THE LAKEVIEW PLAZA
Traffic Impact Analysis
City of Lake Elsinore, California

Prepared for:
Mr. Ali R. Badie, AIA
AB Group
70 Quarter Horse
Irvine, CA 92602

Prepared by:
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January 7, 2020

APPROVED
3/27/2020
NRL

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TRAFFIC ENGINEERING &
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CONSULTANTS

January 7, 2020

Mr. Ali R. Badie, AIA
AB Group
70 Quarter Horse
Irvine, CA 92602

Subject: Traffic Impact Analysis: The Lakeview Plaza, City of Lake Elsinore

Dear Mr. Badie:

TJW ENGINEERING, INC. (TJW) is pleased to present you with this traffic impact analysis for the proposed The Lakeview Plaza project located in the City Lake Elsinore.

This traffic study has been prepared to meet the traffic study requirements for the City of Lake Elsinore and the County of Riverside and assesses the forecast traffic operations associated with the proposed project and its impact on the local street network. This report is being submitted to you for review and forwarding to the City of Lake Elsinore.

Please contact us at (949) 878-3509 if you have any questions regarding this analysis.

Sincerely,

Thomas Wheat, PE, TE
President

David Chew, PTP
Transportation Planner

Registered Civil Engineer *#69467*
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Project Engineer

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JN: BPE-18-003

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1.0 EXECUTIVE SUMMARY

This traffic impact analysis (TIA) analyzes the projected traffic operations associated with the proposed *The Lakeview Plaza* project in the City of Lake Elsinore. The purpose of this TIA is to evaluate potential circulation system deficiencies that may result from development of the proposed project, and to recommend improvements to achieve acceptable operations, if applicable. This analysis has been prepared pursuant to applicable City of Lake Elsinore, County of Riverside and Caltrans traffic impact analysis guidelines.

The proposed project would consist of 36,120 square feet of retail space and 7,000 square feet of restaurant space on an approximately 4.00 acre site. The proposed project is located at the northwest corner of the intersection Lakeshore Drive and Manning Street. The site is currently zoned Neighborhood Commercial (C-1) and the site's current land use classification is Neighborhood Commercial according to the City of Lake Elsinore Country Club Heights District Land Use Plan. The proposed project does not change the site's zoning or land use classification.

Site access on Lakeshore Drive is planned via one signalized full-access driveway and one right-in right-out driveway. Site access on Manning Street is planned via one full access driveway.

The proposed project is anticipated to be built and generating trips in 2021.

The proposed project is projected to generate 240 AM peak hour trips, 324 PM peak hour trips and 3,793 daily trips. Pass-By reductions of 10% (AM), 25% (PM), and 10% (Daily) were used for retail space and pass-by reductions of 20% (AM), 25% (PM), and 20% (Daily) were used for restaurant space. The proposed project is projected to generate 208 AM peak hour trips, 242 PM peak hour trips and 3,335 daily trips after pass-by reductions are applied.

In addition to proposed project driveways, the following six (6) intersections in the vicinity of the project site have been included in the intersection level of service (LOS) analysis:

1. Machado Street/Lakeshore Drive;
2. Gunnerson Street/Lakeshore Drive;
3. Riverside Drive/Joy Street;
4. Riverside Drive/Lakeshore Drive;
5. Manning Street/Lakeshore Drive; and
6. Chaney Street/Lakeshore Drive.

This traffic analysis follows the guidelines contained in the *County of Riverside Transportation Department Traffic Impact Analysis Preparation Guide (April, 2008)*, and applicable *Caltrans Guide for the Preparation of Traffic Impact Studies (December, 2002)*.

The study intersections are analyzed for the following study scenarios:

- Existing Conditions;
- Existing Plus Project (EP) Conditions;
- Existing Plus Ambient Plus Project (EAP) Conditions; and
- Existing Plus Ambient Plus Project Plus Cumulative (EAPC) Conditions.

1.1 SUMMARY OF ANALYSIS RESULTS

Table ES-1 summarizes the results of the intersection level of service analysis based on the City of Lake Elsinore thresholds of significance for analyzing transportation impacts.

Table ES-1: *Summary of Significant Impacts at Study Intersections*

Intersection	EP	EAP	EAPC
#1 - Machado Street/Lakeshore Drive	No Impact	No Impact	No Impact
#2 - Gunnerson Street/Lakeshore Drive	No Impact	No Impact	**Cumulative**
#3 - Riverside Drive/Joy Street	**Cumulative**	**Cumulative**	**Cumulative**
#4 - Riverside Drive/Lakeshore Drive	No Impact	No Impact	**Cumulative**
#4 - Manning Street/Lakeshore Drive	No Impact	No Impact	No Impact
#5 - Chaney Street/Lakeshore Drive	No Impact	No Impact	No Impact

According to case law such as *Los Angeles Unified Sch. Dist. V City of Los Angeles* (1997) 58 Cal. App. 4th 1019 and *Communities for A Better Env't V California Resource Agency* (2002) 103 Cal. App. 4th 98, a project that results in an increase to an impact that already exceeds the established thresholds contributes to a cumulative impact as opposed to a direct impact. Therefore, as shown in ***Table ES-1*** all impacts at study intersections are projected to be cumulative impacts.

The proposed project will participate in the cost of off-site improvements through payment of Traffic Impact Fees (TIF) based on the current fees at the time of construction of the proposed project. The project's contribution to the aforementioned transportation impact fee programs or as a fair share contribution towards a cumulatively impacted facility not found to be covered by a pre-existing fee program should be considered sufficient to address the project's fair share towards mitigation measure(s) designed to alleviate cumulative project impacts.

<u>Existing Conditions</u>

The study intersections are currently operating at an acceptable LOS (LOS D or better) during the AM and PM peak hours for *existing* conditions with the exception of the following intersections:

- #3 – Riverside Drive/Joy Street (LOS F AM/PM Peak Hour)[1].

[1] Signal warrant satisfied for one/both peak hours.

Existing Plus Project (EP) Conditions

The study intersections are currently operating at an acceptable LOS (LOS D or better) during the AM and PM peak hours for *EP* conditions with the exception of the following intersections:

- #3 – Riverside Drive/Joy Street (LOS F AM/PM Peak Hour)[1].

Existing Plus Ambient Plus Project (EAP) Conditions

The study intersections are projected to operate at an acceptable LOS (LOS D or better) during the AM and PM peak hours for *EAP* conditions with the exception of the following intersections:

- #3 – Riverside Drive/Joy Street (LOS F AM/PM Peak Hour)[1].

Existing Plus Ambient Plus Project Plus Cumulative (EAPC) Conditions

The study intersections are projected to continue to operate at an acceptable LOS (LOS D or better) during the AM and PM peak hours for *EAPC* conditions with the exception of the following intersections:

- #2 - Gunnerson Street/Lakeshore Drive (LOS E PM Peak Hour);
- #3 - Riverside Drive/Joy Street (LOS F AM/PM Peak Hour)[1];
- #4 - Riverside Drive/Lakeshore Drive (LOS E PM Peak Hour).

Based on the thresholds of significance for *EAPC* conditions discussed in *Section 2.4*, the addition of project generated trips to these intersections represents a cumulative impact.

1.2 ON-SITE ROADWAY AND SITE ACCESS IMPROVEMENTS

Wherever necessary, roadways adjacent to the proposed project site and site access points will be constructed in compliance with recommended roadway classifications and respective cross-sections in the City of Lake Elsinore General Plan or as directed by the County.

Sight distance at each project access point should be reviewed with respect to standard Caltrans and County sight distance standards at the time of final grading, landscaping and street improvement plans.

Signing/striping should be implemented in conjunction with detailed construction plans for the project site.

[1] Signal warrant satisfied for one/both peak hours.

1.3 SUMMARY OF IMPACTS AND RECOMMENDED IMPROVEMENTS

The following improvements are recommended at the impacted study intersections for corresponding conditions to reduce peak hour delay and improve intersection and roadway segment LOS to LOS D or better:

EP Recommended Improvement (EP-1): Riverside Drive/Joy Street - Signalize existing intersection.

EAP Recommended Improvement (EAP-1): Riverside Drive/Joy Street - Signalize existing intersection.

EAPC Recommended Improvement (EAPC-1): Gunnerson Street/Lakeshore Drive - Signalize existing intersection.

EAPC Recommended Improvement (EAPC-2): Riverside Drive/Joy Street - Signalize existing intersection.

EAPC Recommended Improvement (EAPC-3): Riverside Dr/Lakeshore Dr - Improve westbound Lakeshore Drive to include 2 left turn lanes, 2 through lanes, and 1 shared through/right lane. Improve eastbound Lakeshore Drive to include 2 left turn lanes, 2 through lanes, and 1 right turn lane. Improve northbound Riverside Drive to include 2 left turn lanes, 1 through lanes, and 1 share through/right lane. Improve southbound Riverside Drive to include 1 left turn lane, 2 through lanes, 1 shared through/right lane, and 1 right turn lane. Re-time existing signalized intersection to include a right turn overlap phase for eastbound Lakeshore Drive. These improvements are in line with the General Plan Buildout Conditions found in ***Section 3.4 – Transportation and Circulation of the City of Lake Elsinore General Plan***.

1.4 SUMMARY OF LOCAL AND REGIONAL FUNDING MECHANISMS

The proposed project will participate in the cost of off-site improvements through payment of TUMF fees based on the current fees at the time of construction of the proposed project. The proposed project is located within the City of Lake Elsinore and will therefore be subject to the City's Traffic Impact Fees (DIF).

The proposed project will participate in the cost of off-site improvements through payment of City TIF fees based on the current fees at the time of construction of the proposed project. The project's contribution to the aforementioned transportation impact fee programs or as a fair share contribution towards a cumulatively impacted facility not found to be covered by a pre-existing fee program should be considered sufficient to address the project's fair share towards mitigation measure(s) designed to alleviate cumulative project impacts. ***Table ES-2*** calculates the proposed project's fair share percentage and projected fair share cost at cumulative impacted intersections.

Table ES-2: *Fair Share Calculations*

Intersection	Existing AM&PM Peak Hour Volume (A)	EAPC AM&PM Peak Hour Volume (B)	Project AM&PM Peak Hour Volume (C)	Fair Share (C) / (B-A)
#2 - Gunnerson St/Lakeshore Dr	2699	3430	113	15.46%
#3 - Riverside Dr/Joy St	4293	5118	113	13.70%
#4 - Riverside Dr/Lakeshore Dr	5881	7511	292	17.91%

2.0 INTRODUCTION

This traffic impact analysis (TIA) analyzes the projected traffic operations associated with the proposed *The Lakeview Plaza* project in the City of Lake Elsinore. The purpose of this TIA is to evaluate potential circulation system deficiencies that may result from development of the proposed project, and to recommend improvements to achieve acceptable operations, if applicable. This analysis has been prepared pursuant to applicable City of Lake Elsinore and Caltrans traffic impact analysis guidelines.

2.1 PROJECT DESCRIPTION

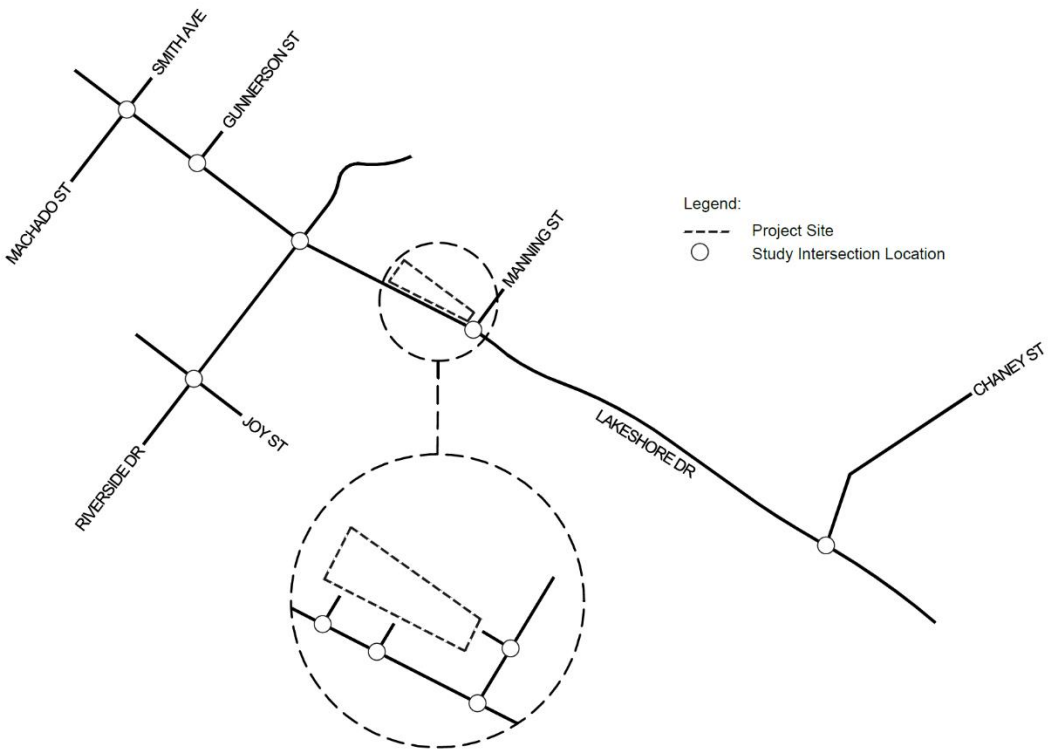
The proposed project would consist of 36,120 square feet of retail space and 7,000 square feet of restaurant space on an approximately 4.00 acre site. The proposed project is located at the northwest corner of the intersection Lakeshore Drive and Manning Street. The site is currently zoned Neighborhood Commercial (C-1) and the site's current land use classification is Neighborhood Commercial according to the City of Lake Elsinore Country Club Heights District Land Use Plan. The proposed project does not change the site's zoning or land use classification.

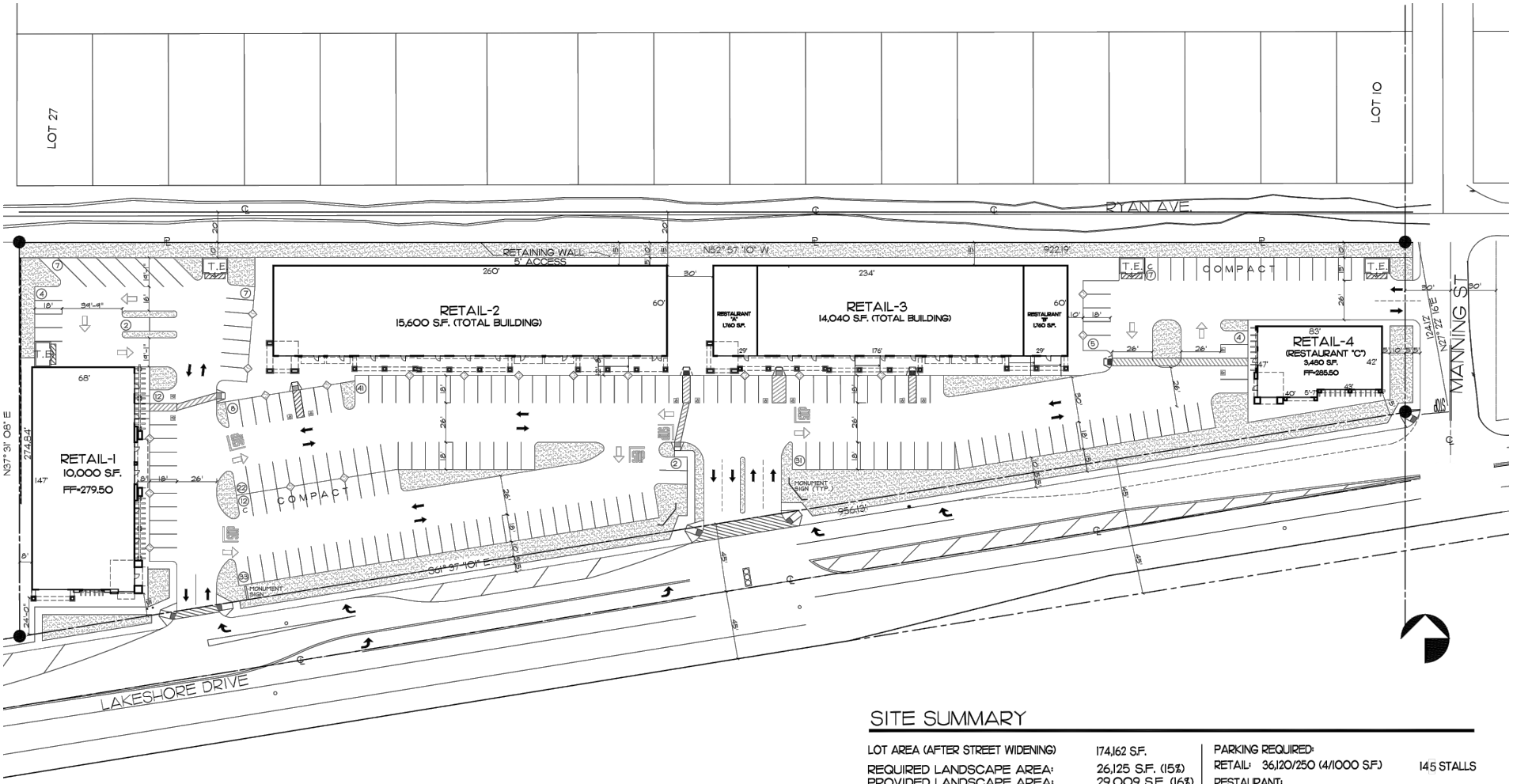
Site access on Lakeshore Drive is planned via one signalized full-access driveway and one right-in right-out driveway. Site access on Manning Street is planned via one full access driveway.

The proposed project is anticipated to be built and generating trips in 2021.

Figure 1 shows the project site location. ***Exhibit 1*** shows the proposed project site plan.

Figure 1 – *Project Location*





SITE SUMMARY

LOT AREA (AFTER STREET WIDENING)	174,162 S.F.
REQUIRED LANDSCAPE AREA:	26,125 S.F. (15%)
PROVIDED LANDSCAPE AREA:	29,009 S.F. (16%)
TOTAL BUILDING	43,120 S.F.
• RETAIL:	36,120 S.F.
• RESTAURANT:	7,000 S.F.
BUILDING COVERAGE PERCENTAGE:	24%

PARKING REQUIRED:	
RETAIL: 36,120/250 (4/1000 S.F.)	145 STALLS
RESTAURANT:	
• CUSTOMER AREA (7,000X35%)/45	55 STALLS
• BOH AREA (7,000X65%)/200	23 STALLS
PARKING REQUIRED:	223 STALLS
PARKING PROVIDED:	207 STALLS
	16
REQUIRED ADA PARKING STALLS:	223X 2% = 5
PROVIDED ADA PARKING STALLS:	12 STALLS
ALLOWED COMPACT PARKING STALLS:	223 / 4 = 56
PROVIDED COMPACT PARKING STALLS:	29 STALLS

SECTION 9.0, TABLE 18, (MIN. REQ.).....207 STALLS

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Exhibit 1: Proposed Project Site Plan

BPE-18-003 The Lakeshore Plaza Traffic Impact Analysis

Not to Scale

2.2 STUDY AREA

In addition to the proposed project driveways, the following six (6) intersections in the vicinity of the project site have been included in the intersection level of service (LOS) analysis:

1. Machado Street/Lakeshore Drive;
2. Gunnerson Street/Lakeshore Drive;
3. Riverside Drive/Joy Street;
4. Riverside Drive/Lakeshore Drive;
5. Manning Street/Lakeshore Drive; and
6. Chaney Street/Lakeshore Drive.

The study intersections are all located within the City of Lake Elsinore.

Within the study area, Riverside Drive/Lakeshore Drive and Riverside Drive/Joy Street are Caltrans facilities. Caltrans utilizes the same level of service methodology (HCM 6) as the City of Lake Elsinore.

This traffic analysis follows the *County of Riverside Transportation Department Traffic Impact Analysis Preparation Guide (April, 2008)* and *Caltrans Guide for the Preparation of Traffic Impact Studies (December, 2002)*.

Exhibit 2 shows the location of the study intersections, which are analyzed for the following study scenarios:

- Existing Conditions;
- Existing Plus Project Conditions (EP);
- Existing Plus Ambient Plus Project (EAP) Conditions; and
- Existing Plus Ambient Plus Project Plus Cumulative (EAPC) Conditions.

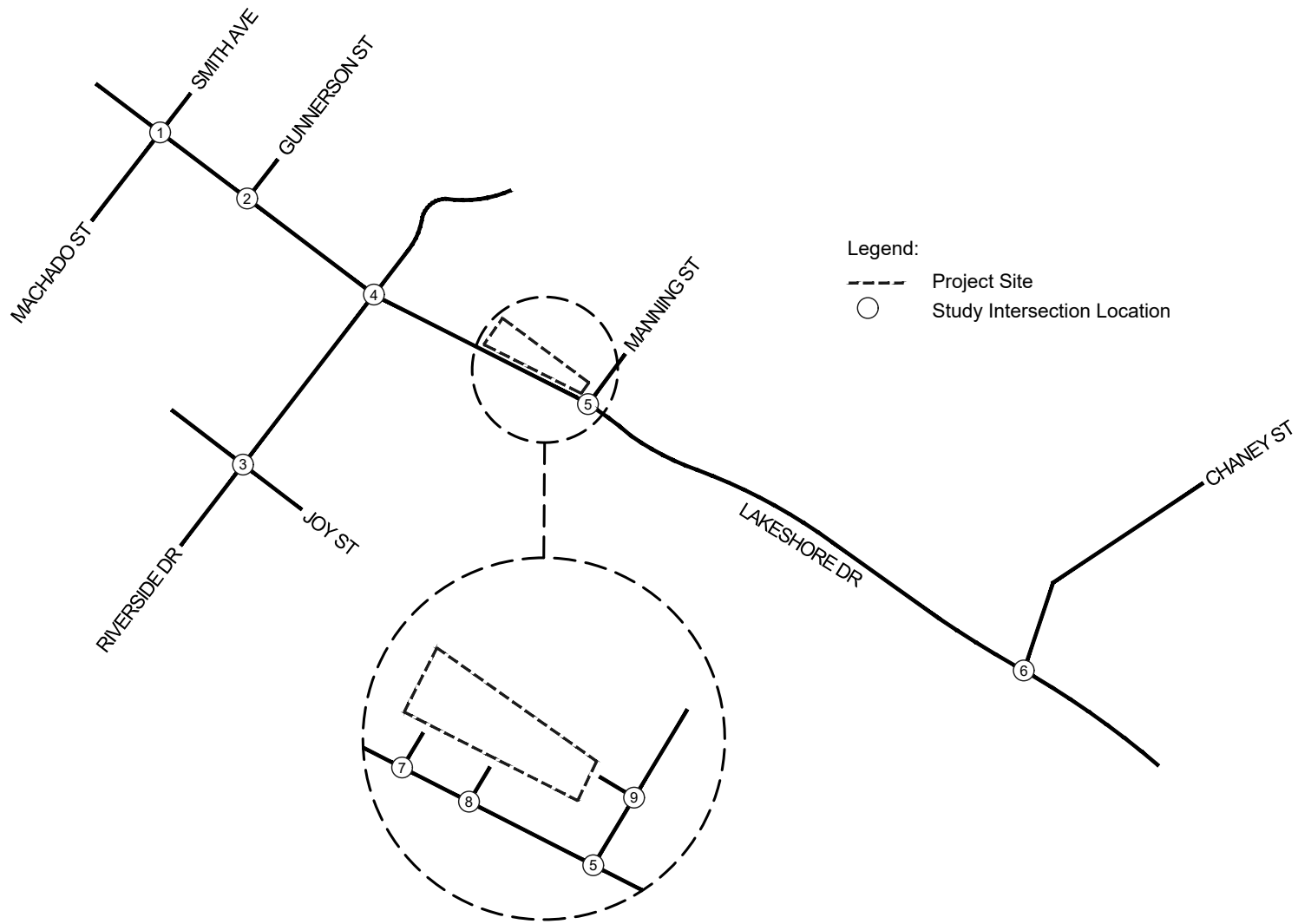

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Exhibit 2: Project Location and Proposed TIA Study Area

BPE-18-003 The Lakeshore Plaza Traffic Impact Analysis

Not to Scale

2.3 ANALYSIS METHODOLOGY

2.3.1 Intersection Analysis Methodology

Level of Service (LOS) is commonly used to describe the quality of flow on roadways and at intersections using a range of LOS from LOS A (free flow with little congestion) to LOS F (severely congested conditions). The definitions for LOS for interruption of traffic flow differ depending on the type of traffic control (traffic signal, unsignalized intersection with side street stops, unsignalized intersection with all-way stops). The *Highway Capacity Manual (HCM) 6* (Transportation Research Board, 2016) methodology expresses the LOS of an intersection in terms of delay time for the intersection approaches. The HCM methodology utilizes different procedures for different types of intersection control.

