Drive and East of Orange Avenue with parcel identification numbers 30-22-27-2392-00-011 and 30-22-27-4180-00-030, with an approximate size of 11.3 acres ("Subject Property"). The comprehensive plan as to the Subject Property at the time of the hearing had not yet been amended to allow this rezoning; however, a comprehensive plan amendment is in process of possible adoption.

Section 20-12 of the Town of Oakland Zoning Code lists necessary findings for a Planned Unit Development, Plan Approval. One of the required findings is that "5. The proposed rezoning will not allow a type or intensity of development that is premature or presently out of character in relationship to the surrounding area." The majority of the Town Commission found at its public hearing on First Reading, Ordinance 2019-04, that the proposed rezoning to Planned Unit Development does not comply with the required finding #5 quoted above, and voted 4 to 1 to not adopt the ordinance on first reading.

Kathy Stark

KATHY STARK, MAYOR

ATTEST:

Kimberly M. Gay

KIMBERLY M. GAY, TOWN CLERK

Received in Town Clerk's Office of July 9, 2019

Town of Oakland
Town Commission Agenda Item

Date: 7/17/19 **Meeting Date:** 7/23/19

Item Type: Other Policy Matters

Advertised Date: **Paper where advertised:**

From: Stephen Koontz

Title: Town Manager

To: Stephen Koontz

Title Town Manager

Subject: Approval of the Millage Rate and Proposed Town of Oakland Budget
Approval of Budget Public Hearing Dates

Budget Impact: $ 10,718,019.00

Background Summary:

As part of the Truth in Millage (TRIM) process the State of Florida requires the Town to establish a Tentative FY 2019 Budget and a proposed millage rate that supports that budget.
The FY 2019 Millage Rate for the Town of Oakland is 6.65. The FY 2020 Tentative Budget has been prepared using the millage rate of 6.50. The Town must have the budget public hearings after 5:00 pm and they cannot conflict with Orange County Public Schools or with the Orange County Board of County Commissioners. OCPS will hold a budget public hearing on Tuesday, September 10, 2019. The Budget Public Hearings for the Town of Oakland are proposed to be held on Monday, September 9, 2019 at 6:30 p.m. and Tuesday, September 24, 2019 at 6:30 p.m.

Recommended Action:

Approval of the Millage Rate of 6.5 Mills, Approval of the Proposed Budget (see attached), and approval of the public hearing dates; Sept. 9, 2019 at 6:30 pm and Sept. 23, 2019 at 6:30 pm.