The City of Lake Elsinore traffic study guidelines require signalized intersection operations be analyzed utilizing the HCM 6 methodology. Intersection LOS for signalized intersections is based on the intersections average control delay for all movements at the intersection during the peak hour. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay.

Table 1 describes the general characteristics of traffic flow and accompanying delay ranges at signalized intersections.

Table 1:
HCM – LOS & Delay Ranges – Signalized Intersections

LEVEL OF SERVICE	DESCRIPTION	DELAY (in seconds)
A	Very favorable progression; most vehicles arrive during green signal and do not stop. Short cycle lengths.	0 – 10.00
B	Good progression, short cycle lengths. More vehicles stop than for LOS A.	10.01 – 20.00
C	Fair progression; longer cycle lengths. Individual cycle failures may begin to appear. The number of vehicles stopping is significant, though many vehicles still pass through without stopping.	20.01 – 35.00
D	Progression less favorable, longer cycle length and high flow/capacity ratio. The proportion of vehicles that pass through without stopping diminishes. Individual cycle failures are obvious.	35.01 – 55.00
E	Severe congestion with some long standing queues on critical approaches. Poor progression, long cycle lengths and high flow/capacity ratio. Individual cycle failures are frequent.	55.01 – 80.00
F	Very poor progression, long cycle lengths and many individual cycle failures. Arrival flow rates exceed capacity of intersection.	> 80.01

Source: Transportation Research Board, *Highway Capacity Manual*, HCM6 Edition (Washington D.C., 2016).

Collected peak hour traffic volumes have been adjusted using a peak hour factor (PHF) to reflect peak 15-minute volumes. It is a common practice in LOS analysis to conservatively use a peak 15-minute flow rate applied to the entire hour to derive flow rates in vehicles per hour that are used in the LOS analysis. The PHF is the relationship between the peak 15-minute flow rate and the full hourly volume. PHF = [Hourly Volume]/ [4 * Peak 15-Minute Volume]. The use of a 15-minute PHF produces a more detailed and conservative analysis compared to analyzing vehicles per hour. Existing PHFs, obtained from the existing traffic counts have been used for all analysis scenarios in this study.

The City of Lake Elsinore traffic study guidelines also require unsignalized intersection operations be analyzed utilizing the HCM 6 methodology. Intersection operation for unsignalized intersections is based on the weighted average control delay expressed in seconds per vehicle.

At a two-way or side-street stop-controlled intersection, LOS is calculated for each stop-controlled minor street movement, for the left-turn movement(s) from the major street, and for the intersection as a whole. For approaches consisting of a single lane, the delay is calculated as the average of all movements in that lane. For all-way stop-controlled intersection, LOS is computed for the intersection as a whole.

Table 2 describes the general characteristics of traffic flow and accompanying delay ranges at unsignalized intersections.

Table 2:
HCM – LOS & Delay Ranges – Unsignalized Intersections

Level Of Service	Description	Delay (in seconds)
A	Little or no delays.	0 – 10.00
B	Short traffic delays.	10.01 – 15.00
C	Average traffic delays.	15.01 – 25.00
D	Long traffic delays. Multiple vehicles in queue.	25.01 – 35.00
E	Very long delays. Demand approaching capacity of intersection	35.01 – 50.00
F	Very constrained flow with extreme delays and intersection capacity exceeded.	> 50.01

Source: Transportation Research Board, *Highway Capacity Manual*, HCM6 Edition (Washington D.C., 2016).

This analysis utilizes *Trafficware's Synchro*, Version 10 analysis software for all signalized and unsignalized intersections. Synchro is a macroscopic traffic software program that is based on the signalized intersection capacity analysis specified in Chapter 16 of the HCM. The level of service and capacity analysis performed within Synchro takes the optimization and coordination of signalized intersections within a network into consideration.

2.3.2 Traffic Signal Warrant Analysis Methodology

Traffic signal warrants refer to a list of established criteria utilized by Caltrans and other public agencies to quantitatively justify or determine the potential need for installation of a traffic signal at an unsignalized location. This analysis uses the signal warrant criteria in the latest edition of the Federal Highway Administration's (FHWA) Manual on Uniform Traffic Control Devices (MUTCD) as amended by the 2014 California MUTCD (CA MUTCD), Revision 4, effective March 29, 2019, for all unsignalized, non-driveway study intersections.

The CA MUTCD contains nine different signal warrants for existing conditions based on several different factors such as vehicular volumes, pedestrian volumes, accident frequency, location of schools and location of railroad tracks. This TIA utilizes the peak hour volume based warrant (Warrant 3) as the appropriate traffic signal warrant analysis for all analysis. Warrant 3 is appropriate for this analysis because it provides specialized criteria for intersections with rural characteristics.

It is important to note that a signal warrant defines the minimum condition under which the installation of a traffic signal *may be* warranted. Satisfying a signal warrant does not require that a traffic signal be installed at a particular location, rather other traffic factors and conditions should be evaluated to determine if signalization is justified. Additionally, signal warrants do not necessarily correlate with level of service; an intersection may satisfy a warrant and still be operating at or better than LOS D, or be operating at a deficient LOS (E or F) and not meet signal warrants.

2.4 PERFORMANCE CRITERIA

2.4.1 City of Lake Elsinore

The City of Lake Elsinore has established level of service "D" or better as acceptable LOS for all intersections along the designated street and highway system in the General Plan Circulation Element.

2.4.2 Caltrans

Caltrans endeavors to maintain a target LOS at the transition between LOS "C" and LOS "D" on State Highway facilities, although Caltrans acknowledges that this may not always be feasible. If an existing State Highway facility is operating at less than this target LOS, the existing LOS should be maintained. In general, the region-wide goal for acceptable LOS on all freeways, roadway segments and intersections is LOS "D." Consistent with the City of Lake Elsinore LOS threshold of LOS "D", LOS "D" will be used as the target LOS for state highway intersections in this analysis.

2.5 THRESHOLDS OF SIGNIFICANCE

According to California Environmental Quality Act (CEQA) guidelines, a project is considered to cause a significant impact to a transportation system if it:

- Conflicts with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel.
- Conflicts with an applicable congestion management program (CMP), including, but not limited to level of service standards, travel demand measures, or other standards established by the County Congestion Management Agency for roadways or highways.
- Conflicts with adopted policies or programs regarding public transit, bicycle or pedestrian facilities, or otherwise decreases the performance or safety of such facilities.

2.5.1 City of Lake Elsinore

For the purposes of analyzing California Environmental Quality Act (CEQA) impacts, the City of Lake Elsinore identifies significant impacts through a comparison of Existing and Existing Plus Ambient Plus Project (EAP) traffic conditions.

- When the pre-Project conditions is at or better than acceptable LOS (LOS D or better), and proposed project generated traffic causes deterioration to unacceptable LOS (LOS E or F), a significant direct impact is deemed to occur.
- When the pre-project conditions are already deficient, and the project is anticipated to contribute traffic to the location, the project's contribution to the cumulative impact is considered cumulatively considerable.

2.5.2 Caltrans

Impacts to State Highway intersections will be considered significant if:

- The Project causes the LOS of a State Highway intersection to degrade from LOS D or better to LOS E or F; or
- At State Highway intersections operating at LOS E or F for pre-project conditions, Caltrans threshold of significance is to maintain the pre-project measure of effectiveness for the intersection.

The proposed significance thresholds above will be applied at study area intersections for the purposes of determining project-related impacts.

The applicant shall participate in the funding or construction of off-site improvements, including traffic signals that are needed to serve cumulative traffic conditions through the payment of the Transportation Uniform Mitigation Fees (TUMF), City of Lake Elsinore Traffic Impact Fees (TIF), or a fair share contribution. These fees are collected as part of a funding mechanism aimed at ensuring that regional highways and arterial expansions keep pace with projected population increases. With regard to California Environmental Quality Act (CEQA) guidelines, the above fees will address the project's fair share toward mitigation measures designed to alleviate the cumulative impact.

3.0 EXISTING CONDITIONS

3.1 EXISTING CIRCULATION NETWORK/STUDY AREA CONDITIONS

The characteristics of the roadway system in the vicinity of the proposed project site are described in ***Table 3.***

Table 3:
Roadway Characteristics Within Study Area

Roadway	Classification[1]	Jurisdiction	Direction	Existing Travel Lanes	Median Type[2]	Speed Limit (mph)	On-Street Parking
Riverside Dr	Urban Arterial	Caltrans	North-South	2	TWLTL	40	No
Lakeshore Dr	Urban Arterial-Secondary	City of Lake Elsinore	East-West	2-5	NM-TWLTL	45	No
Machado St	Major	City of Lake Elsinore	North-South	2	TWLTL	40	No
Chaney St	Major	City of Lake Elsinore	North-South	2	NM	35	No
Gunnerson St	Collector	City of Lake Elsinore	North-South	2	NM	40	Yes
Joy St	Collector	City of Lake Elsinore	East-West	2	NM	35	Yes
Manning St	Collector	City of Lake Elsinore	North-South	2	NM	35	Yes

1: City of Lake Elsinore General Plan Circulation Element (2011)
2: TWLTL = Two-Way Left-Turn Lane, PM = Painted Median, NM = No Median.

Exhibit 3 shows existing conditions study area intersection and roadway geometry.

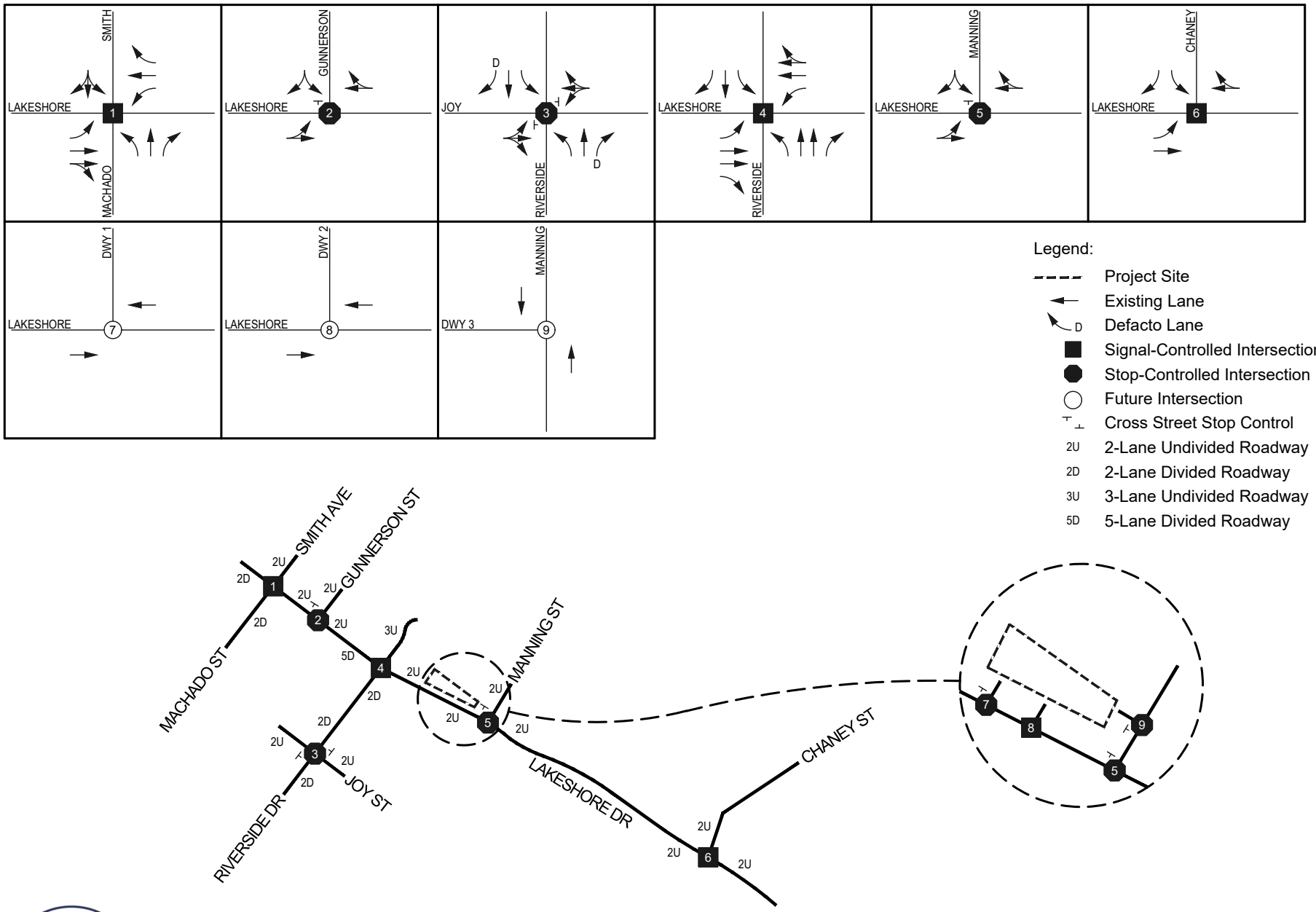

Exhibit 3: Existing Lane Geometry and Intersection Controls

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Not to Scale

3.2 CITY OF LAKE ELSINORE GENERAL PLAN CIRCULATION ELEMENT

The proposed project site is located within the City of Lake Elsinore. ***Appendix A*** contains the current *City of Lake Elsinore General Plan Circulation Element* transportation network and roadway cross sections.

3.3 EXISTING BICYCLE AND PEDESTRIAN FACILITIES

Within the study area, Class II on-street bicycle lanes exist on the following roadways:

- Riverside Drive
- Lakeshore Drive

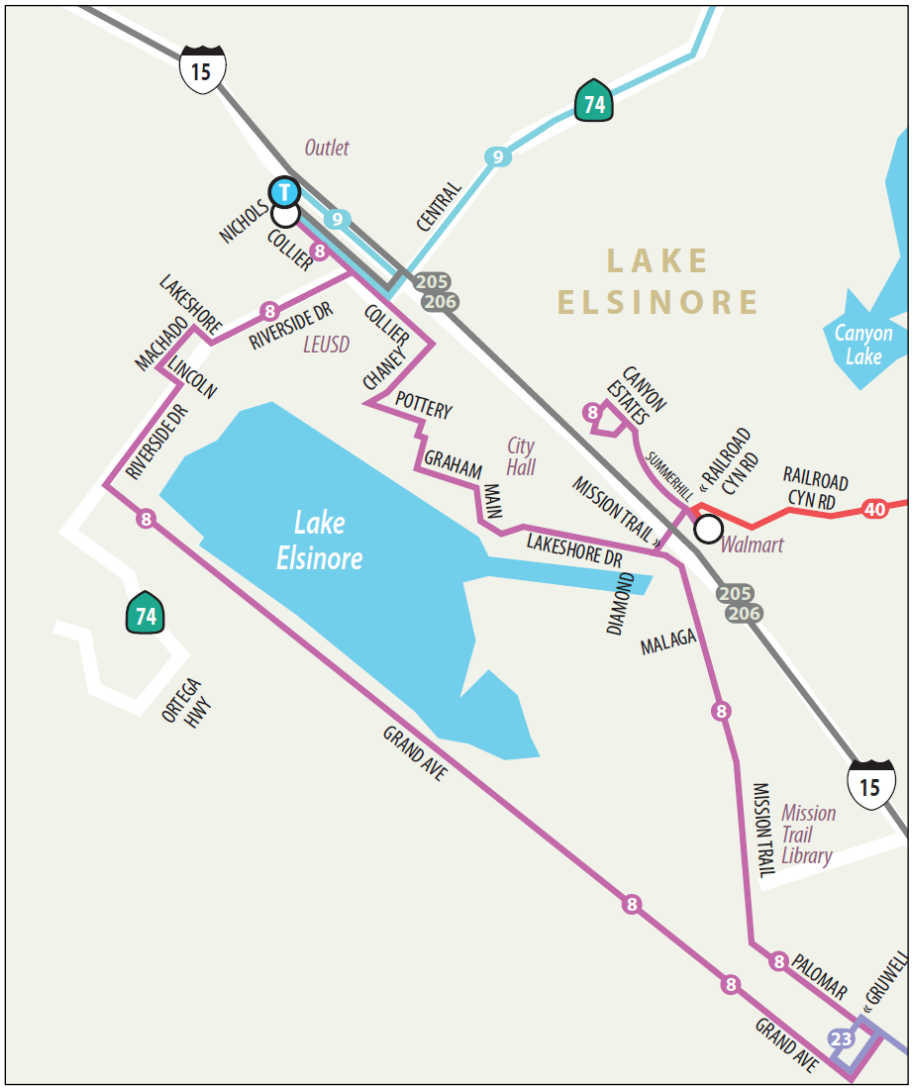
Sidewalks and curb ramps at intersections are generally present where development has occurred within the study area, and absent where development has yet to occur.

Appendix A contains City of Lake Elsinore General Plan Circulation Element Trails and Bikeways Plan.

3.4 EXISTING PUBLIC TRANSIT SERVICES

The City of Lake Elsinore is served by the Riverside Transit Agency which provides local and regional bus service throughout Riverside County. ***Figure 2*** shows the Riverside Transit routes in the vicinity of the project location.

Figure 2– *Riverside Transit Routes*



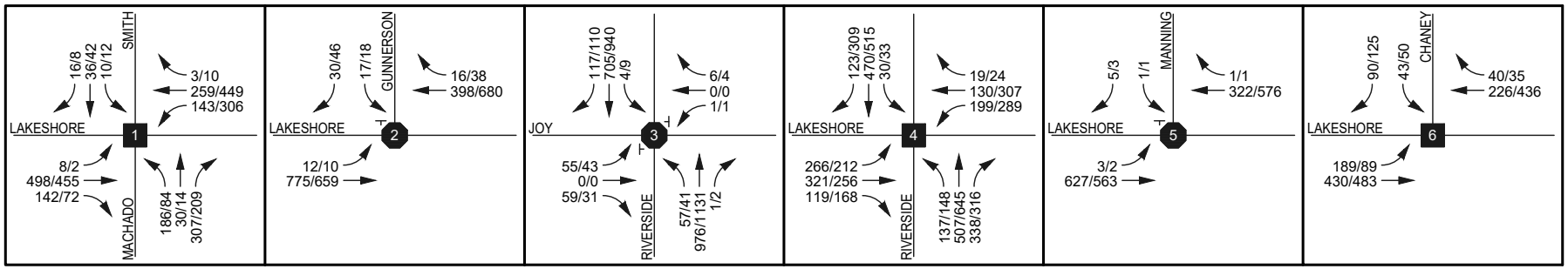
Sources: Riverside Transit Agency

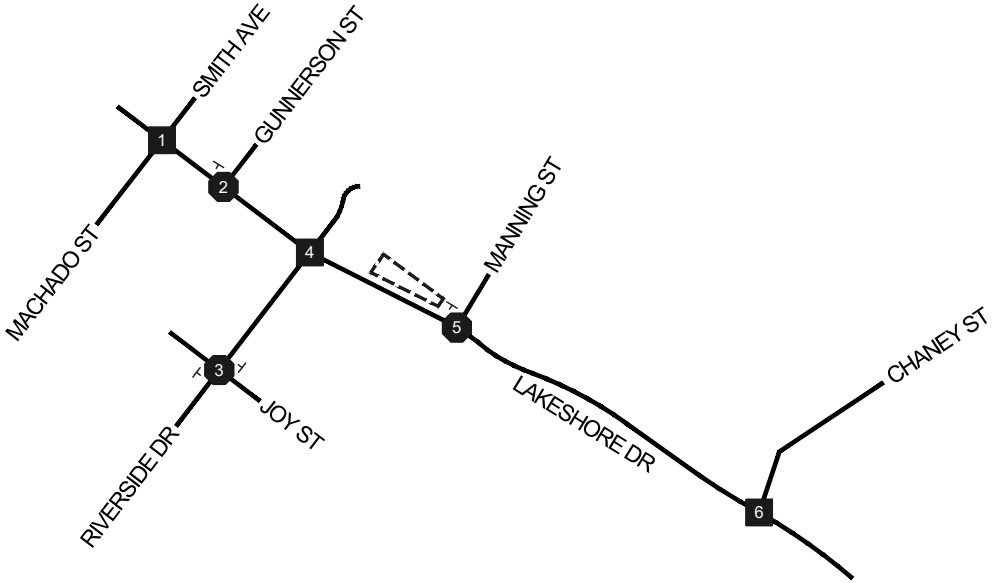
There are existing transit services within a one-quarter mile walking distance of the proposed project site. The nearest transit service is Riverside Transit Route 8, with a stop at the Riverside Drive/Lakeshore Drive intersection. Route 8 runs in a loop between the City of Lake Elsinore and the City of Wildomar with headways of approximately 60 minutes on weekdays, and 70-75 minutes on the weekend.

3.5 EXISTING TRAFFIC VOLUMES

To determine the existing operation of the study intersections, AM and PM peak period traffic counts at the study intersections were collected on Wednesday November 14, 2018 and Thursday May 30, 2019. The traffic volumes used in this analysis are from the highest hour within the peak period counted. Detailed traffic count data is provided in ***Appendix B***.

Exhibit 4 shows existing AM and PM peak hour volumes at the study intersections.





Legend:

XX/XX AM/PM Peak Hour Volumes

X,XXX Average Daily Traffic Volume

---- Project Site

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Exhibit 4: Existing AM/PM Peak Hour Intersection Volumes

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Not to Scale

3.6 EXISTING CONDITIONS INTERSECTION LEVEL OF SERVICE ANALYSIS

Existing conditions AM and PM peak hour intersection analysis is shown in ***Table 4***. Calculations are based on the existing geometrics at the study area intersections as shown in ***Exhibit 3.*** HCM analysis sheets are provided in ***Appendix C***.

Table 4:
Intersection Analysis – Existing Conditions

Intersection	Control Type	Peak Hour	Existing Conditions Delay[1] – LOS
#1 - Machado Street/Lakeshore Drive	Signal	AM PM	26.6 - C 32.5 - C
#2 - Gunnerson Street/Lakeshore Drive	OWSC	AM PM	20.9 - C 22.3 - C
#3 - Riverside Drive/Joy Street	TWSC	AM PM	**235.4 - F** **533.9 - F**
#4 - Riverside Drive/Lakeshore Drive	Signal	AM PM	30.3 - C 36.0 - D
#5 - Manning Street/Lakeshore Drive	OWSC	AM PM	11.7 - B 14.7 - B
#6 - Chaney Street/Lakeshore Drive	Signal	AM PM	5.3 - A 5.9 - A

Note: TWSC = Two-Way Stop-Control, OWSC = One-Way Stop-Control; Delay shown in seconds per vehicle.
1 = Per the Highway Capacity Manual 6th Edition, overall average delay and LOS are shown for signalized.

As shown in ***Table 4***, the study intersections are currently operating at an acceptable LOS (LOS D or better) during the AM and PM peak hours for *existing* conditions with the exception of the following intersections:

- #3 – Riverside Drive/Joy Street (LOS F AM/PM Peak Hour).

3.7 EXISTING CONDITIONS SIGNAL WARRANT ANALYSIS

Traffic signal warrants for existing conditions have been prepared based on existing peak hour intersection volumes at the unsignalized study intersections.