Attachments: General Fund Budget
Utility Fund Budget
Impact Fee Budget

Town of Oakland

General Fund

Proposed FY 2019-2020 Budget

Revenue	Y-T-D 6.30.19 Actual	FY 2018-2019 Budget	Proposed FY 2019-2020 Budget
001.311.0001.0 Ad Valorem Taxes	1,659,712	1,704,919	2,044,544
001.314.1001.0 U/T - Electric	188,483	212,220	250,708
001.314.3001.0 Tax - UB	69,071	69,775	83,878
001.314.8001.0 UT - Propane Gas	6,042	8,525	9,400
001.315.0001.0 C S T	55,344	71,296	71,296
001.323.0011.0 F/F - Electric	123,952	140,780	169,780
001.316.0001.0 Business Tax - Town	3,167	11,400	11,400
001.322.0001.0 Permits	985	3,249	3,200
001.322.0002.0 Planning & Zoning Fees	102,000	106,277	92,500
001.322.0004.0 Building Permits	488,948	505,000	505,000
001.329.0004.0 Development Review/Admin. Fees	51,668	29,070	29,000
001.335.1201.0 Local Option Gas Tax	69,674	90,326	93,200
001.335.1202.0 Municipal Fuel Tax	-	2,207	-
001.335.1203.0 State Revenue Sharing	86,442	112,392	115,256
001.335.1801.0 1/2 Sales Tax	340,123	444,877	512,929
001.335.1901.0 Florida Fuel Tax Refund	-	1,565	-
001.338.0002.0 Business Tax - County	1,881	1,470	2,500
001.341.9001.0 Copying, Recording and Publication	-	980	100
001.341.9002.0 Election / Qualifying Fees	-	190	190
001.341.9004.0 Lien Search Fees/Collection	1,788	6,175	
001.342.2001.0 Fire & Rescue - OC Reimburse	11,588	14,250	14,250
001.343.0001.0 Street Lights	6,614	1,045	-
001.343.4001.0 Garbage Collection	159,886	190,385	-
001.343.4002.0 Recycle Bins	107	95	95
001.354.0001.0 Court Fines & Bond	-	14,250	-
001.354.0003.0 PD Education Fund -OC Fees Coll	10,242	2,185	-
001.359.0001.0 Code Enforcement	-	1,900	1,000
001.360.0001.0 PD Miscellaneous Revenue	38,692	1,425	2,000
001.360.0002.0 Law Enforcement Reserve Unit	762	475	475
001.360.0003.0 Safe Schools	37,500	60,000	50,000
001.360.0004.0 OACS Management Fees	173,575	231,434	151,047
001.361.1001.0 Interest	21,670	7,600	15,000
001.362.0001.0 Post Office Building Rental	8,000	10,800	10,800
001.362.0002.0 Facility Rental Fees	24,444	34,200	30,000
001.366.0001.0 Contributions Received	-	950	500
001.369.9001.0 Miscellaneous Revenue	251,490	9,500	9,000
001.369.9003.0 OACS Rent	540,000	720,000	720,000
001.369.9010.0 Orange County Tourism Grant	-	168,750	182,000
001.369.9011.0 Arts & History Museum Loan	-	760,000	-
001.369.9012.0 Recreation Impact Fees	-	88,742	-
001.3699013.0 Transfer Transportation IF	-	750,000	-
001.369.9018.0 United Arts Grant	202,500	-	22,500
Total Revenue	**4,736,350**	**6,590,679**	**5,203,548**

Expenses	Y-T-D 6.30.19 Actual	FY 2018-2019 Budget	Proposed FY 2019-2020 Budget
General Government			
001.510.3101.0 Legal Services	2,183	30,000	5,000
001.510.3107.0 Town Attorney	31,500	7,200	42,000
001.510.3109.0 Engineering Services	-	2,000	500
001.510.3201.0 Accounting	9,720	12,000	12,000
001.510.3202.0 Auditing Services	12,752	22,500	22,500
001.510.3205.0 Intergovernmental Services	7,500	10,000	10,000
001.510.3412.0 Impact Fee Study	10,788	-	6,000
001.510.3415 Development Opportunity Study	-		52,000
001.510.4801.0 Legal Advertising and Recording	2,139	3,000	3,000
001.510.5401.0 Memberships	833	-	1,000
001.510.5501.0 Meetings and Workshops	676	300	2,250
001.510.7100.0 Debt Service - Town Center	-	65,000	105,000
001.510.7101.0 Debt Service Town Center Fees	-	750	-
001.510.7104.0 OACS Debt Service	415,012	400,035	415,000
001.510.7107.0 OACS Debt Service Interest	152,543	165,990	110,245
001.510.7200.0 Interest	27,074	45,000	48,500
001.510.7300.0 Other Debt Service Costs	(75)	838	1,000
Total General Government	**672,645**	**764,613**	**835,995**
Legislative			
001.511.1100.0 Commission Compensation	2,245	2,995	2,995
001.511.2301.0 Group Health Insurance	30,363	25,200	21,827
001.511.3111.0 Legislative Services	2,388	-	-
001.511.3407.0 Transcribing Services	336	1,000	1,000
001.511.5400.0 Travel and Per Diem	4,285	8,500	4,500
001.511.5401.0 Memberships	2,282	2,000	1,200
001.511.5407.0 Events	800	1,500	1,500
001.511.5501.0 Meetings and Workshops	1,906	1,000	1,000
001.511.8301.0 Community Affairs and Grants	-	1,000	-
Total Legislative	**44,605**	**43,195**	**34,022**
Town Clerk			
001.512.1200.0 Compensation (TC)	60,984	84,349	85,560
001.512.2100.0 Payroll Taxes - FICA	4,561	6,453	6,646
001.512.2200.0 Retirement	2,101	2,732	2,814
001.512.2301.0 Group Health Insurance	5,573	9,100	9,600
001.512.4102.0 Cell Phone	425	600	600
001.512.4202.0 Postage	30	400	400
001.512.4609.0 Office Equipment and Maintenance	-	300	300
001.512.4802.0 Ordinance Codification	1,200	2,450	2,450
001.512.5101.0 Office Supplies	120	600	600
001.512.5202.0 Computer Software	5,278	6,500	6,500
001.512.5401.0 Memberships	635	500	700
001.512.5501.0 Meetings and Workshops	487	2,000	2,000
001.512.5540.0 Travel and Per Diem	555	1,000	1,000
Total Town Clerk	**81,949**	**116,984**	**119,170**
Finance/Adminsistration			
001.513.1200.0 Compensation (ADMIN)	237,088	374,455	345,139
001.513.2100.0 Payroll Taxes - FICA	21,043	28,646	31,315