Table 5 summarizes the results of the signal warrant analysis. Detailed warrant analysis sheets are contained in ***Appendix D***.

Table 5:
Signal Warrant Analysis - Existing Conditions

Intersection	Signal Warrants Met?	
	AM Peak Hour	PM Peak Hour
#2 - Gunnerson Street/Lakeshore Drive	No	No
#3 - Riverside Drive/Joy Street	Yes	No
#4 - Manning Street/Lakeshore Drive	No	No

Peak hour signal warrants are met at the following unsignalized study intersections for *existing* conditions:

- #3 – Riverside Drive/Joy Street (AM Peak Hour).

4.0 PROPOSED PROJECT

4.1 PROJECT DESCRIPTION

The proposed project would consist of 36,120 square feet of retail space and 7,000 square feet of restaurant space on an approximately 4.00 acre site. The proposed project is located at the northwest corner of the intersection Lakeshore Drive and Manning Street. The site is currently zoned Neighborhood Commercial (C-1) and the site's current land use classification is Neighborhood Commercial according to the City of Lake Elsinore Country Club Heights District Land Use Plan. The proposed project does not change the site's zoning or land use classification.

Site access on Lakeshore Drive is planned via one signalized full-access driveway and one right-in right-out driveway. Site access on Manning Street is planned via one full access driveway.

The proposed project is anticipated to be built and generating trips in 2021.

Exhibit 1 previously showed the proposed site plan.

4.2 PROJECT TRIP GENERATION

Trip generation represents the amount of traffic, both inbound and outbound, produced by a development. Determining trip generation for a proposed project is based on projecting the amount of traffic that the specific land uses being proposed will produce. Industry standard *Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition, 2017)* trip generation rates were used to determine trip generation of the proposed project.

4.2.1 Pass-by Trip Adjustment

ITE trip generation rates allow for a pass-by trip adjustment for certain land uses such as restaurants and gas stations. A pass-by trip adjustment is applicable to land uses located along busy arterial roadways attracting vehicle trips already on the roadway; particularly when the roadway is experiencing peak operating conditions. For example a motorist traveling along Lakeshore Drive between work and home may stop at the proposed project site. The County of Riverside allows for a maximum pass-by discount of 25%. This study assumes pass-by rates of 10% (AM), 25% (PM), and 10% (Daily) for shopping center use and 20% (AM), 25% (PM), and 20% (Daily) for high turn-over sit-down restaurant use.

Table 6 summarizes the projected AM peak hour, PM peak hour and daily trip generation of the proposed project as well as the net trip generation after accounting for a corresponding pass-by discounts.

Table 6:

Proposed Project AM/PM Peak Hour Trip Generation

Proposed Land Use[1]	Qty	Unit	Daily Trips (ADTs)		AM Peak Hour					PM Peak Hour					Pass-By % Reduction		
			Rate	Volume	Rate	In:Out Split	Volume			Rate	In:Out Split	Volume					
							In	Out	Total			In	Out	Total	AM	PM	Daily
Shopping Center (820)	36.12	TSF	83.28	3,008	4.71	62:38	105	65	170	7.09	48:52	123	133	256	10%	25%	10%
High Turn-Over Sit-Down Restaurant (932)	7.00	TSF	112.18	785	9.94	55:45	38	32	70	9.77	62:38	42	26	68	20%	25%	20%
Subtotal				3,793			143	96	240			165	159	324			
Pass-By Trips				-458			-19	-13	-32			-42	-40	-82			
Total				**3,335**			**124**	**83**	**208**			**123**	**119**	**242**			

1: Rates from ITE Trip Generation (10th Edition, 2017)

The proposed project is projected to generate 208 AM net peak hour trips, 242 PM net peak hour trips and 3,335 net daily trips after pass-by trip reductions.

4.3 PROJECT TRIP DISTRIBUTION

Projecting trip distribution involves the process of identifying probable destinations and traffic routes that will be utilized by the proposed project's traffic. The potential interaction between the proposed land use and surrounding regional access routes are considered to identify the probable routes onto which project traffic would distribute. The projected trip distribution for the proposed project is based on anticipated travel patterns to and from the project site.

Exhibit 5A shows the general projected trip distribution of proposed project trips. ***Exhibit 5B*** shows the general projected trip distribution of pass-by trips.

4.4 MODAL SPLIT

The traffic reducing potential of public transit, walking and bicycling have not been considered in this analysis since transit facilities in the study area are limited.

4.5 PROJECT TRIP ASSIGNMENT

Exhibit 6 shows the corresponding projected AM/PM peak hour trip assignment of net project trips. ***Exhibit 6*** accounts for the pass-by trip discounts shown in ***Table 6***.

4.6 CUMULATIVE PROJECTS TRAFFIC

CEQA guidelines require that other reasonably foreseeable development projects which are either approved or are currently being processed in the study area also be included as part of a cumulative analysis scenario. A list of cumulative projects was developed for this analysis through consultation with City of Lake Elsinore staff, and obtainment of current development status reports. A portion of cumulative traffic volumes were obtained from recent nearby traffic impact reports. ***Exhibit 7*** shows the location of nearby cumulative developments. A summary of the cumulative projects land uses is shown in ***Table 7.***

Table 7:

Cumulative Projects List

Project Number	Project	Land Use	Qty	Units[1]
1	Walmart	Shopping Center	154.49	TSF
2	La Quinta Inn	Hotel	64.00	RM
3	Chick-fil-A	Fast Food	4.80	TSF
4	Central Plaza	Shopping Center	65.80	TSF
5	Honda Dealership	Automobile Sales	27.84	TSF
6	Kassab Travel Center	Gas Station w/ Conv. Store Fast Food	18.00	VFP
7	Tige Boat Sales	Boat Sales	35.48	TSF
8	Nichols Ranch	Mixed Use	Varies	Varies
9	Terracina	Single Family Detached	468.00	DU
10	Lakeview Manor	Low-Rise Apts	104.00	DU
11	Lakeshore Pointe	Low-Rise Apts	152.00	DU
12	Lakeshore Town Center	Hotel	132.00	RM
		Multi Familiy	118.00	DU
		Shopping Center	35.60	TSF

[1] DU = Dwelling Units; TSF = Thousand Square Feet; RM = Rooms; VFP= Vehicle Fueling Facilities

[2] See ***Appendix B*** for Cumulative Traffic Volumes

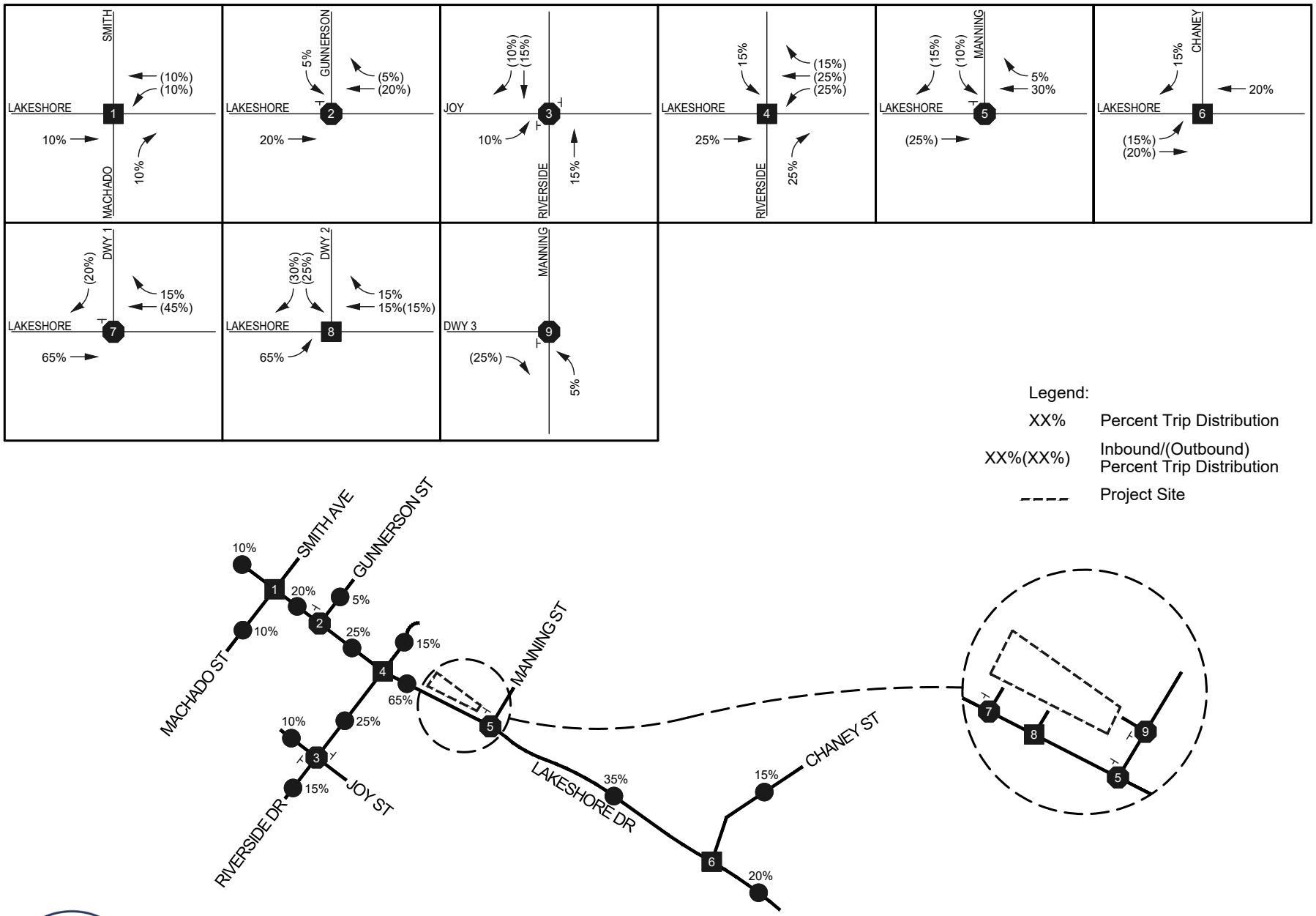

Exhibit 5A:
Trip Distribution of Proposed Project Trips at Study Intersections

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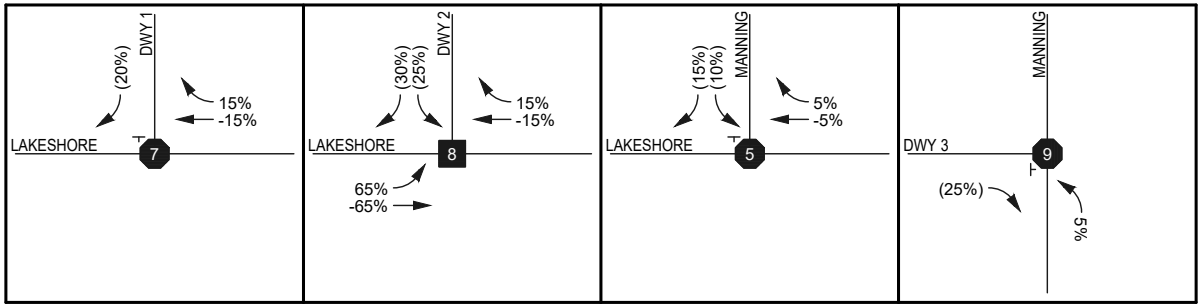
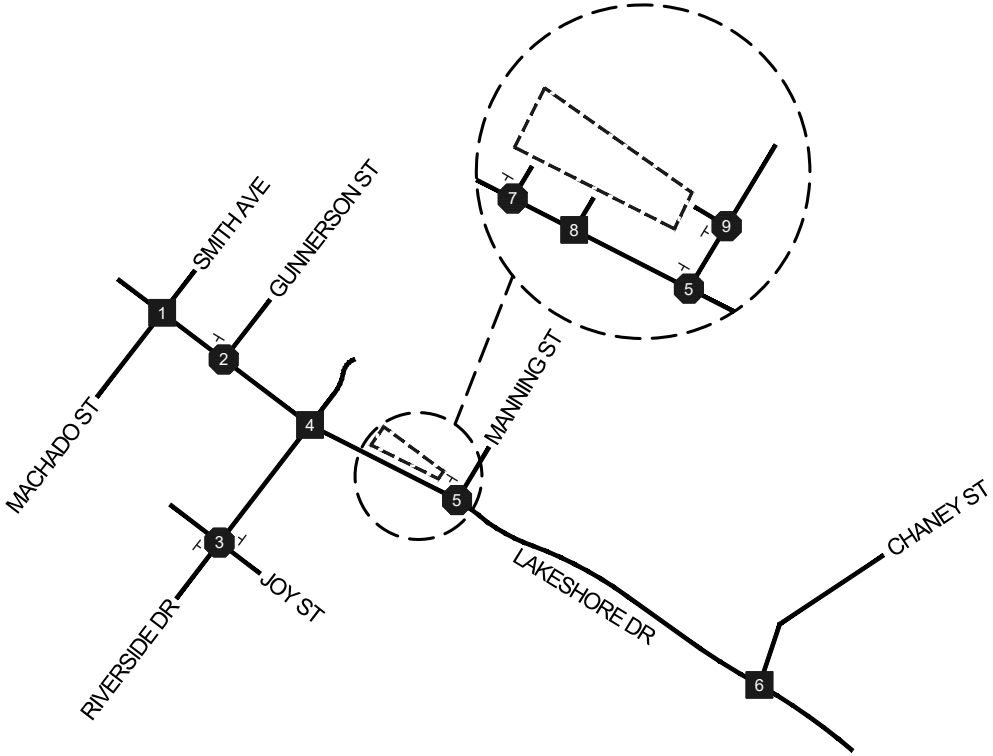
Not to Scale





Total AM Pass-By Trips:	In	Out	Total
	-19	-13	-32

Total PM Pass-By Trips:	In	Out	Total
	-42	-40	-82

Legend:

XX%	Percent Pass-by Trip Distribution
XX%(XX%)	Inbound/(Outbound) Percent Pass-by Trip Distribution
----	Project Site

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Exhibit 5B: Trip Distribution of Pass-by Trips

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Not to Scale

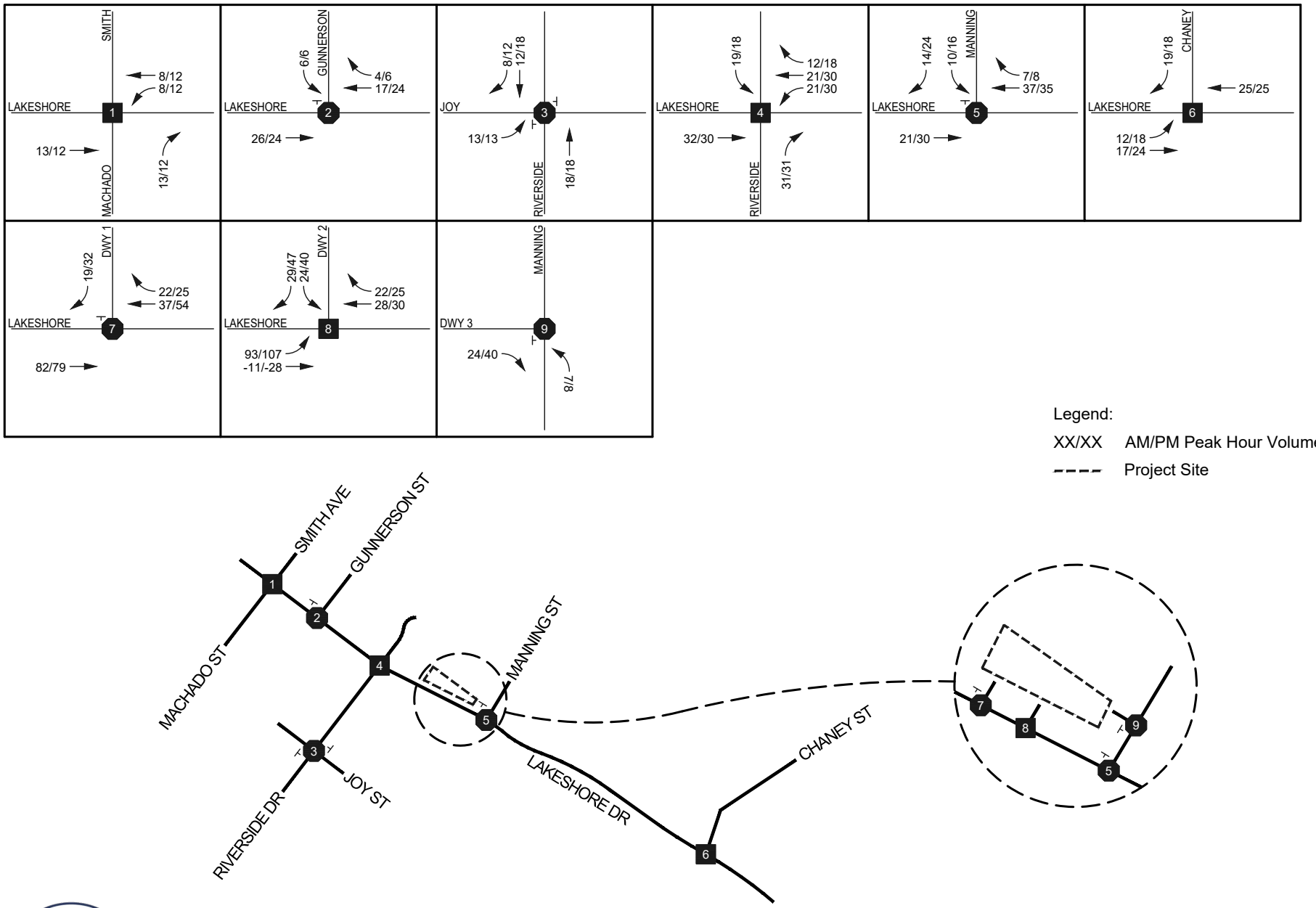

Exhibit 6: Projected Trip Assignment of Net Project Trips

BPE-18-003 The Lakeshore Plaza Traffic Impact Analysis

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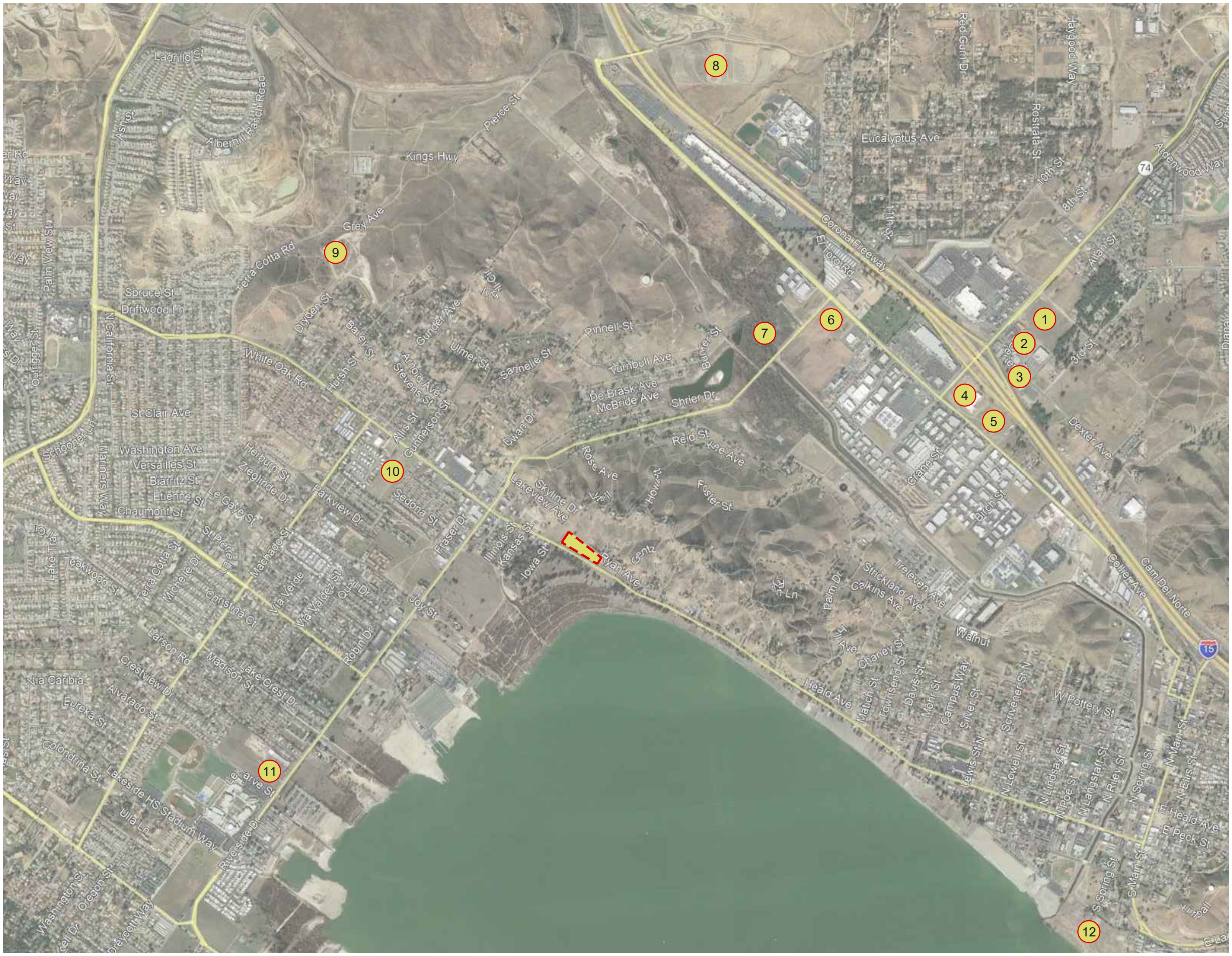
Not to Scale



Legend:

(X) Approximate Cumulative Project Locations

Project Site

Exhibit 7: Cumulative Project Map

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Not to Scale

5.0 EXISTING PLUS PROJECT CONDITIONS (EP)

Existing plus project (EP) conditions analysis is intended to identify the project-related impacts on the existing near-term circulation system by comparing *EP* conditions to *existing* conditions. Consistent with CEQA, *EP* analysis is intended to identify direct impacts associated with the development of the proposed project.

5.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for the existing plus project scenario are consistent with those previously shown in ***Exhibit 3***, with the exception of project driveways and other facilities assumed to be constructed by the proposed project to provide site access.

5.2 EP TRAFFIC VOLUMES

EP volumes include existing traffic plus the addition of the traffic projected to be generated by the proposed project.

EP Volumes = Existing (2018/2019) Counts + Project Traffic

Exhibit 8 shows *EP* AM and PM peak hour volumes at the study intersections.

5.3 EP INTERSECTION LEVEL OF SERVICE ANALYSIS

EP conditions AM and PM peak hour intersection analysis is shown in ***Table 8***. Calculations are based on the existing geometrics at the study area intersections as shown in ***Exhibit 3.*** HCM analysis sheets are provided in ***Appendix C***.

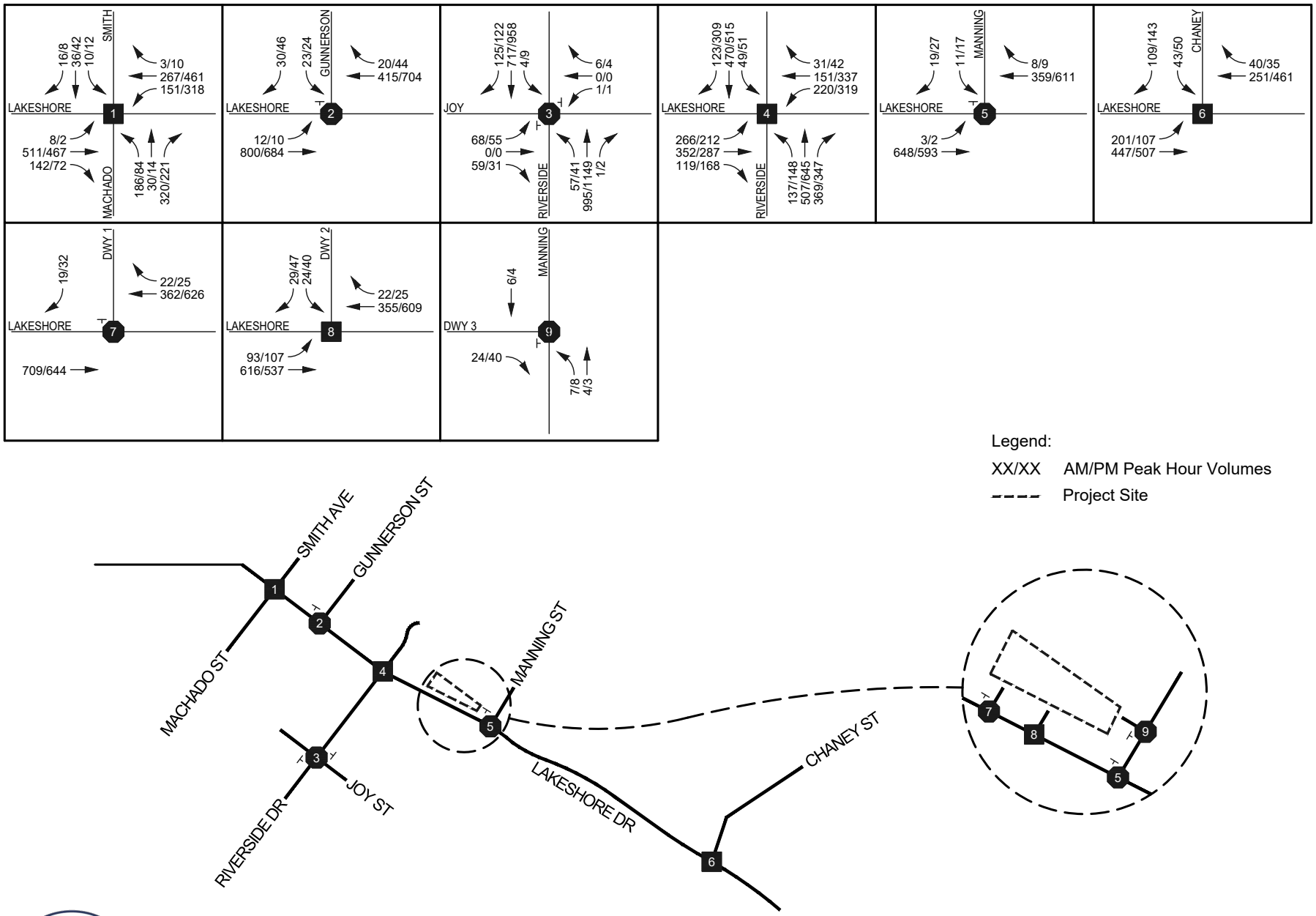

Exhibit 8: Existing Plus Project AM/PM Peak Hour Intersection Volumes

BPE-18-003 The Lakeshore Plaza Traffic Impact Analysis

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Not to Scale

Table 8:
Intersection Analysis – EP Conditions

Intersection	Control Type	Peak Hour	Existing Conditions	EP Conditions		
			Delay[1] – LOS	Delay[1] – LOS	Change	Impact?
#1 - Machado Street/Lakeshore Drive	Signal	AM	26.6 - C	27.5 - C	0.9	No
		PM	32.5 - C	34.4 - C	1.9	No
#2 - Gunnerson Street/Lakeshore Drive	OWSC	AM	20.9 - C	25.3 - D	4.4	No
		PM	22.3 - C	26.5 - D	4.3	No
#3 - Riverside Drive/Joy Street	TWSC	AM	**235.4 - F**	**364.4 - F**	129.0	**Yes**
		PM	**533.9 - F**	**803.9 - F**	270	**Yes**
#4 - Riverside Drive/Lakeshore Drive	Signal	AM	30.3 - C	32.5 - C	2.2	No
		PM	36.0 - D	38.6 - D	2.6	No
#5 - Manning Street/Lakeshore Drive	OWSC	AM	11.7 - B	14.7 - B	3.0	No
		PM	14.7 - B	18.8 - C	3.6	No
#6 - Chaney Street/Lakeshore Drive	Signal	AM	5.3 - A	5.6 - A	0.3	No
		PM	5.9 - A	6.2 - A	0.3	No
#7 - Dwy 1/Lakeshore Dr	OWSC	AM	-	10.7 - B	10.7	No
		PM	-	13.6 - B	13.6	No
#8 - Dwy 2/Lakeshore Dr	Signal	AM	-	17.2 - B	17.2	No
		PM	-	24.6 - C	24.6	No
#9 - Manning St/Dwy 3	OWSC	AM	-	8.4 - A	8.4	No
		PM	-	8.5 - A	8.5	No

Note: AWSC = All- Way Stop-Control, TWSC = Two-Way Stop Control, OWSC = One-Way Stop Control, Delay shown in seconds per vehicle.
1 = Per the Highway Capacity Manual 6th Edition, overall average delay and LOS are shown for signalized and all-way stop-controlled intersections. For intersections with one-or-two-way stop-control, the delay and LOS for the worst individual movement is shown.

As shown in ***Table 8,*** the study intersections are projected to continue to operate at an acceptable LOS during the AM and PM peak hours for *EP* conditions with the exception of the following intersections:

- #3 – Riverside Drive/Joy Street (LOS F AM/PM Peak Hour).

5.4 EP CONDITIONS SIGNAL WARRANT ANALYSIS

Traffic signal warrants for existing conditions have been prepared based on *EP* peak hour intersection volumes at the unsignalized study intersections and project site access locations.

Table 9 summarizes the results of the signal warrant analysis. Detailed warrant analysis sheets are contained in ***Appendix D***.

Table 9:
Signal Warrant Analysis – EP Conditions

Intersection	Signal Warrants Met?	
	AM Peak Hour	PM Peak Hour
#2 - Gunnerson Street/Lakeshore Drive	No	No
#3 - Riverside Drive/Joy Street	Yes	No
#4 - Manning Street/Lakeshore Drive	No	No

Peak hour signal warrants are met at the following unsignalized study intersections for *EP* conditions:

- #3 – Riverside Drive/Joy Street (AM Peak Hour).

5.5 EP RECOMMENDED IMPROVEMENTS

The following improvements are recommended for *EP* conditions.

EP Recommended Improvement (EP-1): Riverside Drive/Joy Street – Signalize existing intersection.

Table 10 shows *EP* level of service at the intersection with the recommended improvements.

Table 10:
Intersection Analysis – EP Conditions with Recommended Improvements

Intersection	Control Type	Peak Hour	Existing Conditions	EP Conditions	EP With Recommended Improvements
			Delay[1] – LOS	Delay[1] – LOS	Delay[1] – LOS
#3 - Riverside Dr/Joy St	TWSC	AM	**364.4 - F**	**295.5 - F**	11.0 - B
		PM	**803.9 - F**	**714.6 - F**	11.8 - B

Note: AWSC = All- Way Stop-Control, TWSC = Two-Way Stop Control, OWSC = One-Way Stop Control, Delay shown in seconds per vehicle.
1 = Per the Highway Capacity Manual 6th Edition, overall average delay and LOS are shown for signalized and all-way stop-controlled intersections. For intersections with one-or-two-way stop-control, the delay and LOS for the worst individual movement is shown.

As shown in ***Table 10***, with the recommended improvements, the intersection is projected to operate at an acceptable LOS for improved *EP* conditions. This recommendation is consistent with the City's thresholds of significance for intersections operating at existing LOS F to be restored or improved beyond existing operating conditions.

6.0 EXISTING PLUS AMBIENT PLUS PROJECT CONDITIONS

Existing plus ambient plus project (EAP) conditions analysis is intended to identify the project-related impacts on both the planned near-term circulation system by comparing *EAP* conditions to existing conditions. *EAP* analysis is intended to identify "opening year" impacts associated with the development of the proposed project based on the expected background growth within the study area.

6.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for the existing plus project scenario are consistent with those previously shown in ***Exhibit 3***, with the exception of project driveways and other facilities assumed to be constructed by the proposed project to provide site access.

6.2 EAP TRAFFIC VOLUMES

EAP volumes include background traffic plus the addition of the traffic projected to be generated by the proposed project. Since the proposed project is expected to be built and generating trips in 2021, *EAP* volumes include an ambient growth rate of 2% per year for two years, applied to existing volumes.

EAP Volumes = (Existing (2018/2019) Counts * 1.02^2) + Project Traffic

Exhibit 9 shows *EAP* AM and PM peak hour volumes at the study intersections.

6.3 EAP INTERSECTION LEVEL OF SERVICE ANALYSIS

EAP conditions AM and PM peak hour intersection analysis is shown in ***Table 11***. Calculations are based on the existing geometrics at the study area intersections as shown in ***Exhibit 3.*** HCM analysis sheets are provided in ***Appendix C***.

Table 11:
Intersection Analysis – EAP Conditions

Intersection	Control Type	Peak Hour	Existing Conditions	EAP Conditions		
			Delay[1] – LOS	Delay[1] – LOS	Change	Impact?
#1 - Machado Street/Lakeshore Drive	Signal	AM	26.6 - C	28.5 - C	1.9	No
		PM	32.5 - C	37.1 - D	4.6	No
#2 - Gunnerson Street/Lakeshore Drive	OWSC	AM	20.9 - C	27.6 - D	6.7	No
		PM	22.3 - C	29.1 - D	6.8	No
#3 - Riverside Drive/Joy Street	TWSC	AM	**235.4 - F**	**470.2 - F**	234.8	**Yes**
		PM	**533.9 - F**	**1059.6 - F**	525.7	**Yes**
#4 - Riverside Drive/Lakeshore Drive	Signal	AM	30.3 - C	34.0 - C	3.7	No
		PM	36.0 - D	40.9 - D	4.9	No
#5 - Manning Street/Lakeshore Drive	OWSC	AM	11.7 - B	15.2 - B	3.5	No
		PM	14.7 - B	19.7 - C	5.0	No
#6 - Chaney Street/Lakeshore Drive	Signal	AM	5.3 - A	5.6 - A	0.3	No
		PM	5.9 - A	6.3 - A	0.4	No
#7 - Dwy 1/Lakeshore Dr	OWSC	AM	-	10.8 - B	10.8	No
		PM	-	14.0 - B	14.0	No
#8 - Dwy 2/Lakeshore Dr	Signal	AM	-	17.6 - B	17.6	No
		PM	-	25.0 - C	25.0	No
#9 - Manning St/Dwy 3	OWSC	AM	-	8.4 - A	8.4	No
		PM	-	8.5 - A	8.5	No

Note: AWSC = All- Way Stop-Control, TWSC = Two-Way Stop Control, OWSC = One-Way Stop Control, Delay shown in seconds per vehicle.
1 = Per the Highway Capacity Manual 6th Edition, overall average delay and LOS are shown for signalized and all-way stop-controlled intersections. For intersections with one-or-two-way stop-control, the delay and LOS for the worst individual movement is shown.

As shown in ***Table 11,*** the study intersections are projected to continue to operate at an acceptable LOS during the AM and PM peak hours for *EAP* conditions with the exception of the following intersections:

- #3 – Riverside Drive/Joy Street (LOS F AM/PM Peak Hour).

6.4 EAP CONDITIONS SIGNAL WARRANT ANALYSIS

Traffic signal warrants for existing conditions have been prepared based on *EP* peak hour intersection volumes at the unsignalized study intersections and project site access locations.

Table 12 summarizes the results of the signal warrant analysis. Detailed warrant analysis sheets are contained in ***Appendix D***.

Table 12:
Signal Warrant Analysis – EAP Conditions

Intersection	Signal Warrants Met?	
	AM Peak Hour	PM Peak Hour
#2 - Gunnerson Street/Lakeshore Drive	No	No
#3 - Riverside Drive/Joy Street	Yes	No
#4 - Manning Street/Lakeshore Drive	No	No

Peak hour signal warrants are met at the following unsignalized study intersections for *EAP* conditions:

- #3 – Riverside Drive/Joy Street (AM Peak Hour).

6.5 EAP CONDTIONS RECOMMENDED IMPROVEMENTS

The following improvements are recommended for *EAP* conditions.

EAP Recommended Improvement (EAP-1): Riverside Drive/Joy Street – Signalize existing intersection.

Table 13 shows *EAP* level of service at the intersection with the recommended improvements.

Table 13:
Intersection Analysis – EAP Conditions with Recommended Improvements

Intersection	Control Type	Peak Hour	Existing Conditions	EAP Conditions	EAP With Recommended Improvements
			Delay[1] – LOS	Delay[1] – LOS	Delay[1] – LOS
#3 - Riverside Dr/Joy St	TWSC	AM	**235.4 - F**	**470.2 - F**	11.9 - B
		PM	**533.9 - F**	**1059.6 - F**	12.6 - B

As shown in ***Table 13***, with the recommended improvements, the intersection is projected to operate at an acceptable LOS for improved *EAP* conditions. This recommendation is consistent with the City's thresholds of significance for intersections operating at existing LOS F to be restored or improved beyond existing operating conditions.

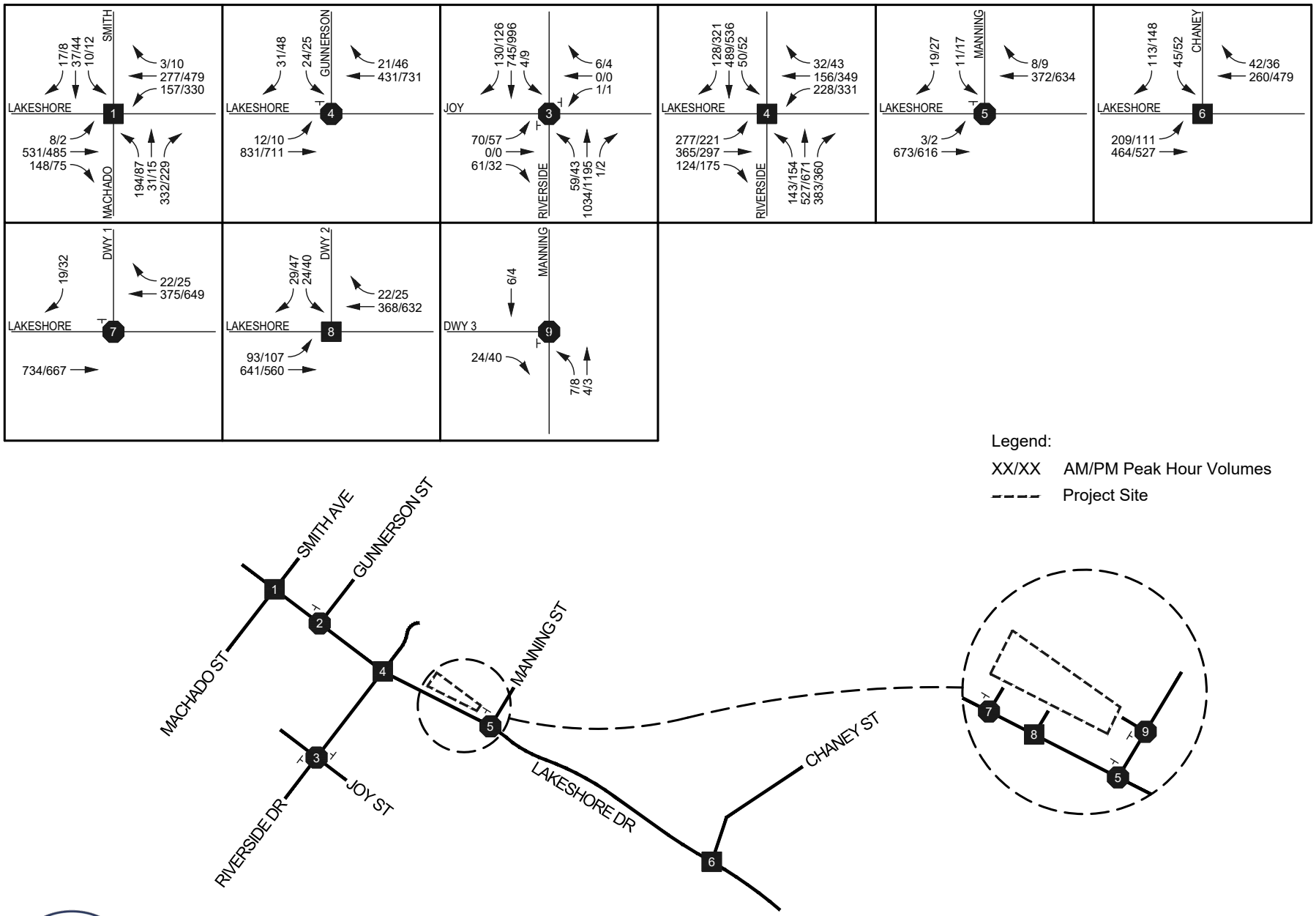


Exhibit 9: EAP AM/PM Peak Hour Intersection Volumes

BPE-18-003 The Lakeshore Plaza Traffic Impact Analysis

TJW ENGINEERING, INC.

Not to Scale

7.0 EXISTING PLUS AMBIENT PLUS PROJECT PLUS CUMULATIVE CONDITIONS

Existing plus ambient plus project plus cumulative (EAPC) conditions analysis is intended to identify the project-related cumulative impacts on both the existing and planned near-term circulation system.

7.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for the *EAPC* scenario are consistent with those previously shown in ***Exhibit 3*** and do not assume recommended improvements identified in the *EAPC* scenario.

7.2 EAPC TRAFFIC VOLUMES

EAPC volumes include background traffic plus the addition of the traffic projected to be generated by the proposed project and traffic projected to be generated by cumulative developments in the vicinity of the proposed project. Cumulative developments are projects which are in various stages of planning, entitlement and construction. Since the proposed project is expected to be built and generating trips in 2021, *EAPC* volumes include an ambient growth rate of 2% per year for two years, applied to existing volumes.

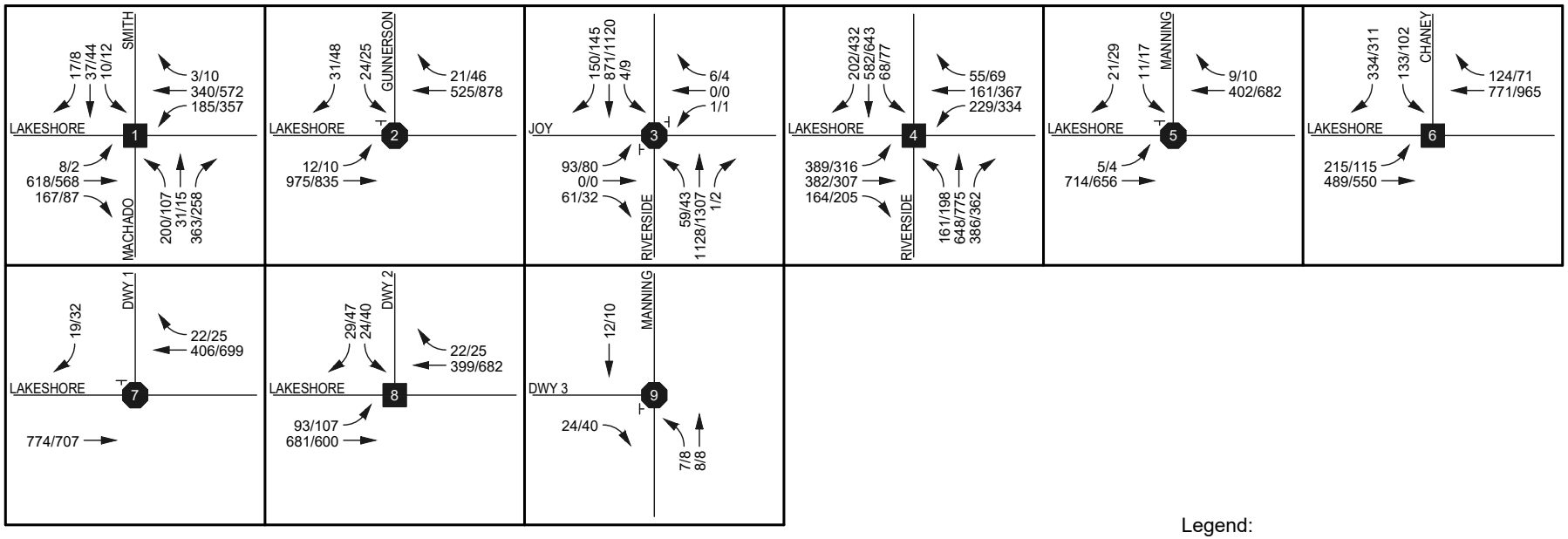
EAPC Volumes = (Existing (2018/2019) Counts * 1.02^2) + Project Traffic + Cumulative Projects Traffic

The cumulative projects were previously discussed in *Section 4.6 Cumulative Projects Traffic.*

Exhibit 10 shows *EAPC* AM and PM peak hour volumes at the study intersections.

7.3 EAPC CONDITIONS INTERSECTION LEVEL OF SERVICE ANALYSIS

EAPC conditions AM and PM peak hour intersection analysis is shown in ***Table 14***. HCM analysis sheets are provided in ***Appendix C.***



Legend:

XX/XX AM/PM Peak Hour Volumes

Project Site

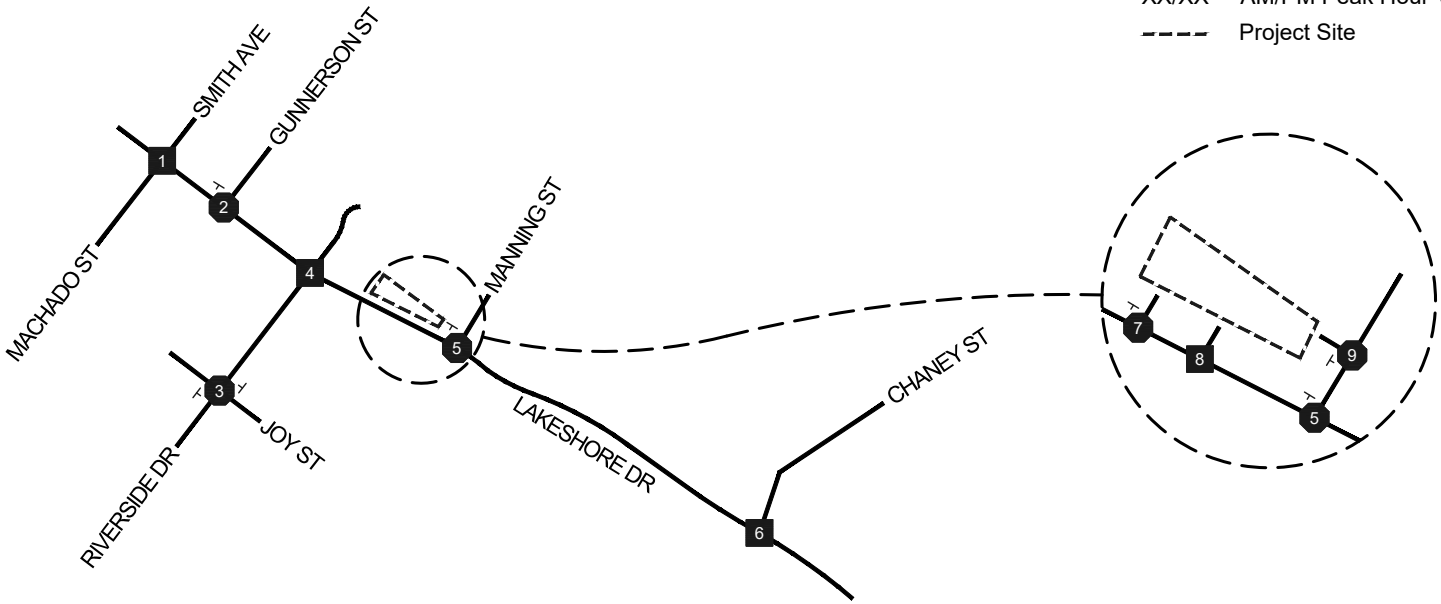


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Exhibit 10: EAPC AM/PM Peak Hour Intersection Volumes

BPE-18-003 The Lakeshore Plaza Traffic Impact Analysis

Not to Scale

Table 14:
Intersection Analysis – EAPC Conditions

Intersection	Control Type	Peak Hour	Existing Conditions	EAPC (2019) Conditions		
			Delay[1] – LOS	Delay[1] – LOS	Change	Impact?
#1 - Machado Street/Lakeshore Drive	Signal	AM	26.6 - C	34.5 - C	7.9	No
		PM	32.5 - C	44.7 - D	12.2	No
#2 - Gunnerson Street/Lakeshore Drive	OWSC	AM	20.9 - C	**43.5 - E**	22.6	**Yes**
		PM	22.3 - C	**46.4 - E**	24.1	**Yes**
#3 - Riverside Drive/Joy Street	TWSC	AM	**235.4 - F**	**1201.7 - F**	966.3	**Yes**
		PM	**533.9 - F**	**2687.0 - F**	2153.1	**Yes**
#4 - Riverside Drive/Lakeshore Drive	Signal	AM	30.3 - C	48.4 - D	18.1	No
		PM	36.0 - D	**59.3 - E**	23.3	**Yes**
#5 - Manning Street/Lakeshore Drive	OWSC	AM	11.7 - B	15.9 - C	4.2	No
		PM	14.7 - B	21.4 - C	6.7	No
#6 - Chaney Street/Lakeshore Drive	Signal	AM	5.3 - A	30.1 - C	24.8	No
		PM	5.9 - A	30.2 - C	24.3	No
#7 - Dwy 1/Lakeshore Dr	OWSC	AM	-	11.0 - B	11.0	No
		PM	-	14.7 - B	14.7	No
#8 - Dwy 2/Lakeshore Dr	Signal	AM	-	18.6 - B	18.6	No
		PM	-	29.2 - C	29.2	No
#9 - Manning St/Dwy 3	OWSC	AM	-	8.4 - A	8.4	No
		PM	-	8.5 - A	8.5	No

Note: AWSC = All- Way Stop-Control, TWSC = Two-Way Stop Control, OWSC = One-Way Stop Control, Delay shown in seconds per vehicle.
1 = Per the Highway Capacity Manual 6th Edition, overall average delay and LOS are shown for signalized and all-way stop-controlled intersections. For intersections with one-or-two-way stop-control, the delay and LOS for the worst individual movement is shown.