001.513.2200.0 Retirement		17,191		21,858		22,554
001.513.2301.0 Group Health Insurance		52,505		50,900		58,800
001.513.2401.0 Workers' Compensation		6,638		5,000		6,000
001.513.3105.0 Hiring Expense and Testing		81		150		150
001.513.3110.0 Computer Services		2,223		2,500		2,500
001.513.3113.0 Consulting Services		37,950		86,822		10,000
001.513.3199.0 Other		80		-		-
001.513.3203.0 Payroll Fees		13,020		6,000		8,000
001.513.3299.0 Other		(121)		800		800
001.513.4101.0 Telecommunications		3,919		3,200		4,900
001.513.4102.0 Cell Phone		1,984		4,200		2,400
001.513.4103.0 Internet		778		1,500		1,500
001.513.4104.0 Security Camera Monitoring		2,617		3,000		3,000
001.513.4202.0 Postage		2,396		2,000		2,000
001.513.4301.0 Electric		7,543		7,800		7,800
001.513.4302.0 Water		2,276		3,000		3,000
001.513.4401.0 Auto Lease		4,590		6,120		-
001.513.4403.0 Office Equipment Lease		3,070		5,500		5,500
001.513.4501.0 General Liability Insurance		28,090		30,000		30,000
001.513.4603.0 Vehicles and Equipment Repair		723		1,000		1,000
001.513.4608.0 Building Maintenance		-		-		-
001.513.4699.0 Other		789		-		-
001.513.4901.0 Employee Recognition		(4,185)		5,000		5,000
001.513.5101.0 Office Supplies		7,932		8,000		8,000
001.513.5202.0 Computer Software		4,040		12,800		12,000
001.513.5203.0 Fuel		1,281		3,000		2,000
001.513.5212.0 FFE		712		-		-
001.513.5213.0 Website		1,592		2,800		3,000
001.513.5401.0 Memberships		1,930		2,500		2,500
001.513.5402.0 Subscriptions		13		-		-
001.513.5497.0 Events		15,291		12,000		12,000
001.513.5498.0 Town Naming Commemorative		-		1,500		500
001.513.5501.0 Meetings and Workshops		3,534		2,500		2,500
001.513.5540.0 Travel and Per Diem		1,507		2,000		2,000
001.513.5545.0 Marketing and Branding		3,832		21,378		15,093
001.513.6700.0 Computers and Servers		7,126		7,085		5,000
001.513.6750 Town Security System		1,479		2,500		1,500
001.513.6340.0 Vehicles & Equipment		778		500		1,000
Total Finance/Administration		**493,335**		**728,014**		**618,451**
Planning						
001.515.1200.0 Compensation (PL)		89,935		119,438		123,021
001.515.2100.0 Payroll Taxes - FICA		6,575		9,137		9,411
001.515.2200.0 Retirement		3,523		4,778		4,921
001.515.2301.0 Group Health Insurance		3,314		12,700		14,000
001.515.3101.0 Legal Services		-		2,000		2,000
001.515.3111.0		3,200		-		-
001.515.3113.0 Consulting Services		28,328		20,000		20,000
001.515.3114.0 Consulting Services - Pass Thru		-		-		-
001.515.3123.0 Consulting Services Charge Back		95,316		125,000		125,000
001.515.3199.0 Other		-		150		150
001.515.4102.0 Cell Phone		720		960		960
001.515.4103.0 Internet		1,395		1,000		1,000