As shown in ***Table 14***, the study intersections are projected to continue to operate at an acceptable LOS during the AM and PM peak hours for *EAPC* conditions with the exception of the following intersections:

- #2 - Gunnerson Street/Lakeshore Drive (LOS E AM/PM Peak Hour)
- #3 - Riverside Drive/Joy Street (LOS F AM/PM Peak Hour)
- #4 - Riverside Drive/Lakeshore Drive (LOS E PM Peak Hour)

Based on the thresholds of significance for *EAPC* conditions previously discussed in *Section 2.5*, the addition of project generated trips to these two intersections represents a cumulative impact.

7.4 EAPC CONDITIONS SIGNAL WARRANT ANALYSIS

Traffic signal warrants for existing conditions have been prepared based on *EAPC* peak hour intersection volumes at the unsignalized study intersections and project site access locations.

Table 15 summarizes the results of the signal warrant analysis. Detailed warrant analysis sheets are contained in ***Appendix D***.

Table 15:
Signal Warrant Analysis – EAPC Conditions

Intersection	Signal Warrants Met?	
	AM Peak Hour	PM Peak Hour
#2 - Gunnerson Street/Lakeshore Drive	No	No
#3 - Riverside Drive/Joy Street	Yes	Yes
#4 - Manning Street/Lakeshore Drive	No	No

Peak hour signal warrants are met at the following unsignalized study intersections for EAPC conditions:

- #3 – Riverside Drive/Joy Street (AM/PM Peak Hour)

7.5 EAPC RECOMMENDED IMPROVEMENTS

The project's contribution to applicable transportation impact fee programs or as a fair share contribution towards a cumulatively impacted facility not found to be covered by a pre-existing fee program should be considered sufficient to address the project's fair share towards mitigation measure(s) designed to alleviate cumulative project impacts

The following improvements are recommended at the cumulatively impacted study intersections for *EAPC* conditions to reduce peak hour delay and improve the intersections to LOS D or better:

EAPC Recommended Improvement (EAPC-1): Gunnerson Street/Lakeshore Drive – Signalize existing intersection.

EAPC Recommended Improvement (EAPC-2): Riverside Drive/Joy Street – Signalize existing intersection.

EAPC Recommended Improvement (EAPC-3) Riverside Dr/Lakeshore Dr – Improve westbound Lakeshore Drive to include 2 left turn lanes, 2 through lanes, and 1 shared through/right lane. Improve eastbound Lakeshore Drive to include 2 left turn lanes, 2 through lanes, and 1 right turn lane. Improve northbound Riverside Drive to include 2 left turn lanes, 1 through lanes, and 1 share through/right lane. Improve southbound Riverside Drive to include 1 left turn lane, 2 through lanes, 1 shared through/right lane, and 1 right turn lane. Re-time existing signalized intersection to include a right turn overlap phase for eastbound Lakeshore Drive. These improvements are in line with the General Plan Buildout Conditions found in ***Section 3.4 – Transportation and Circulation of the City of Lake Elsinore General Plan***.

Table 16:

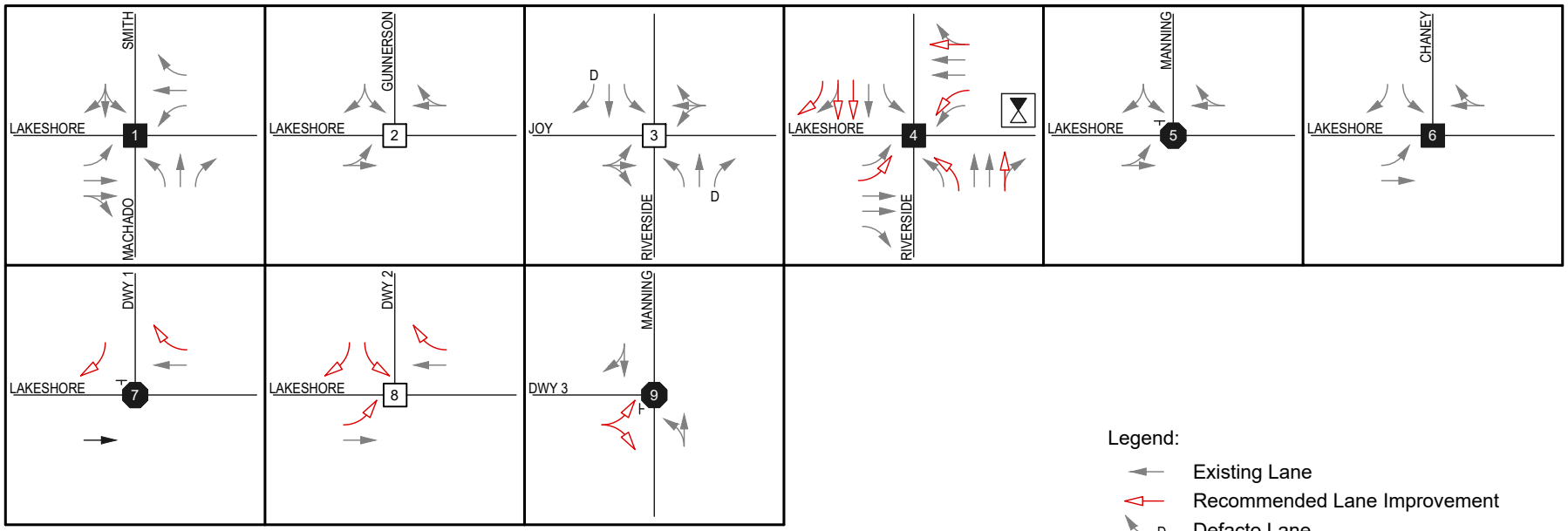
Intersection Analysis – EAPC Conditions with Recommended Improvements

Intersection	Peak Hour	EAPC Conditions	EAPC With Recommended Improvements	
		Delay[1] – LOS	Delay[1] – LOS	Impact?
#2 - Gunnerson Street/Lakeshore Drive	AM	**43.5 - E**	4.9 - A	No
	PM	**46.4 - E**	5.1 - A	No
#3 - Riverside Dr/Joy St	AM	**1201.7 - F**	16.7 - B	No
	PM	**2687.0 - F**	11.5 - B	No
#4 - Riverside Dr/Lakeshore Dr	AM	48.4 - D	27.2 - C	No
	PM	**59.3 - E**	27.9 - C	No

1 = Per the Highway Capacity Manual 6th Edition, overall average delay and LOS are shown for signalized and all-way stop-controlled intersections. For intersections with one-or-two-way stop-control, the delay and LOS for the worst individual movement is shown.

As shown in ***Table 16***, with the recommended improvements, the study intersections are projected to operate at an acceptable LOS (LOS D or better) for improved EAPC conditions. This recommendation is consistent with the City's thresholds of significance for intersections operating at existing LOS F to be restored or improved beyond existing operating conditions.

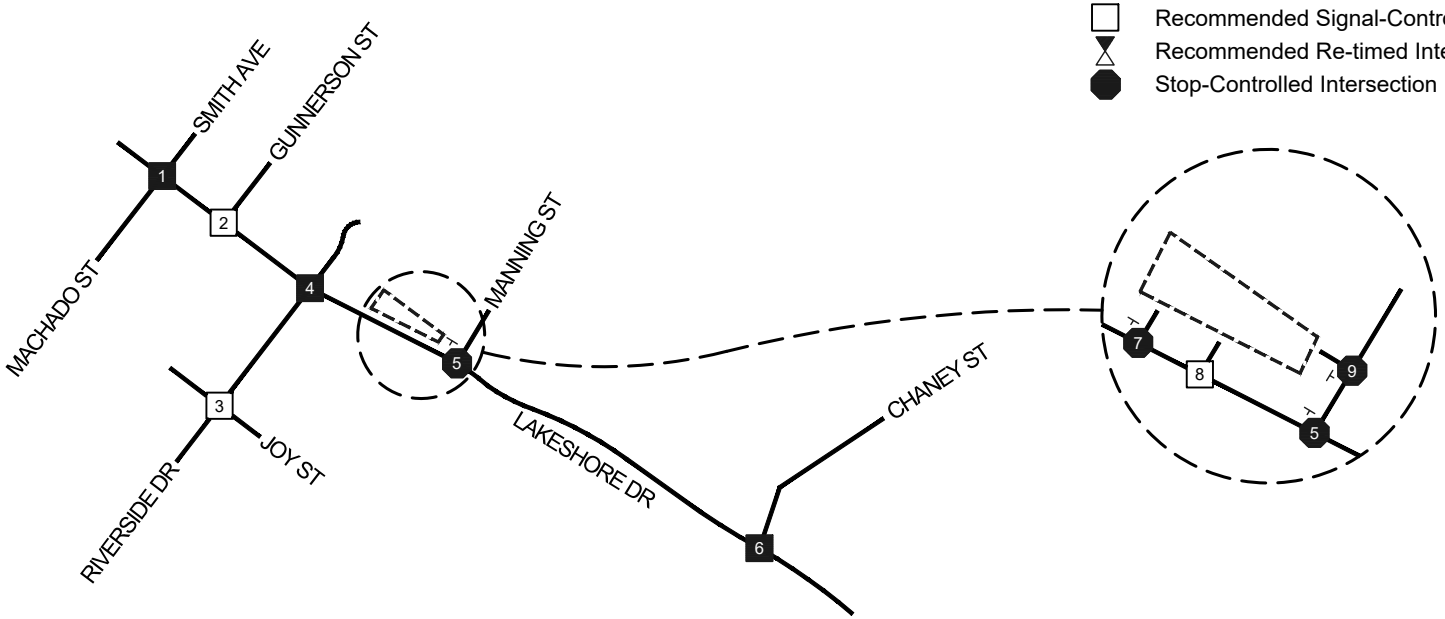
Exhibit 11 shows *EAPC* conditions intersection and roadway geometry with the recommended improvements.



Note: Intersections 7 through 9 show improvements associated with the proposed project

Legend:

- Existing Lane
- Recommended Lane Improvement
- D Defacto Lane
- Signal-Controlled Intersection
- Recommended Signal-Controlled Intersection
- Recommended Re-timed Intersection
- Stop-Controlled Intersection



TJW ENGINEERING, INC.

Exhibit 11:
EAPC Lane Geometry and Intersection with Recommended Improvements

BPE-18-003 The Lakeshore Plaza Traffic Impact Analysis

Not to Scale

8.0 LOCAL AND REGIONAL FUNDING MECHANISMS

Transportation improvements throughout the County of Riverside are funded through a combination of direct project mitigation, fair share contributions or development impact fee programs such as the City's adoption of the Transportation Uniform Mitigation Fee (TUMF) program and the City of Lake Elsinore Traffic Impact Fee (TIF) program. It is anticipated that the proposed project will be subject to the TUMF and the City's TIF. Identification and timing of needed improvements is generally determined through local jurisdictions based upon a variety of factors.

The project's contribution to the aforementioned transportation impact fee programs or as a fair share contribution towards a cumulatively impacted facility not found to be covered by a pre-existing fee program should be considered sufficient to address the project's fair share towards mitigation measure(s) designed to alleviate the cumulative impact. Discussion of the relevant pre-existing transportation impact fee programs is provided in the next section of this report.

The City Engineer will ultimately determine the improvements required at off-site intersections.

8.1 TRANSPORTATION UNIFORM MITIGATION FEE (TUMF) PROGRAM

The TUMF program is administered by the Western Riverside Council of Governments (WRCOG) based upon a regional Nexus Study completed in early 2002 and updated in 2005, 2009, 2015 and 2017 to address major changes in right of way acquisition and improvement cost factors. The TUMF program identifies network backbone and local roadways that are needed to accommodate growth through 2035. The regional program was put into place to ensure that developments pay their fair share and that funding is in place for the construction of facilities needed to maintain an acceptable level of service for the transportation system. The TUMF is a regional mitigation fee program and is imposed and implemented in every jurisdiction in Western Riverside County.

TUMF fees are imposed on new residential, industrial and commercial development through application of the TUMF fee ordinance and fees are collected at the building or occupancy permit phase. The current fee for retail use is $7.50 per square foot.

The proposed project will participate in the cost of off-site improvements through payment of TUMF fees based on the current fees at the time of construction of the proposed project.

8.2 CITY OF LAKE ELSINORE TRAFFIC IMPACT FEE (TIF) PROGRAM

The proposed project is located within the City of Lake Elsinore and will therefore be subject to the City's Traffic Impact Fees (TIF) and a fair share contribution to project impacts. The City's TIF program includes facilities that are not part of the regional TUMF program.

The proposed project will participate in the cost of off-site improvements through payment of City TIF fees based on the current fees at the time of construction of the proposed project.

8.3 FAIR SHARE CALCULATIONS

The proposed project will participate in the cost of off-site improvements through payment of City TIF fees based on the current fees at the time of construction of the proposed project. The project's contribution to the aforementioned transportation impact fee programs or as a fair share contribution towards a cumulatively impacted facility not found to be covered by a pre-existing fee program should be considered sufficient to address the project's fair share towards mitigation measure(s) designed to alleviate cumulative project impacts. ***Table 17*** calculates the proposed project's fair share percentage at impacted intersections.

Table 17:
Fair Share Calculations

Intersection	Existing AM&PM Peak Hour Volume (A)	EAPC AM&PM Peak Hour Volume (B)	Project AM&PM Peak Hour Volume (C)	Fair Share (C) / (B-A)
#2 - Gunnerson St/Lakeshore Dr	2699	3430	113	15.46%
#3 - Riverside Dr/Joy St	4293	5118	113	13.70%
#4 - Riverside Dr/Lakeshore Dr	5881	7511	292	17.91%

9.0 SHARED PARKING ANALYSIS

9.1 MUNICIPAL CODE PARKING REQUIREMENTS

Section 17.148.030 of the *Lake Elsinore Municipal Code* outlines the minimum parking requirements for various land use classifications. ***Table 18*** summarizes the minimum parking requirements for the proposed project.

Table 18:
Minimum Parking Requirements

Land Use	Municipal Code Parking Requirement			Proposed Land Use	Total Spaces Required
	Spaces	Per	Unit[1]	Qty	
Commercial Shopping Center	1	250	SF	36,120	145
Restaurant	1	45[2]	SF	2,450	55
	1	200[2]	SF	4,550	23
				Total	**223**

[1]SF = square feet
[2]1 space per 45 SF of costumer area, 1 space per 200 SF of noncustomer area

As shown in ***Table 18***, the minimum municipal parking requirement is 223 parking spaces. The project proposes a parking supply of 207 spaces.

9.2 SHARED PARKING ANALYSIS

To confirm that adequate parking is available at the proposed project site, including during the peak season, TJW has prepared an *Urban Land Institute (ULI)* Shared Parking Model for the proposed project.

The principle behind shared parking is that different land uses have different peak periods of parking demand, therefore they may be able to share a single pool of parking. This would allow for less parking than if each use had to provide enough parking to satisfy its peak parking demand separately. The shared parking model can also include adjustments for mode splits (using transit, biking, or walking to site) and internal trip capture (trips between two land uses on a single site – such as a patron visiting a retail space and then picking up food at a restaurant within the same site).

The shared parking model incorporates *ULI* base parking ratios for various land uses based on years of research into parking demand. For the purpose of this report, *ULI* base parking ratios were modified based on city code standards. The model also incorporates seasonal and time of day factors to determine projected parking demand for each hour of the day and month of the year to determine when peak parking demand occurs.

A shared parking model was prepared based on the land uses at the proposed Lakeshore Plaza project. ***Appendix E*** contains the detailed inputs and results of the shared parking analysis. ***Table 19*** contains the shared parking model results.

Table 19:
Shared Parking Analysis Results

Time of Week	Peak Month	Peak Time	Peak Parking Demand (Spaces)	Municipal Requirement (Spaces)	Proposed (Spaces)
Weekday	December	1:00 PM	207	223	207
Weekend	December	1:00 PM	198		

As shown in ***Table 19***, the ULI shared parking model projects peak weekday parking demand at the site to occur at 1:00 PM in December at 207 total parking spaces. Peak weekend parking demand at the site is projected to occur at 1:00 PM in December at 198 total parking spaces. The peak month and peak hour are based on seasonal and time of day data collected by *ULI* for various land uses.

Based on the results of the shared parking analysis, although the minimum municipal parking requirement is 223 parking spaces, the proposed parking supply of 207 parking spaces is projected to adequately accommodate peak parking demand at the project site.

Appendices

APPENDIX A

APPROVED SCOPING AGREEMENT, CITY OF LAKE ELSINORE GENERAL PLAN ROADWAY CLASSIFICATIONS AND CROSS SECTIONS

SCOPING AGREEMENT FOR TRAFFIC IMPACT STUDY

This letter acknowledges the City of Lake Elsinore requirements for traffic impact analysis of the following project. The analysis must follow the Riverside County Transportation Department Traffic Study Guidelines dated February 2008.

Case No. (i.e. TR, PM, CUP, PP)
Related Cases -
SP No. *Provide SP No. and list of other approved or active projects within the SP.*
EIR No.
GPA No.
CZ No.
Project Name: Lakeshore Plaza
Project Address: Northwest corner of Lakeshore Drive and Manning Street
Project Description: Shopping Center - 36,120 SF of retail and 7,000 SF of restaurant

	Consultant	Developer
Name:	TJW Engineering	AB Group
Address:	6 Venture Suite 225 Irvine, CA 92618	70 Quarter Horse Irvine, CA 92602
Telephone:	949-878-3509	714-389-4144
Fax:		

A. Trip Generation Source: (ITE lastest Edition) ITE 10th Edition Trip Generation Manual

Current GP Land Use *Provide General Plan Land Use Designation (e.g.: MDR, CR, etc)* Proposed Land Use

Current Zoning C-1 Neighborhood Commercial Proposed Zoning C-1 Neighborhood Commercial

	Current Trip Generation In	Out	Total	Proposed Trip Generation In	Out	Total
AM Trips				125	83	208
PM Trips				123	119	242

Internal Trip Allowance ☐ Yes ☐ No (% Trip Discount)
Pass-By Trip Allowance ☒ Yes ☐ No (25% % Trip Discount)

See attached trip generation

A passby trip discount of 25% is allowed for appropriate land uses. The passby trips at adjacent study area intersections and project driveways shall be indicated on a report figure.

B. Trip Geographic Distribution: N % S % E % W %
(attach exhibit for detailed assignment)

See attached trip ditribution

C. Background Traffic

Project Build-out Year: 2021 *Provide realistic opening year, considering time needed for approvals and construction.* Annual Ambient Growth Rate: 2 %
Phase Year(s) Single Phase
Other area projects to be analyzed: Cumulative projects - review of adjacent current development reports

Model/Forecast methodology Annual Ambient Growth Rate

D. Study intersections: *(NOTE: Subject to revision after other projects, trip generation and distribution are determined, or comments from other agencies.)*

1. Machado St / Lakeshore Dr
2. Lakeshore Dr / Riverside Dr
3. Riverside Dr / Joy St
4. Lakeshore Dr / Manning St
5. Lakeshore Dr / Chaney St
6. Gunnerson St / Lakeshore Dr
7. Project Driveways
8.
9.
10.

E. Study Roadway Segments: *(NOTE: Subject to revision after other projects, trip generation and distribution are determined, or comments from other agencies.)*

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.

E. Other Jurisdictional Impacts

Is this project within another Sphere of Influence or one-mile radius of City boundaries? [x] Yes [ ] No

If so, name of Jurisdiction: Caltrans

F. Site Plan (please attach reduced copy)

G. Specific issues to be addressed in the Study (in addition to the standard analysis described in the Guideline) (To be filled out by City Staff)
(NOTE: If the traffic study states that "a traffic signal is warranted" (or "a traffic signal appears to be warranted," or similar statement) at an existing unsignalized intersection under existing conditions, 8-hour approach traffic volume information must be submitted in addition to the peak hourly turning movement counts for that intersection.)

Shared parking analysis will be included in the study to determine appropriate number of spaces

H. Existing Conditions

Traffic count data must be new or recent. Provide traffic count dates if using other than new counts.
Date of counts New counts (conducted 2018 and 2019)

***NOTE* Traffic Study Submittal Form and appropriate fee must be submitted with, or prior to submittal of this form. Staff will not process the Scoping Agreement prior to receipt of the fee.**

Recommended by:

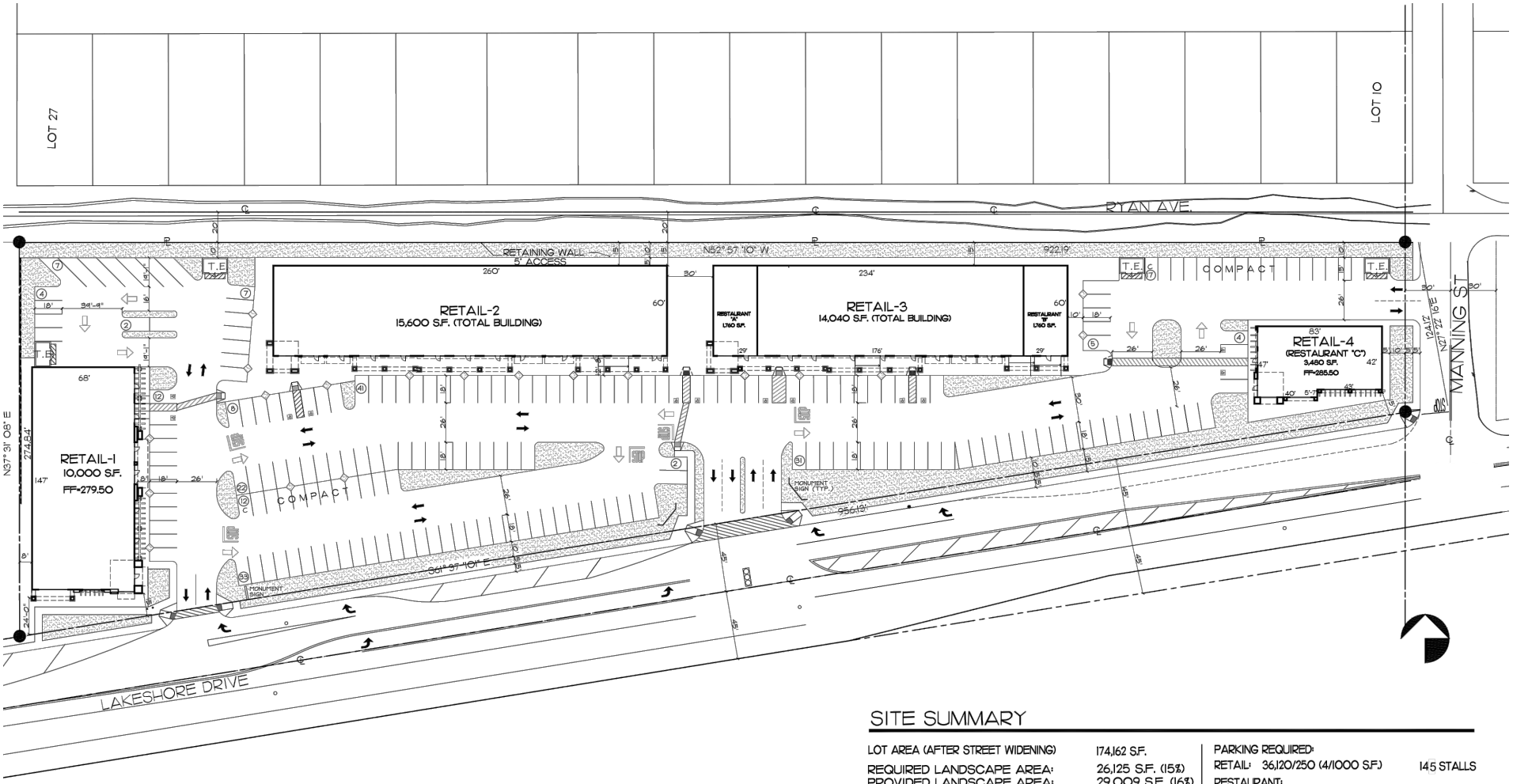
TJW Engineering - David Chew — 10-22-19
Consultant's Representative — Date

Approved Scoping Agreement:

NRL — 10/25/2019
City of Lake Elsinore — Date

Scoping Agreement Submitted on _____

Revised on _____, _____, _____, _____



SITE SUMMARY

LOT AREA (AFTER STREET WIDENING)	174,162 S.F.
REQUIRED LANDSCAPE AREA:	26,125 S.F. (15%)
PROVIDED LANDSCAPE AREA:	29,009 S.F. (16%)
TOTAL BUILDING	43,120 S.F.
• RETAIL:	36,120 S.F.
• RESTAURANT:	7,000 S.F.
BUILDING COVERAGE PERCENTAGE:	24%

PARKING REQUIRED:	
RETAIL: 36,120/250 (4/1000 S.F.)	145 STALLS
RESTAURANT:	
• CUSTOMER AREA (7,000X35%)/45	55 STALLS
• BOH AREA (7,000X65%)/200	23 STALLS
PARKING REQUIRED:	223 STALLS
PARKING PROVIDED:	207 STALLS
	16
REQUIRED ADA PARKING STALLS:	223X 2% = 5
PROVIDED ADA PARKING STALLS:	12 STALLS
ALLOWED COMPACT PARKING STALLS:	223 / 4 = 56
PROVIDED COMPACT PARKING STALLS:	29 STALLS

SECTION 9.0, TABLE 18, (MIN. REQ.).....207 STALLS

TJW ENGINEERING, INC.

Exhibit 1: Proposed Project Site Plan

BPE-18-003 The Lakeshore Plaza Traffic Impact Analysis

Not to Scale

Proposed Land Use[1]	Qty	Unit	Daily Trips (ADTs)		AM Peak Hour					PM Peak Hour					Pass-By % Reduction		
			Rate	Volume	Rate	In:Out Split	Volume			Rate	In:Out Split	Volume					
							In	Out	Total			In	Out	Total	AM	PM	Daily
Shopping Center (820)	36.12	TSF	83.28	3,008	4.71	62:38	105	65	170	7.09	48:52	123	133	256	10%	25%	10%
High Turn-Over Sit-Down Restaurant (932)	7.00	TSF	112.18	785	9.94	55:45	39	32	70	9.77	62:38	42	26	68	20%	25%	20%
Subtotal				3,793			144	96	240			165	159	324			
Pass-By Trips				-458			-19	-13	-32			-42	-40	-82			
Total				**3,335**			**125**	**83**	**208**			**123**	**119**	**242**			

1: Rates from ITE Trip Generation (10th Edition, 2017)

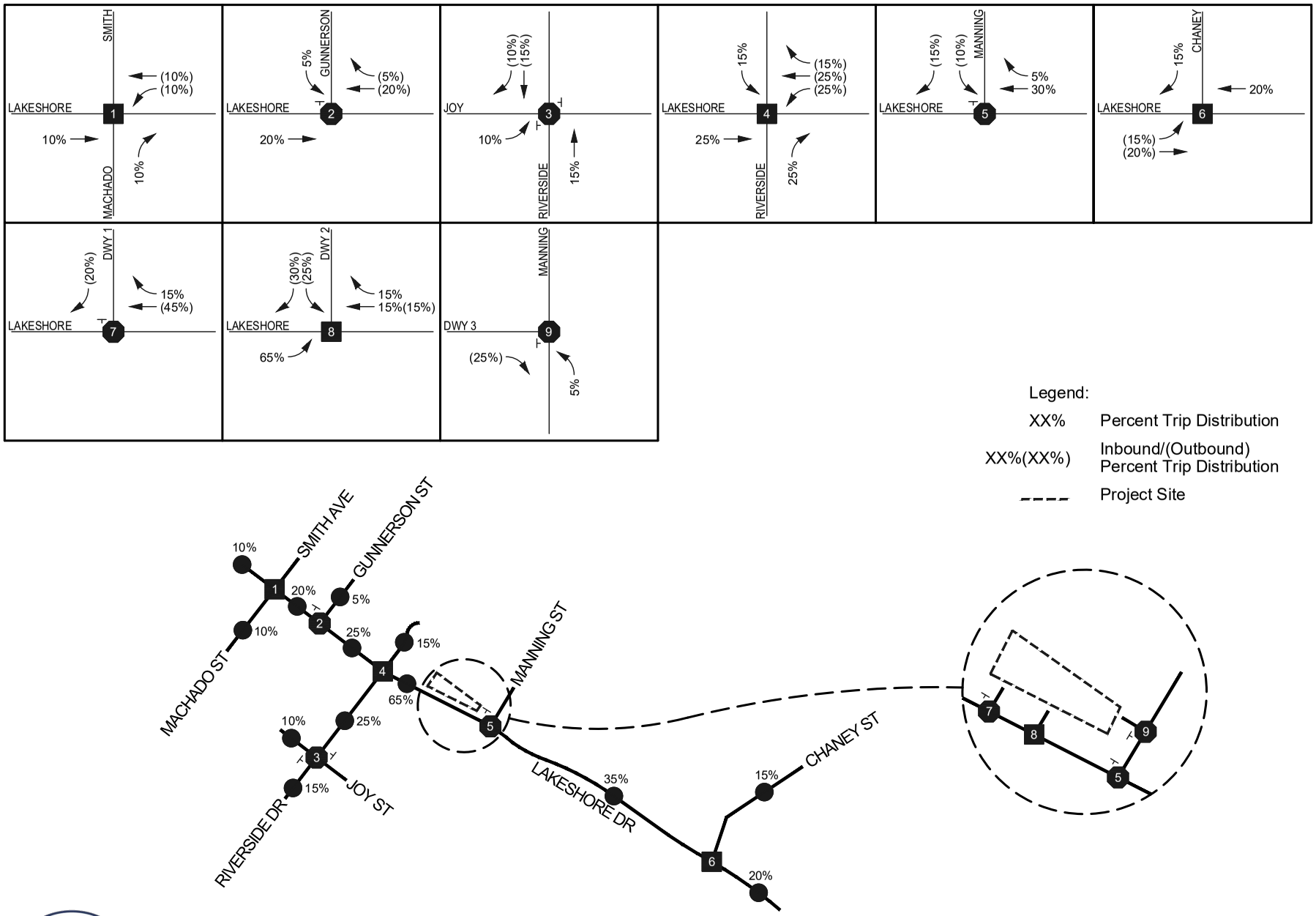
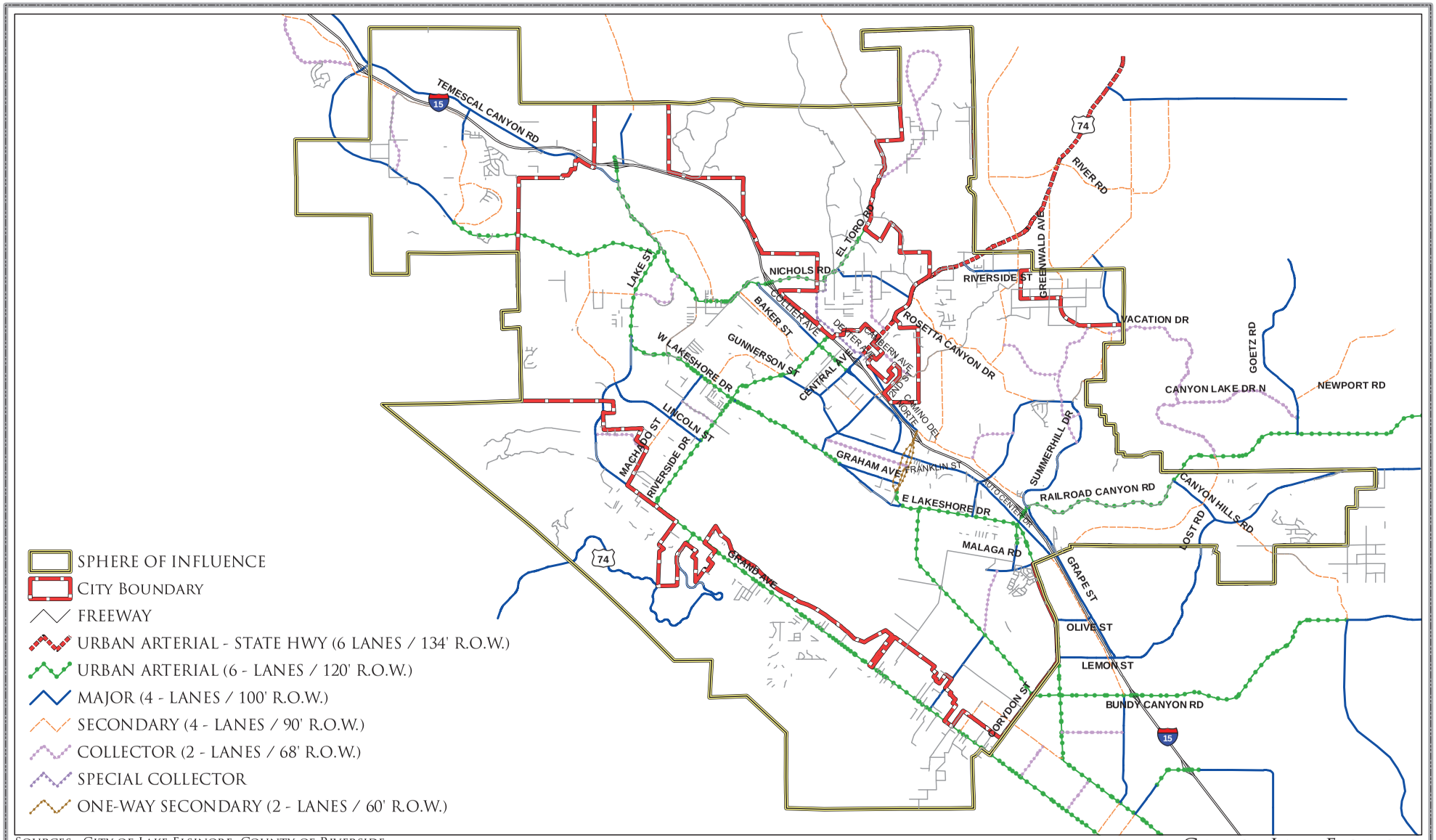


Exhibit 5A:
Trip Distribution of Proposed Project Trips at Study Intersections

BPE-18-003 The Lakeshore Plaza Traffic Impact Analysis

TJW ENGINEERING, INC.

Not to Scale

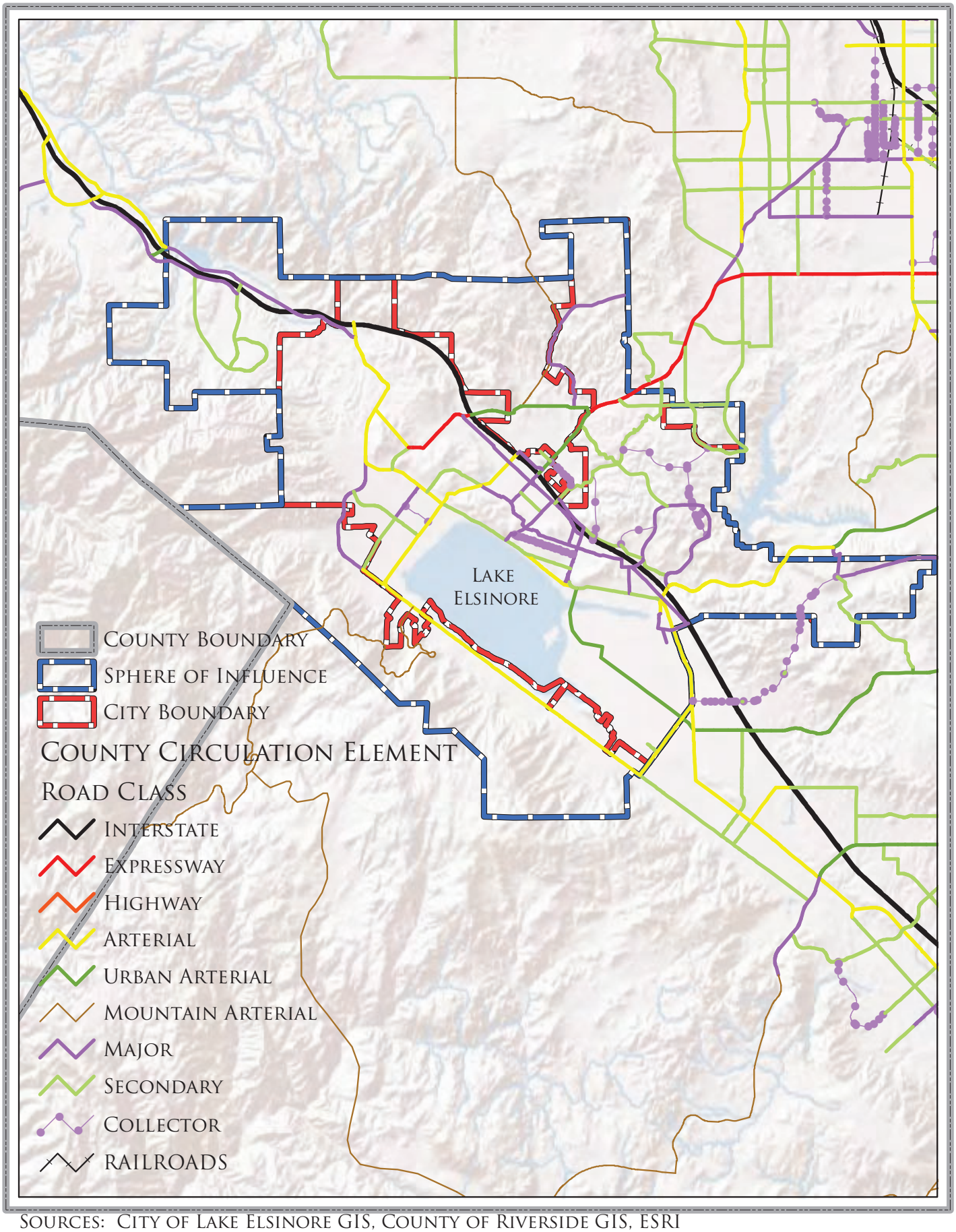


SOURCES: CITY OF LAKE ELSINORE, COUNTY OF RIVERSIDE

CITY OF LAKE ELSINORE
DREAM EXTREME

CITY OF LAKE ELSINORE CURRENTLY ADOPTED GENERAL PLAN CIRCULATION ELEMENT

FIGURE 3.4-4



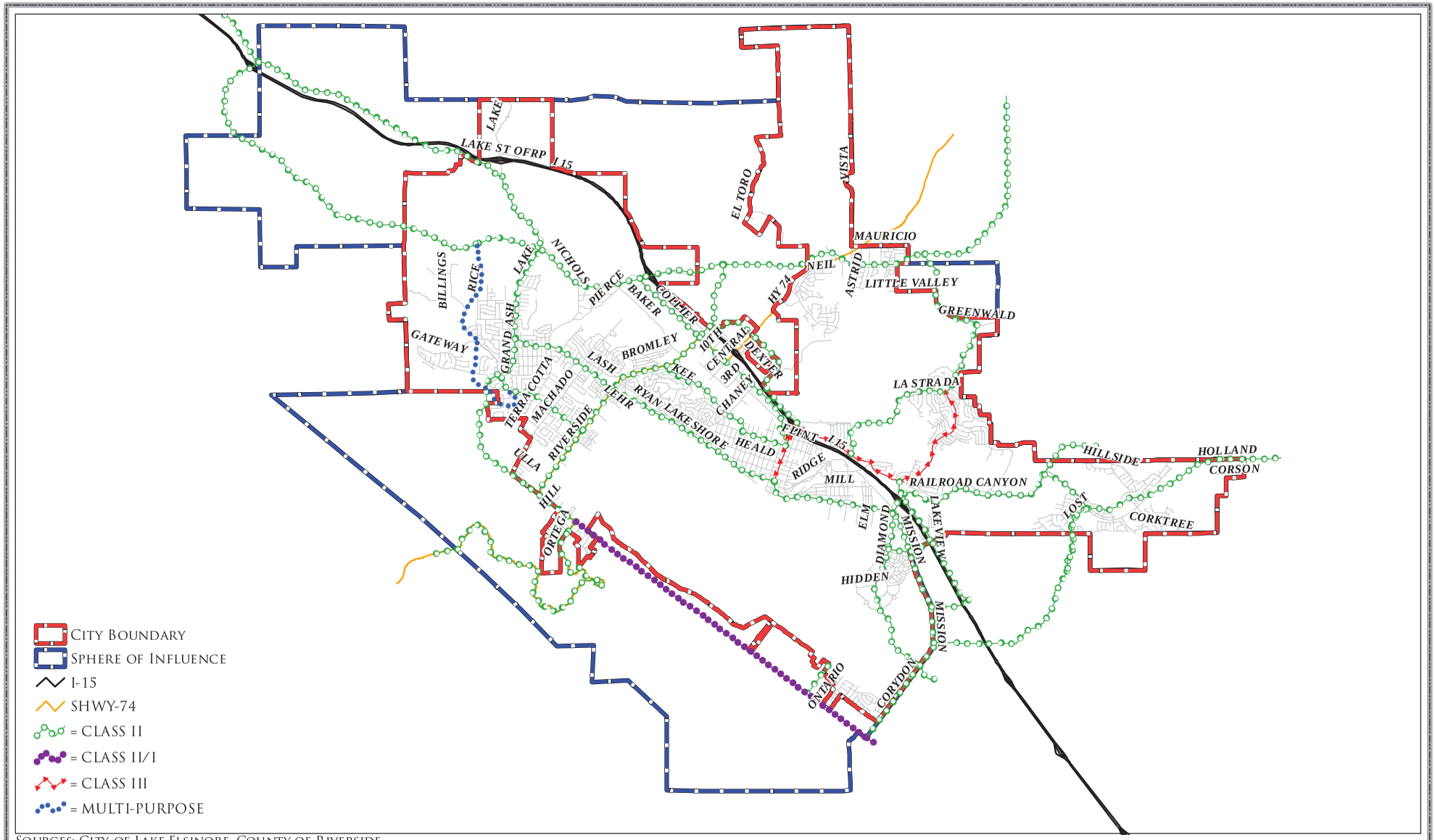
Sources: City of Lake Elsinore GIS, County of Riverside GIS, ESRI