001.515.4202.0 Postage		191		1,000		1,000
001.515.4404.0 Office Lease		9,450		12,600		12,600
001.515.4625.0 Building Official		287,466		250,000		250,000
001.515.4801.0 Legal Advertising & Recording		3,160		1,500		1,500
001.515.5101.0 Office Supplies		1,043		750		750
001.515.5202.0 Computer Software		948		1,900		1,900
001.515.5214.0 Auto Expense		-		3,600		3,600
001.515.5401.0 Memberships		292		1,200		1,200
001.515.5501.0 Meetings and Workshops		168		1,000		1,000
001.515.5540.0 Travel and Per Diem		710		800		800
Total Planning		**535,734**		**569,513**		**574,813**
Human Resources						
001.518.1200.0 Compensation (HR)		28,853		64,891		58,344
001.518.2100.0 Payroll Taxes - FICA		3,590		4,965		5,114
001.518.2200.0 Retirement		1,985		2,596		2,674
001.518.2301.0 Group Health Insurance		-		9,100		9,600
001.518.3101.0 Legal		165		2,000		4,000
001.518.3105.0 Hiring Expense and Testing		59		500		250
001.518.4102.0 Cell Phone		720		960		960
001.518.4202.0 Postage		-		75		25
001.518.5101.0 Office Supplies		371		250		250
001.518.5202.0 Computer Software		-		150		-
001.518.5401.0 Memberships		40		75		265
001.518.5501.0 Meetings and Workshops		-		500		900
001.518.5540.0 Travel and Per Diem		146		250		250
Total Human Resources		**35,929**		**86,312**		**82,632**
Public Works						
001.519.1200.0 Compensation (PW)		125,424		271,284		240,143
001.519.2100.0 Payroll Taxes - FICA		12,885		20,754		23,770
001.519.2200.0 Retirement		5,194		9,126		9,932
001.519.2301.0 Group Health Insurance		21,444		40,950		57,600
001.519.2401.0 Workers' Compensation		2,325		3,000		3,000
001.519.3103.0 Surveying Services		750		5,000		5,000
001.519.3105.0 Hiring Expense and Testing		58		500		500
001.519.3106.0 Arborist		525		2,000		2,000
001.519.3109.0 Engineering Services		6,570		25,000		-
001.519.4101.0 Telecommunications		3,922		2,500		5,000
001.519.4102.0 Cell Phone		1,875		2,500		2,500
001.519.4103.0 Internet		562		-		-
001.519.4202.0 Postage		7		100		100
001.519.4301.0 Electric		2,090		4,000		4,000
001.519.4302.0 Water		1,576		1,000		1,000
001.519.4401.0 Auto Lease		6,228		15,000		5,600
001.519.4403.0 Office Equipment Lease		1,616		2,000		2,000
001.519.4501.0 General Liability Insurance		8,379		8,930		8,379
001.519.4601.0 Drainage Stormwater Maintenance		35,904		30,000		35,000
001.519.4603.0 Vehicles and Equipment Repair		13,112		10,000		12,000
001.519.6340.0 Capital Machinery & Equipment		-		-		30,339
001.519.4604.0 Laboratories		1,780		-		3,000
001.519.4608.0 Building Maintenance		26,170		30,000		10,000
001.519.4611.0 Septic Repair & Maintenance		-		1,000		-
001.519.4612.0 Landscaping		10,736		18,000		10,000

001.519.4613.0 Parks and Grounds		447		2,000		2,000
001.519.4614.0 Pest Control		266		3,900		3,900
001.519.4615.0 Tree Service		17,748		30,000		30,000
001.519.4904.0 Disposal Fees		3,513		3,000		3,000
001.519.4908.0 Equipment		-		3,000		2,000
001.519.5101.0 Office Supplies		2,875		1,000		2,000
001.519.5202.0 Computer Software		555		350		1,000
001.519.5203.0 Fuel		8,568		12,000		12,000
001.519.5205.0 Uniforms		502		1,500		1,500
001.519.5207.0 Tools, Hardware and Supplies		8,095		13,000		13,000
001.519.5208.0 Janitorial Supplies		1,409		2,500		2,000
001.519.5212.0 FFE		4,407		-		-
001.519.5301 R-O-W Maintnance & Materials		13,907		32,000		50,000
001.519.5501.0 Meetings and Workshops		487		2,500		2,000
001.519.5540.0 Travel & Per Diem		2		-		-
001.519.6608.0 Roundabout		303		-		-
001.519.6700.0 Computers and Servers		735		-		-
001.519.6800.0 Stormwater/Drainage Projects		1,125		15,000		-
Total Public Works		**354,076**		**624,394**		**595,263**
Police Department						
001.521.1200.0 Compensation (PD)		599,595		668,544		774,846
001.521.2100.0 Payroll Taxes - FICA		44,868		51,144		59,276
001.521.2200.0 Retirement		20,816		26,742		29,734
001.521.2301.0 Group Health Insurance		98,838		127,400		144,000
001.521.2304.0 Vision Insurance		10,430		-		-
001.521.2401.0 Workers' Compensation		15,630		14,000		16,550
001.521.2501.0 Unemployment Compensation		124		-		-
001.521.3101.0 Legal Services		-		2,000		2,000
001.521.3105.0 Hiring Expense and Testing		626		2,445		2,550
001.521.3110.0 Computer Services		26,313		31,600		39,770
001.521.3402.0 Radio Dispatch		42,960		42,961		44,676
001.521.3407.0 Transcribing Services		418		500		662
001.521.3408.0 Internet Database Services		2,277		2,000		2,804
001.521.4101.0 Telecommunications		6,124		9,100		8,166
001.521.4102.0 Cell Phone		1,799		3,100		1,728
001.521.4103.0 Internet		5,198		7,358		7,992
001.521.4202.0 Postage		359		500		690
001.521.4301.0 Electric		16,696		18,000		20,420
001.521.4302.0 Water		1,197		1,750		1,606
001.521.4401.0 Auto Lease		68,709		97,444		135,424
001.521.4403.0 Office Equipment Lease		1,418		2,637		2,340
001.521.4501.0 General Liability Insurance		38,389		34,601		38,389
001.521.4504.0 High Risk Insurance		513		520		513
001.521.4603.0 Vehicles and Equipment Repair		8,121		33,590		33,240
001.521.4608.0 Building Maintenance		185		-		-
001.521.4609.0 Office Equipment and Maintenance		-		1,000		2,430
001.521.4616.0 Radar/Speedometer		1,116		1,880		1,916
001.521.4702.0 Brochures		772		1,300		1,300
001.521.4902.0 Community Policing Act		-		2,000		2,000
001.521.4903.0 School Safety Program		113		1,000		1,000
001.521.5101.0 Office Supplies		1,856		3,400		4,000
001.521.5202.0 Computer Software		7,350		7,850		2,000