City of Lake Elsinore
Dream Extreme

Riverside County
General Plan Circulation Element
Figure 3.4-5

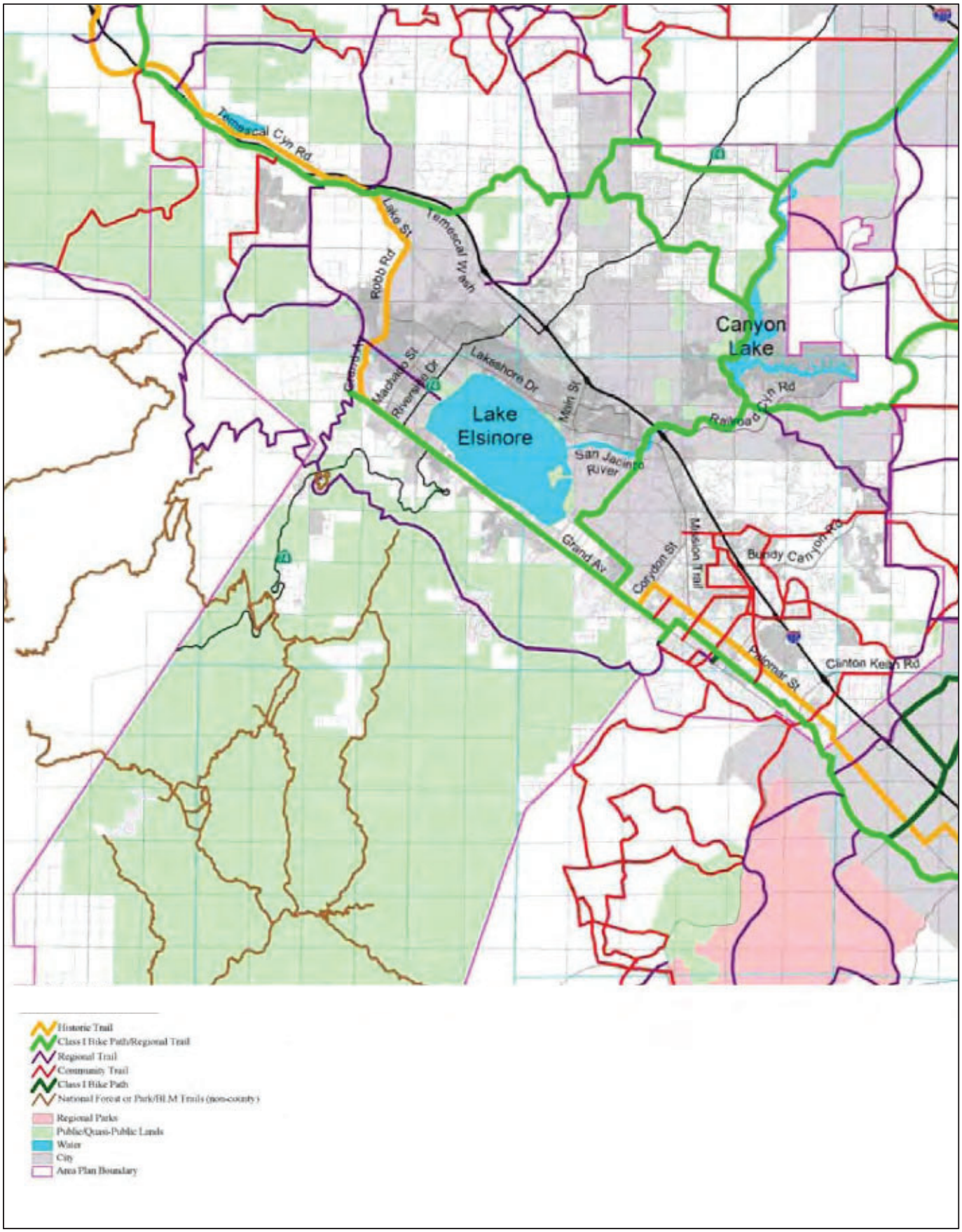
Sources: Urban Crossroads

City of Lake Elsinore
Existing Transit System
Figure 3.4-10



Sources: City of Lake Elsinore, County of Riverside

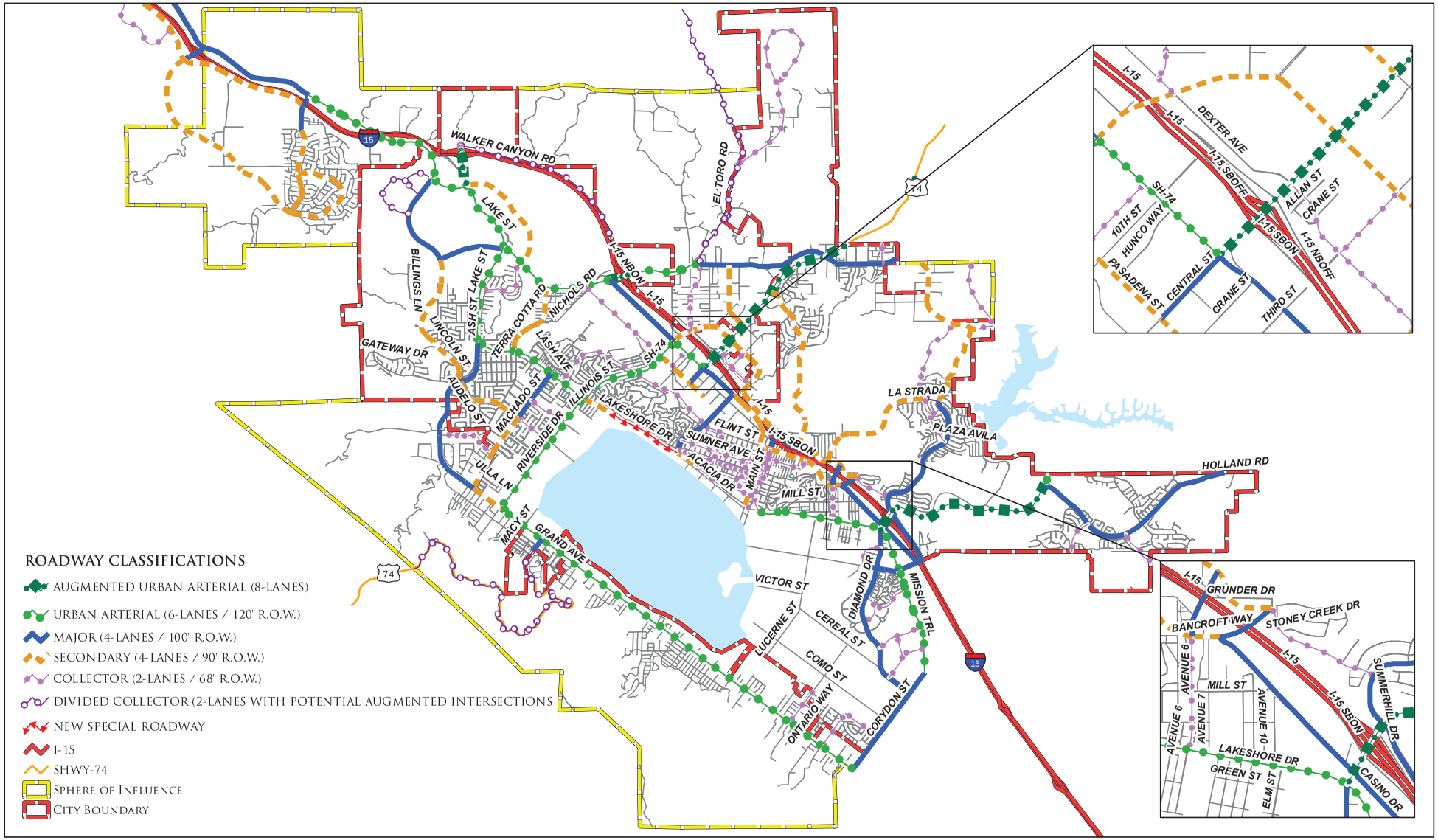
City of Lake Elsinore
Existing Bikeway Plan
Figure 3.4-11



SOURCES: COUNTY OF RIVERSIDE

CITY OF LAKE ELSINORE DREAM EXTREME

ELSINORE AREA
TRAILS AND BIKEWAY SYSTEM
FIGURE 3.4-12

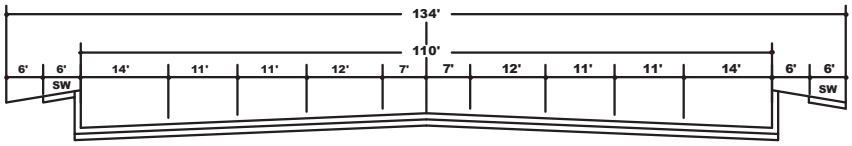


SOURCES: CITY OF LAKE ELSINORE, COUNTY OF RIVERSIDE

CITY OF LAKE ELSINORE
DREAM EXTREME

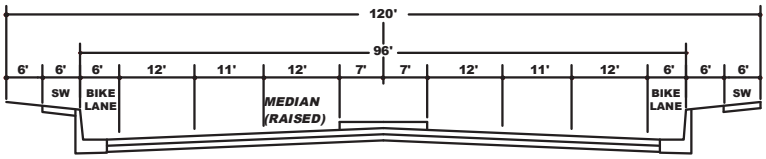
CITY OF LAKE ELSINORE
RECOMMENDED CIRCULATION ROADWAY SYSTEM
FIGURE 3.4-14

CITY OF LAKE ELSINORE PROPOSED LAND USE PLAN SCENARIO
RECOMMENDED ROADWAY CROSS-SECTIONS



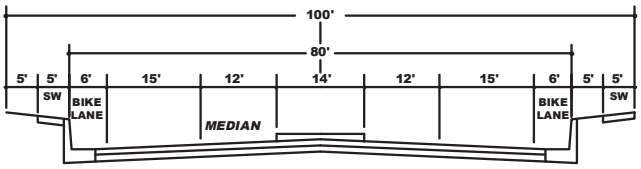
AUGMENTED URBAN ARTERIAL - STATE HIGHWAY

(8-LANE)



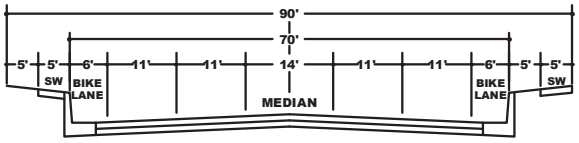
URBAN ARTERIAL HIGHWAY

(6-LANE)



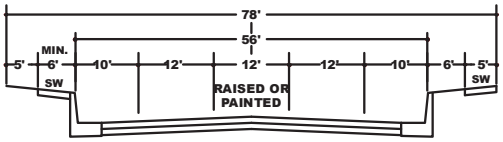
MAJOR HIGHWAY

(4-LANE)



SECONDARY HIGHWAY

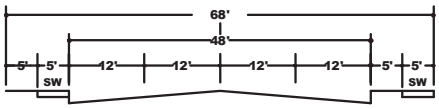
(4-LANE)



DIVIDED COLLECTOR

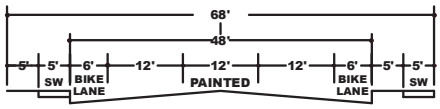
BIKES USE SHOULDER

(2-LANE)



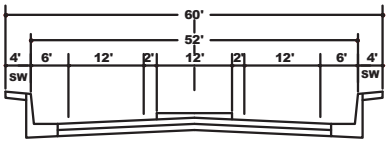
COLLECTOR HIGHWAY

(4-LANE)



COLLECTOR HIGHWAY

(2-LANE)



NEW SPECIAL ROADWAY

SHOULDER/BIKE LANE

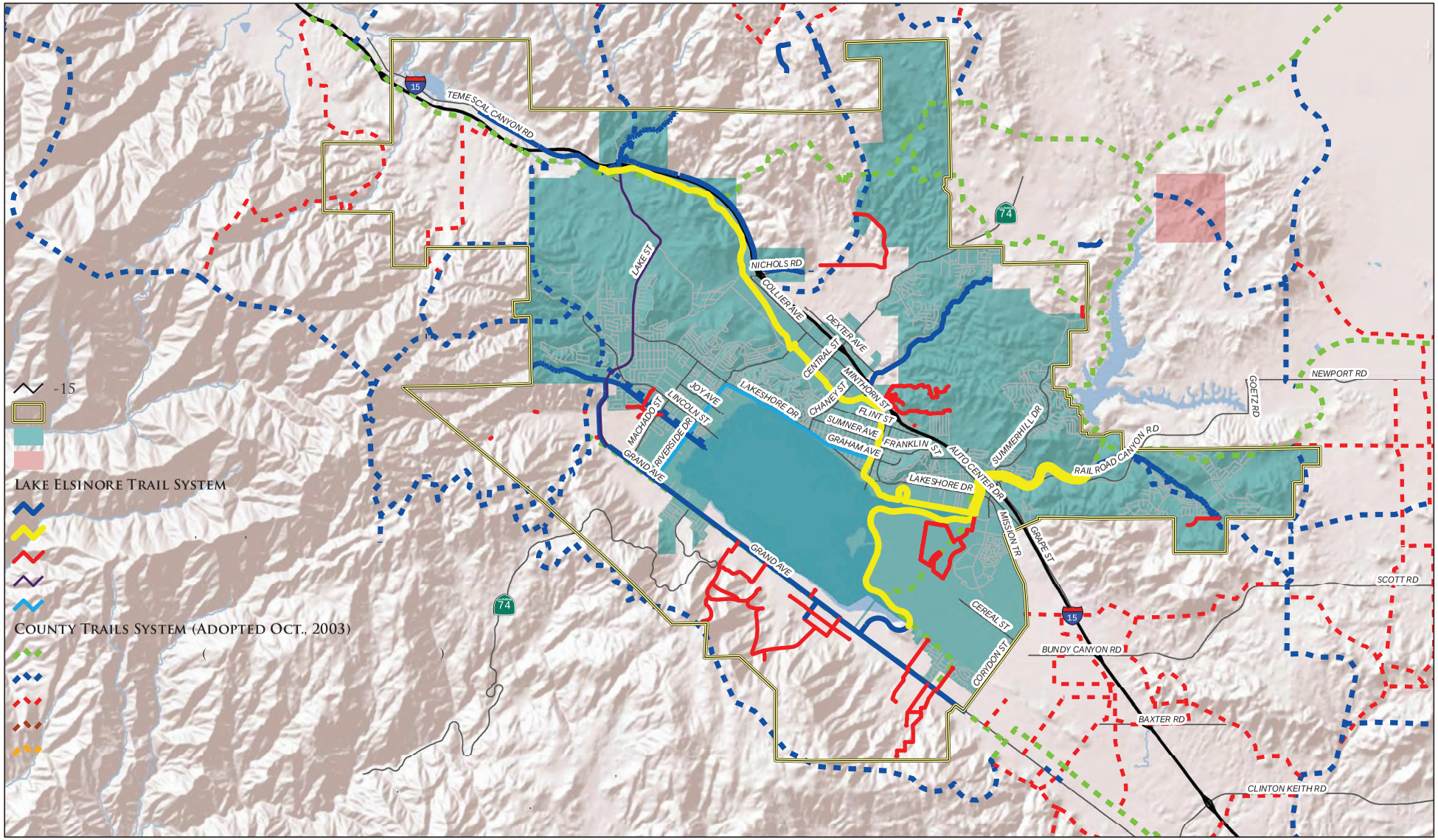
(2-LANE)

(PROPOSED FOR LAKESHORE DRIVE IN THE COUNTRY CLUB HEIGHT DISTRICT)

* BIKE LANES ARE NOT MANDATORY UNLESS SHOWN ON THE BIKEWAY CIRCULATION ELEMENT PLAN
PRECISE SIDEWALK LOCATION SUBJECT TO CITY ENGINEER APPROVAL
NOTE: CHECK THE DISTRICT PLAN OF YOUR AREA FOR ANY REQUIRED SPECIAL ROADWAY CROSS-SECTION, ESPECIALLY THE LAKE EDGE AND COUNTRY CLUB HEIGHTS DISTRICT PLANS.
STRIPPING OF COLLECTOR HIGHWAY AS DIRECTED BY CITY ENGINEER.

Data Source: Urban Crossroads

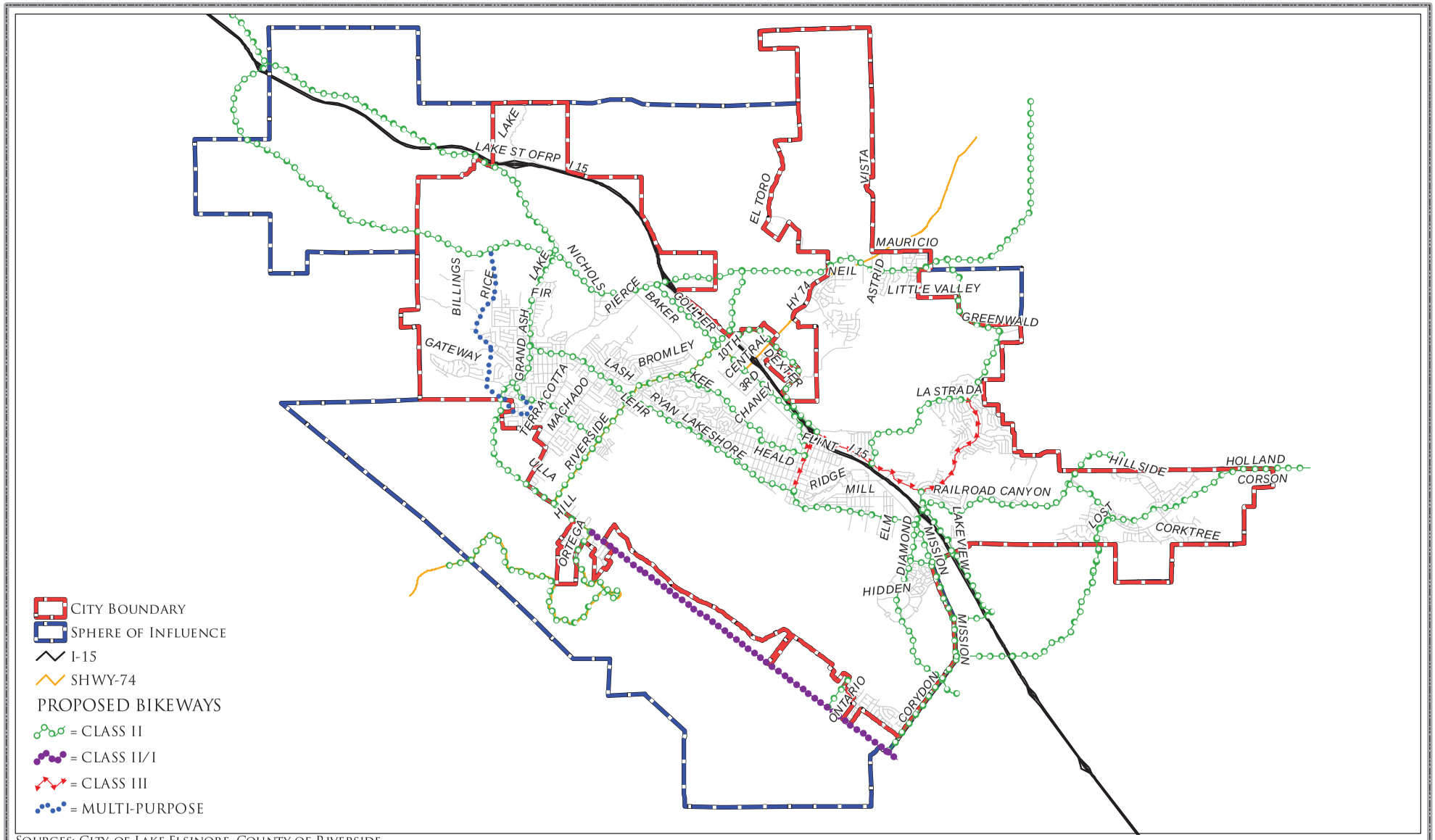
City of Lake Elsinore
Recomended Roadway Cross Sections
Figure 3.4-15