001.521.5203.0 Fuel		28,411		44,300		40,000
001.521.5205.0 Uniforms		3,665		8,348		8,000
001.521.5207.0 Tools, Hardware and Supplies		13,278		7,500		12,000
001.521.5208.0 Janitorial Supplies		61		-		100
001.521.5210.0 Body Armor		-		2,640		4,560
001.521.5211.0 Officer Equipment		3,278		6,900		8,000
001.521.5216.0 K-9 Operating Supplies		1,821		3,820		3,820
001.521.5401.0 Memberships		5,196		3,295		3,310
001.521.5402.0 Subscriptions		552		1,500		1,500
001.521.5501.0 Meetings and Workshops		312		4,200		4,450
001.521.5503.0 Education Training		312		-		-
001.521.5540.0 Travel and Per Diem		470		3,500		3,500
001.521.5599.0 Other		531		1,000		1,000
001.521.6340. 0 Machinery and Equipment		24,306		13,968		44,529
Total Police Department		**1,105,003**		**1,297,337**		**1,516,791**
Code Enforcement						
001.524.3101.0 Legal		-		1,000		1,000
001.524.3110.0 Computer Services		-		150		4,500
001.524.4204.0 Postage		149		750		750
001.524.4401.0 Auto Lease		5,625		7,500		-
001.524.4603.0 Vehicles Equipment & Repair		3,199		-		-
001.524.4621.0 Code Enforcement Work		-		6,000		5,000
001.524.4622.0 Magistrate		954		4,000		4,000
001.524.4623.0 Administration		609		1,000		1,000
001.524.4624.0 Advertising		-		2,000		1,000
001.524.5203.0 Fuel				750		
Total Code Enforcement		**10,536**		**23,150**		**17,250**
Oakland Nature Preserve						
001.579.1200.0 Compensation		15,000		20,000		60,000
001.579.4301.0 Electric		3,131		3,000		3,000
001.579.4302.0 Water		922		1,100		1,100
001.579.4501.0 General Liability Insurance		4,542		4,916		4,916
001.579.4608.0 Building Maintenance		-		1,000		1,000
001.579.4612.0 Landscaping		550		1,000		1,000
001.579.4614.0 Pest Control		1,876		1,000		2,000
Total Oakland Nature Preserve		**26,021**		**32,016**		**73,016**
Municipal Services						
001.522.3406.0 Fire & Emergency Rescue Service		520,937		520,997		641,445
001.530.4610.0 Traffic Lights R&M		9,100		5,200		5,200
001.531.1430.0 Electric - Traffic Lights		18,263		25,000		25,000
001.534.4904.0 Refuse Collection		142,017		186,665		-
Total Municipal Services		**690,317**		**737,862**		**671,645**
Special Projects						
001.539.6603.0 Arts & History Museum		238,687		925,000		-
001.539.6608.0 Roundabout		1,090		750,000		-
001.539.6802.0 Mid Town Drainage		-		2,000		-
Total Special Projects		**239,777**		**1,677,000**		**-**
Facility Rentals						
001.572.1200.0 Compensation		-		22,000		-
001.572.4608.0 Payroll Taxes		-		1,683		
001.572.4302.0 Water		6,318		4,500		7,000
001.572.4608.0 Building Maintenance		11,939		12,500		20,000

001.572.4611.0 Septic System Maintenance		1,365		2,000		2,000
001.572.4612.0 Landscaping		13,400		8,000		19,000
001.572.4617.0 Facility Rental Repairs		4,531		5,000		7,000
001.572.4618.0 Facility Rental Expenses		4,680		5,000		7,000
001.572.4999.0 Other		-		1,269		1,000
001.572.5103.0 Facilities Supplies		45		-		500
001.572.5212.0 FFE		-		2,000		1,000
Total Facility Rentals		**42,278**		**63,952**		**64,500**
Total Expenses						**5,203,548**
Revenues Less Expenses						**(0)**
Beginning Fund Balance/Reserves						**240,308**

Town of Oakland

Utility Fund

Proposed FY 2019-2020 Budget

Revenue	Y-T-D 6.30.19 Actual	FY 2018-2019 Budget	Proposed FY 2019-2020 Budget
400.341.9004.0 Lien Search Fees	6,713	3,500	6,511
400.343.0002.0 Connection Fees	337,223	350,000	350,000
400.343.0003.0 Water Violation	443	750	325
400.343.0004.0 Water Meter Purchase by Developer	-	25,000	-
400.343.0031.0 Water Revenue	661,379	796,359	835,000
400.343.0040.0 Wastewater Revenue	63,318	25,000	80,000
400.343.0045.0 Wastewater Tap Fee	16,750	15,000	25,000
400.343.0099.0 Miscellaneous Revenue	20	-	-
400.361.1001.0 Interest Income	349	250	400
400.343.4001.0 Refuse Collection	159,886	190,385	245,504
400.369.7003.0 Wastewater Impact Fees	-	113,000	-
400.369.7005.0 State of Florida Grant	399,770	1,000,000	946,890
Total Revenue	**1,645,851**	**2,519,244**	**2,489,630**
Expense	**Y-T-D 6.30.19 Actual**	**FY 2018-2019 Budget**	**Proposed FY 2019-2020 Budget**
Water			
400.533.1200.0 Compensation (WATER)	97,494	136,514	145,944
400.533.2100.0 Payroll Taxes - FICA	7,159	10,444	11,165
400.533.2200.0 Retirement	2,921	4,518	4,702
400.533.2301.0 Group Health Insurance	22,832	27,300	28,800
400.533.2401.0 Workers' Compensation	2,515	3,500	3,000
400.533.3101.0 Legal Services	-	500	-
400.533.3103.0 Surveying Services	-	4,000	-
400.533.3105.0 Hiring Expense and Testing	118	500	100
400.533.3109.0 Engineering Services	4,596	7,500	5,000
400.533.3110.0 Computer Services	-	5,000	1,000
400.533.3202.0 Auditing Services	12,752	22,500	20,000
400.533.3299 Administrative Fees	106,960	142,614	114,614
400.533.3401.0 Water Locating	645	9,000	1,000
400.533.4101.0 Telecommunications	5,501	4,000	5,000
400.533.4103.0 Internet	936	1,500	1,500
400.533.4201.0 Billing Statements Postage	4,127	5,760	4,000
400.533.4202.0 Postage	659	1,000	1,000
400.533.4301.0 Electric	40,238	25,000	40,000
400.533.4302.0 Water	428	300	400
400.533.4401.0 Auto Lease	-	20,000	-
400.533.4403.0 Office Equipment Lease	1,512	2,200	2,000
400.533.4501.0 General Liability Insurance	9,381	10,600	12,000
400.533.4602.0 Hydrant Maintenance	4,900	7,500	7,500
400.533.4603.0 Vehicles and Equipment Repair	4,543	10,000	10,000
400.533.4604.0 Laboratories	160	4,000	500
400.533.4605.0 Water Tank Maintenance	18,741	17,500	17,000
400.533.4606.0 Plant Operator	-	2,500	-
400.533.4607.0 System Operations	14,292	50,000	40,000
400.533.4627.0 Water Supply Work Plan	7,800	-	-
400.533.4801.0 Legal Advertising and Recording	-	400	-

400.533.5101.0 Office Supplies	175	1,000	100
400.533.5202.0 Computer Software	8,215	7,000	7,000
400.533.5203.0 Fuel	902	4,500	2,500
400.533.5204.0 Chemicals	11,776	14,000	15,000
400.533.5207.0 Tools, Hardware and Supplies	11,208	15,000	15,000
400.533.5213.0 Website	1,092	2,770	2,500
400.533.5215.0 Metering Equipment	100,049	125,000	150,000
400.533.5401.0 Memberships	865	2,500	2,000
400.533.5407.0 Events/Calendar	4,743	7,500	7,500
400.533.5501.0 Meetings and Workshops	-	500	500
400.533.5503.0 Education Training	-	500	500
400.533.5540.0 Travel and Per Diem	-	250	250
400.533.6260.0 ABC Retrofit Conversion	308,843	180,000	-
400.533.6440.0 Machinery and Equipment	-	40,000	66,841
400.533.6810.0 Water Supply Master Plan	19,843	-	32,207
400.533.7100.0 Debt Service	-	5,700	-
400.533.7101.0 Debt Service Water Tank	45,984	100,000	120,000
400.533.7200.0 Debt Service Interest	-	13,335	-
Total Water Department	**884,905**	**1,055,705**	**898,123**
Refuse Collection			
400.534.4904.0 Refuse Collection	142,017	186,665	232,034
Total Refuse Collection	**142,017**	**186,665**	**232,034**
Wastewater			
400.535.3111.0 Legislative Services	46,746	81,000	81,000
400.535.3299.0 Administrative Fees	-	-	28,653
400.535.3411.0 Wastewater Rate Study	1,550	-	-
400.535.4101.0 Telecommunications	791	500	1,000
400.535.4301.0 Electric	1,053	30,000	25,000
400.535.4305.0 Clermont Wastewater Fees	24,228	14,000	40,000
400.535.4603.0 Vehicles & Equipment Repair	120	2,000	1,000
400.535.4604.0 Laboratories	3,000	1,000	3,000
400.535.4607.0 System Operations	7,928	15,000	10,000
400.535.4626.0 Lift Station Maintenance	429	10,000	2,500
400.535.5204.0 Chemicals	180	2,000	2,000
400.535.5207.0 Tools, Hardware and Supplies	-	2,000	500
400.535.6920.0 Design Miscellaneous	-	15,000	15,000
400.535.6940.0 Phase 1C - Gravity One	127,750	-	-
400.535.6960.0 Sewer Extension 2018	52,834	1,000,000	-
400.535.6970.0 Sewer Extentions 2017	-	-	946,890
400.535.6980.0 Cemetery Acquisition	77,232	-	37,500
400.535.7200.0 Interest	13,711	15,000	20,000
Total Wastewater Department	**357,552**	**1,187,500**	**1,214,043**
Total Utility Fund			**2,344,200**
Net Gain/Loss			**145,430**
Beginning Fund Balance			**817,321**
Total Fund Balance/Reserves			**962,751**

Town of Oakland

Impact Fee Budget

Proposed FY 2019-2020 Budget

	Revenue Budget 2020	Expense Budget 2020
Water System	$ 429,636.00	
East Gulley Capacity Improvements		$ 70,000.00
Oakland Ave at Hull Isand Capacity Improvements		$ 40,000.00
Reserves for Future Projects (Well and Easements)		$ 359,636.00
Wastewater System	$ 229,709.00	
WW System Capacity Projects (CDBG)		$ 100,000.00
Reserves for Future Projects		$ 129,709.00
Parks and Recreation	$ 278,330.00	
Speer Park		$ 50,000.00
Debt Service		$ 120,855.00
Reserves		$ 107,475.00
Law Enforcement	$ 260,265.00	
Equipment		$ 50,000.00
Reserves		$ 210,265.00
Transportation	$ 1,830,227.00	
Oakland Ave Roundabout		$ 500,000.00
Transportation Study & Design		$ 75,000.00
Reserves for Future Projects		$ 1,255,227.00
Administrative Facilities	$ 84,908.00	
Property Acquisition		$ 75,000.00
Reserves for Future Projects		$ 9,908.00
Fire Protection	$ 57,196.00	
Reserves		$ 57,196.00