City of Lake Elsinore
Dream Extreme

N

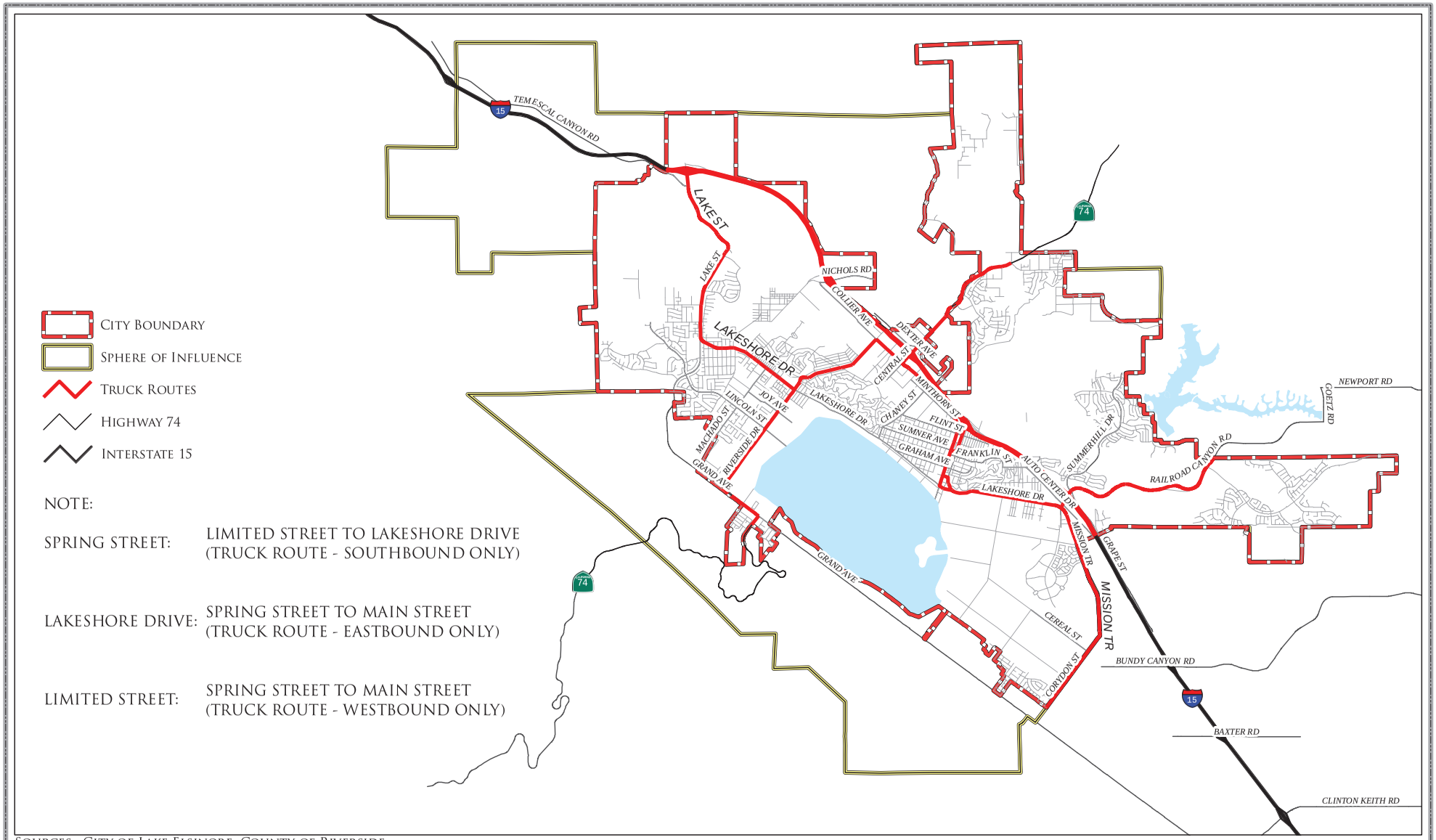
0 0.5 1



SOURCES: CITY OF LAKE ELSINORE, COUNTY OF RIVERSIDE

CITY OF LAKE ELSINORE
DREAM EXTREME

CITY OF LAKE ELSINORE
PROPOSED BIKEWAYS
FIGURE 3.4-25

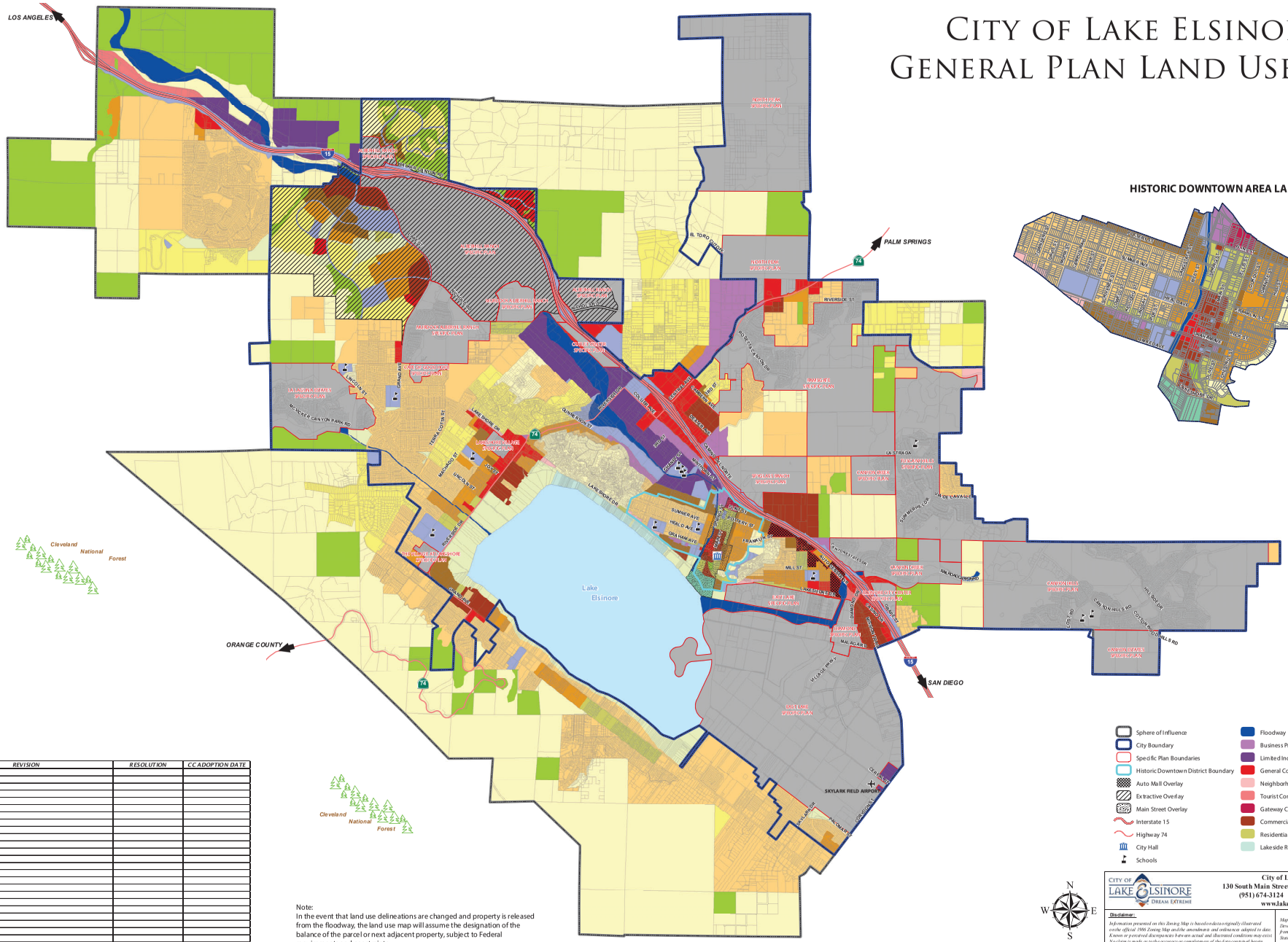


Sources: City of Lake Elsinore, County of Riverside

City of Lake Elsinore
Dream Extreme

City of Lake Elsinore
Truck Route Map
Figure 3.4-26

City of Lake Elsinore
General Plan Land Use Map


LOS ANGELES
PALM SPRINGS
ORANGE COUNTY
SAN DIEGO
Lake Elsinore
Cleveland National Forest
Cleveland National Forest
SKYLARK FIELD AIRPORT
15
74
RIVERSIDE ST
EL TORO ROADWAY
LAKE SHORE DR
MACHADO ST
LINCOLN ST
SUMMER AVE
HIGHLAND AVE
GRAHAM AVE
MILL ST
LAKESHORE DR
MALAGA ST
VILLAGE WAY
LA STRADA
SUPERBLOOM LOOP
JADE CANYON DR
CANYON HILLS RD
COTTONWOOD CANYON
HILLSIDE DR
MALAGA ST
SKYLARK DR
JACKSON ST
CITRUS ST
MAIN ST
GRAND AVE
MACKER CANYON PARK RD
TEMPLE AVE
ROSEBERRY DR
HIGHLAND AVE
ALBERTSONS PARKWAY
LAKESHORE DR
MILL ST
LAKESHORE DR
MALAGA ST
VILLAGE WAY
SKYLARK DR
JACKSON ST
CITRUS ST
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HILLSIDE DR
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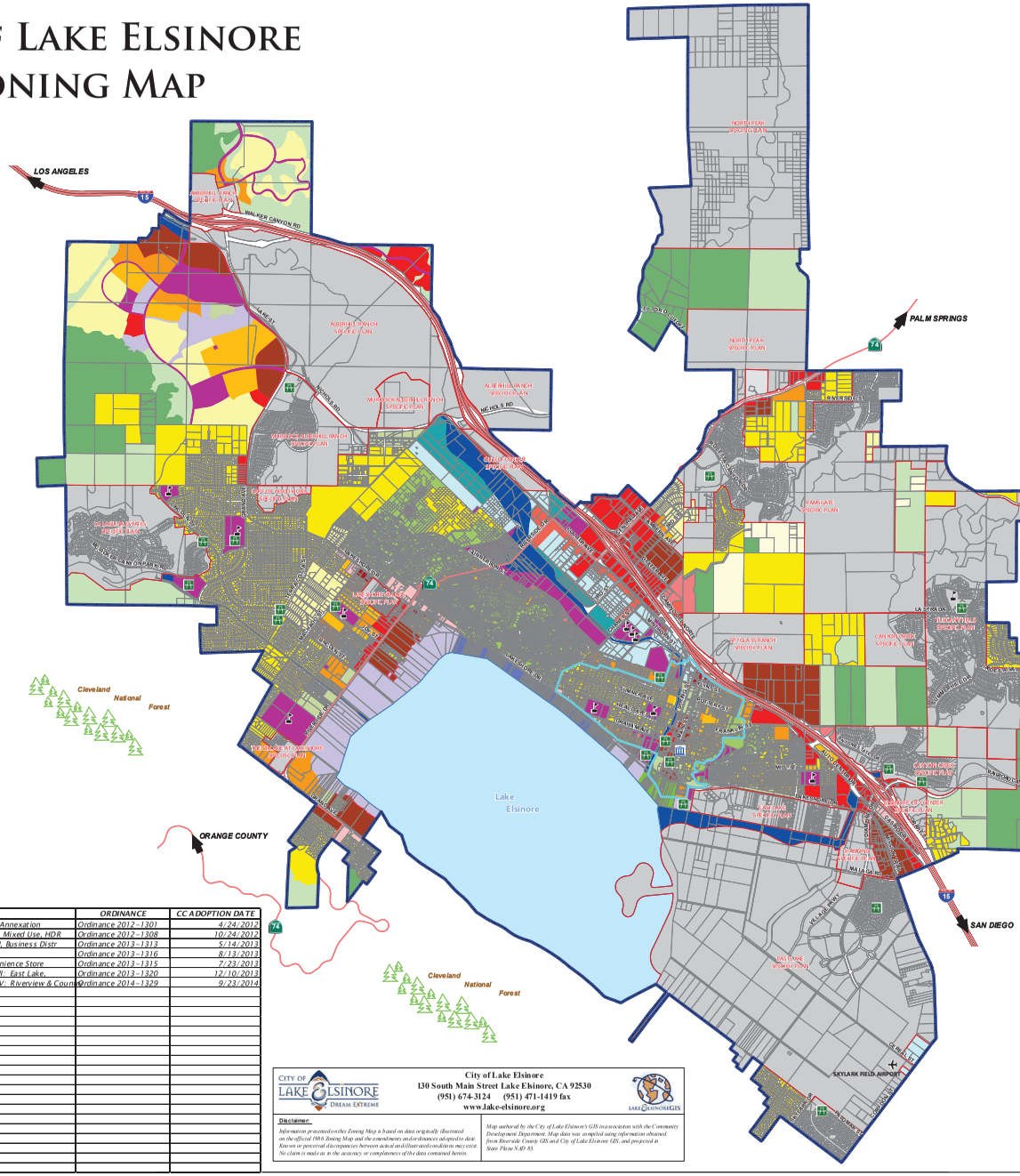
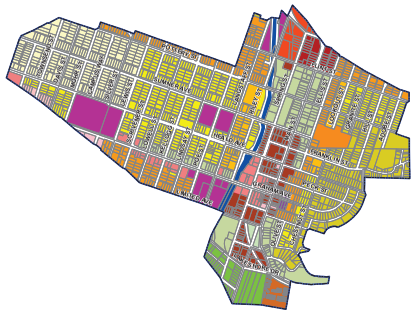
LINCOLN ST
TEMPLE AVE
GRAND AVE
MACKER CANYON PARK RD
ROSEBERRY DR
HIGHLAND AVE
ALBERTSONS PARKWAY
ALBERTSONS PARKWAY
ALBERTSONS PARKWAY

City of Lake Elsinore Zoning Map

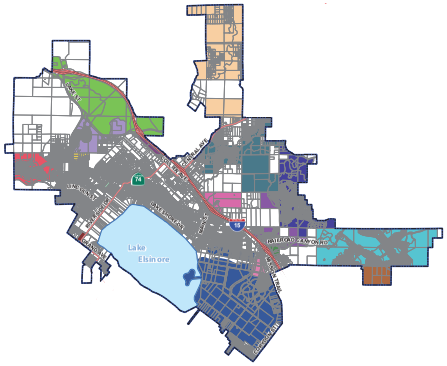


HISTORIC DOWNTOWN AREA ZONING



- R1 - Single Family Residential
- R3 - High Density Residential
- RMU - Residential Mixed Use
- CMU - Commercial Mixed Use
- C1 - Neigborhood Commercial
- C2 - General Commercial
- CO - Commercial Office
- BP- Business Professional
- M1 - Limited Manufacturing
- PI - Public/Institutional
- F - Floodway
- OS - Open Space
- LMD - Low Medium Density Residential
- MD - Medium Density Residential
- MHD - Medium High Density Residential
- HD - High Density Residential
- EC - Existing Condo Complex
- EMH - Existing Mobile Home Complex
- NC - Neighborhood Commercial
- TC - Tourist Commercial
- GC - Gateway Commercial
- DR - Downtown Recreational

SPECIFIC PLAN BOUNDARIES



- Alberhill Ranch
- Canyon Creek
- Canyon Estates
- Canyon Hills
- Cape of Good Hope
- Diamond
- East Lake
- Elsinore City Center
- La Laguna Estates
- Lakeshore Village
- Murdock Alberhill Ranch
- North Peak
- Outlet Center
- Ramsgate
- Spyglass Ranch
- The Village at Lakeshore
- Tuscany Hills

Note: Please refer to adopted Specific Plan to obtain accurate Zoning and Land Use Designations.

REVISION	ORDINANCE	CC ADOPTION DATE
ZC 2012-01 Third Street Annexation No. 81 Pre-Annexation	Ordinance 2012-1301	4/24/2012
ZC 2012-03 Consistency Zoning Project, Phase I, Mixed Use, HDR	Ordinance 2012-1308	10/24/2012
ZC 2013-01 Consistency Zoning Project, Phase II, Business Distr	Ordinance 2013-1313	5/14/2013
SPA 2013-02 East Lake SPA 10, Planning Area 46	Ordinance 2013-1316	8/13/2013
ZC 2013-03 Downtown Master Plan, 7-11 Convenience Store	Ordinance 2013-1315	7/23/2013
ZC 2013-04 Consistency Zoning Project, Phase III: East Lake.	Ordinance 2013-1320	12/10/2013
ZC 2014-04 Consistency Zoning Project, Phase IV: Riverview & County	Ordinance 2014-1329	9/23/2014

City of Lake Elsinore
130 South Main Street Lake Elsinore, CA 92530
(951) 674-3124 (951) 471-1419 fax
www.lake-elsinore.org

Disclaimer:

Information presented on this Zoning Map is based on data originally illustrated on the official 1968 Zoning Map and the amendments and ordinances adopted to date. Known or perceived discrepancies between actual and illustrated conditions may exist. No claim is made as to the accuracy or completeness of the data contained herein.

Map authored by the City of Lake Elsinore's GIS in association with the Community Development Department. Map data was compiled using information obtained from Riverside County GIS and City of Lake Elsinore GIS, and projected in State Plane NAD 83.

CITY LAYERS

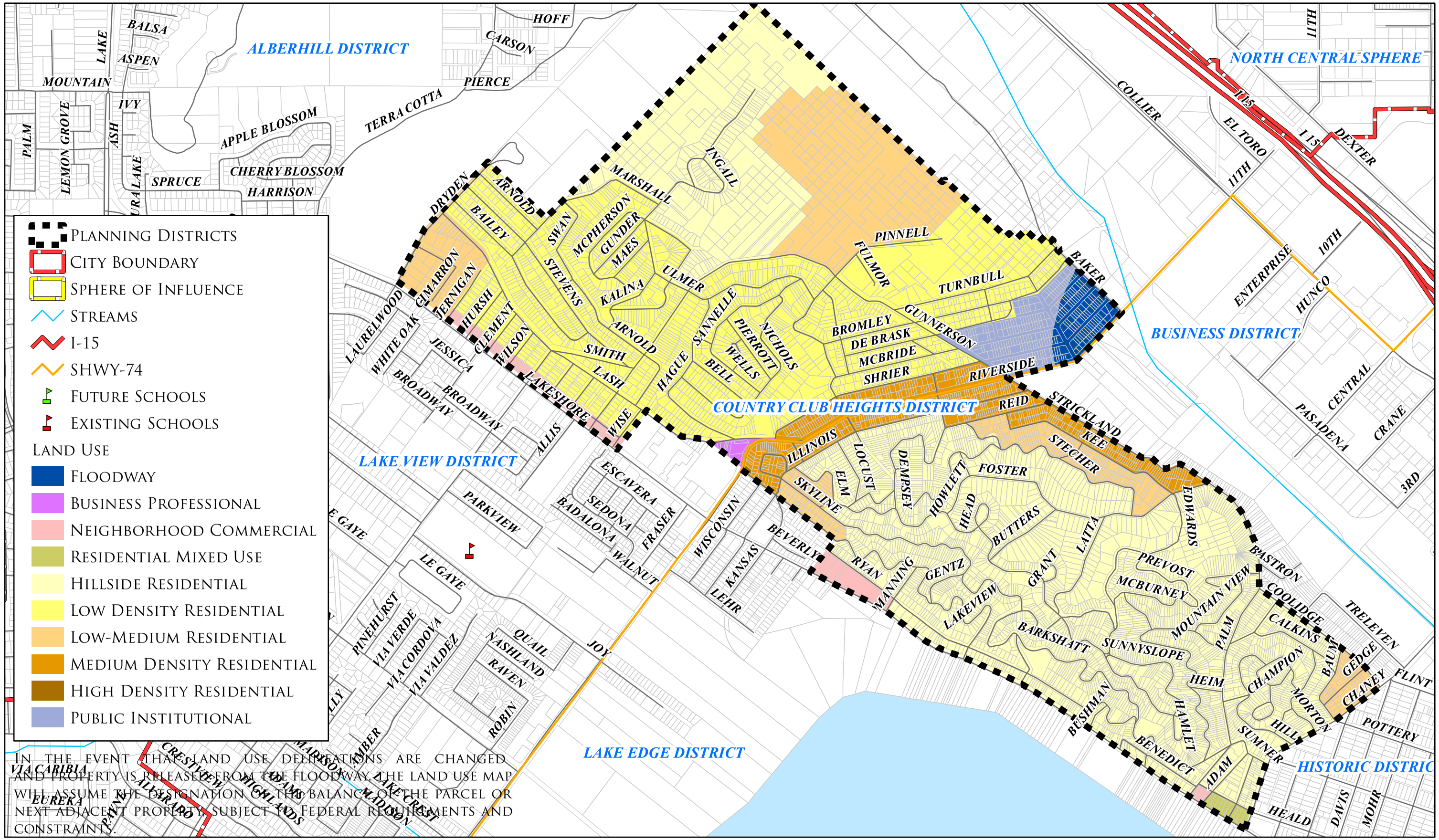
- City Boundary
- Specific Plan Boundaries
- Historic Downtown District Boundary
- Interstate 15
- Highway 74
- City Hall
- Schools
- Parks

CITY ZONING

- RMR - Rural Mountainous Residential
- RH - Hillside Single Family Residential
- RR - Rural Residential
- RE - Residential Estate
- R1 - Single Family Residential
- R2 - Medium Density Residential
- R3 - High Density Residential
- MC - Mobile Home Community
- RMU - Residential Mixed Use
- CMU - Commercial Mixed Use
- C1 - Neigborhood Commercial
- C2 - General Commercial
- CM - Commercial Manufacturing
- CO - Commercial Office
- CP - Commercial Park
- BP - Business Professional
- M1 - Limited Manufacturing
- M2 - General Manufacturing
- M3 - Mineral Resources/Related Manufacturing
- L - Lakeshore
- PI - Public/Institutional
- F - Floodway
- OS - Open Space
- R - Recreation
- SP - Specific Plan
- SPA - Specific Plan Area

DOWNTOWN ZONING

- LMD - Low Medium Density Residential
- MD - Medium Density Residential
- MHD - Medium High Density Residential
- HD - High Density Residential
- EC - Existing Condo Complex
- EMH - Existing Mobile Home Complex
- NC - Neighborhood Commercial
- TC - Tourist Commercial
- GC - Gateway Commercial
- MU - Mixed Use
- DR - Downtown Recreational



In the event that land use delineations are changed and property is released from the floodway, the land use map will assume the designation of the balance of the parcel or next adjacent property, subject to Federal requirements and constraints.

Sources: City of Lake Elsinore, County of Riverside

City of Lake Elsinore
Dream Extreme

N

0 0.25 0.5 Miles

City of Lake Elsinore
Country Club Heights District Land Use Plan
Figure CCH-1

lake frontage. Three (3) intersections are proposed including Manning Street, Lawrence Way, and Wilson Way.

The circulation element identifies standardized roadways as well as the addition of alternative transportation routes such as bikeways. The circulation element's Truck Route Map follows portions of Riverside Drive, which is a segment of State Route 74. The following table reflects the circulation element's Roadway Plan and Bikeway Plan for the Country Club Heights District.

Table CCH-T2. Roadway Plan and Bikeway Plan—Country Club Heights District

Roadway Name	From	To	Roadway Classification	Bikeway Classification
Gunnerson Street	Lakeshore Drive	Riverside Drive	Collector	
Chaney Street	Trelasen Avenue	Lakeshore Drive	Secondary	
Strickland Avenue	Riverside Drive	Chaney Street	Collector	Class II
Lakeshore Drive	Riverside Drive	Manning Street	Secondary	Class II
Lakeshore Drive	Manning Street	Chaney Street	New Special Roadway	Class II
Lakeshore Drive	Terra Cotta	Riverside Drive	Urban Arterial	Class II
Riverside Drive	Riverside District	Business District	Urban Arterial	Class II

4.6.3 Goal and Policies

Goal 4 Provide a safe and comprehensive roadway network for vehicular, bicycle, and pedestrian traffic within the Country Club Heights District, with additional access points into/out of the area.

Policies

CCH 4.1 Consider road cross-sections that are unique to the Country Club Heights District as necessary and used for local roadways in areas south of Riverside Drive to Chaney Street and the areas enclosed between Gunnerson and Riverside Drive.

CCH 4.2 Consider a new special roadway cross section for Lakeshore Drive between Riverside Drive and Chaney Street and locate intersections at Manning Street, Lawrence Way, and Wilson Way.

Table LE-T2. Roadway Plan and Bikeway Plan—Lake Edge District

Roadway Name	From	To	Roadway Classification	Bikeway Classification
Riverside Drive	Grand Avenue	Lakeshore Drive	Urban Arterial	Class II
Grand Avenue	Riverside Drive	Lakeland Village	Urban Arterial	Class II (Riverside Drive to Ortega Highway/S.R. 74); Class II/I (Ortega Highway/S.R. 74 to Lakeland Village)
Lakeshore Drive	Manning Street	Chaney Street	New Special Roadway	Class II
Lakeshore Drive	Riverside Drive	Manning Street	Secondary	Class II
W. Lakeshore Drive	Chaney Street	Graham Avenue	Secondary	Class II
W. Lakeshore Drive	Graham Avenue	Limited Street	Collector	Class II
Limited Street	Lakeshore Drive	Outflow Channel	Collector	
Ortega Highway (State Route 74)	Grand Avenue	Lake View Sphere	Major	Class II

7.6.1 Goal and Policies

Goal 4 Encourage the enhancement of primary circulation routes, points of entry, key intersections, and the Lake Edge Parkway by improving public access opportunities to the lake and Lake Edge.

Policies

LE 4.1 Consider the possibility of assuming control of the entire segment of State Route 74, located within the Lake Edge District.

LE 4.2 Support the enhancement and/or creation of unifying streetscapes, road signage, and other design features along Lakeshore Drive. Encourage the construction of entry points from each of the adjacent districts to the Lake Edge District.

LE 4.3 Through the CEQA review process ensure that main intersections along Grand Avenue at Riverside Drive and Ortega Highway are improved in order to reduce

APPENDIX B

EXISTING TRAFFIC COUNTS AND CUMULATIVE TRAFFIC VOLUMES

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:				
Wed, Nov 14, 18	LOCATION:	Lake Elsinore	PROJECT #:	SC1938
	NORTH & SOUTH:	Riverside	LOCATION #:	1
	EAST & WEST:	Lakeshore	CONTROL:	SIGNAL

NOTES:

AM
PM
MD
OTHER
OTHER

▲ N
◄ W
E ►
S ▼

☑ Add U-Turns to Left Turns

		NORTHBOUND Riverside			SOUTHBOUND Riverside			EASTBOUND Lakeshore			WESTBOUND Lakeshore				U-TURNS				
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB	TTL
	LANES:	1	2	1	1	1	1	1	2	1	1	2	0		0	0	0	0	
AM	7:00 AM	21	115	64	6	113	31	56	55	17	43	36	4	561	0	0	0	0	0
	7:15 AM	17	113	70	9	113	29	73	69	20	49	58	5	625	0	0	0	0	0
	7:30 AM	24	131	74	7	107	25	59	101	32	57	43	7	667	0	0	0	0	0
	7:45 AM	31	124	81	6	105	26	73	96	27	50	26	5	650	0	0	0	0	0
	8:00 AM	41	127	89	6	123	40	75	73	26	47	29	4	680	0	0	0	0	0
	8:15 AM	41	125	94	11	135	32	59	51	34	45	32	3	662	0	0	0	0	0
	8:30 AM	38	91	56	0	96	48	66	56	24	54	37	7	573	0	0	0	0	0
	8:45 AM	38	136	68	14	88	37	50	50	19	36	31	5	572	0	0	0	0	0
	VOLUMES	251	962	596	59	880	268	511	551	199	381	292	40	4,990	0	0	0	0	0
	APPROACH %	14%	53%	33%	5%	73%	22%	41%	44%	16%	53%	41%	6%						
	APP/DEPART	1,809	/	1,513	1,207	/	1,460	1,261	/	1,206	713	/	811	0					
	BEGIN PEAK HR		7:30 AM																
	VOLUMES	137	507	338	30	470	123	266	321	119	199	130	19	2,659					
	APPROACH %	14%	52%	34%	5%	75%	20%	38%	45%	17%	57%	37%	5%						
	PEAK HR FACTOR		0.944			0.875			0.901			0.813		0.978					
	APP/DEPART	982	/	792	623	/	788	706	/	689	348	/	390	0					
PM	4:00 PM	23	152	65	15	130	62	55	67	28	64	69	6	736	0	0	0	0	0
	4:15 PM	48	126	79	8	114	60	44	65	41	71	84	5	745	0	0	0	0	0
	4:30 PM	30	172	72	9	132	78	68	61	40	75	85	7	829	0	0	0	0	0
	4:45 PM	39	182	84	2	123	72	49	70	53	70	76	3	823	0	0	0	0	0
	5:00 PM	36	159	81	13	137	86	42	71	38	66	73	6	808	0	0	0	0	0
	5:15 PM	43	132	79	9	123	73	53	54	37	78	73	8	762	0	0	0	0	0
	5:30 PM	26	130	76	7	139	81	62	65	26	76	77	4	769	0	0	0	0	0
	5:45 PM	34	144	63	10	106	85	58	65	45	44	80	4	738	0	0	0	0	0
	VOLUMES	279	1,197	599	73	1,004	597	431	518	308	544	617	43	6,210	0	0	0	0	0
	APPROACH %	13%	58%	29%	4%	60%	36%	34%	41%	25%	45%	51%	4%						
	APP/DEPART	2,075	/	1,671	1,674	/	1,856	1,257	/	1,190	1,204	/	1,493	0					
	BEGIN PEAK HR		4:30 PM																
	VOLUMES	148	645	316	33	515	309	212	256	168	289	307	24	3,222					
	APPROACH %	13%	58%	28%	4%	60%	36%	33%	40%	26%	47%	50%	4%						
	PEAK HR FACTOR		0.909			0.908			0.924			0.928		0.972					
	APP/DEPART	1,109	/	881	857	/	972	636	/	605	620	/	764	0					

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:				
Wed, Nov 14, 18	LOCATION:	Lake Elsinore	PROJECT #:	SC1938
	NORTH & SOUTH:	Manning	LOCATION #:	2
	EAST & WEST:	Lakeshore	CONTROL:	STOP S

NOTES:

AM
PM
MD
OTHER
OTHER

▲ N
◄ W
E ►
S ▼

☑ Add U-Turns to Left Turns

		NORTHBOUND Manning			SOUTHBOUND Manning			EASTBOUND Lakeshore			WESTBOUND Lakeshore				U-TURNS				
	LANES:	NL X	NT X	NR X	SL 0	ST X	SR 0	EL 0	ET 1	ER X	WL X	WT 1	WR 0	TOTAL	NB 0	SB 0	EB 0	WB 0	TTL
AM	7:00 AM	0	0	0	0	0	0	0	115	0	0	78	0	193	0	0	0	0	0
	7:15 AM	0	0	0	1	0	0	0	141	0	0	96	0	238	0	0	0	0	0
	7:30 AM	0	0	0	0	0	2	0	152	0	0	83	0	237	0	0	0	0	0
	7:45 AM	0	0	0	0	0	3	2	178	0	0	72	0	255	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	1	156	0	0	71	1	229	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	147	0	0	80	0	227	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	114	0	0	72	0	186	0	0	0	0	0
	8:45 AM	0	0	0	2	0	0	0	120	0	0	70	1	193	0	0	0	0	0
	VOLUMES	0	0	0	3	0	5	3	1,123	0	0	622	2	1,758	0	0	0	0	0
	APPROACH %	0%	0%	0%	38%	0%	63%	0%	100%	0%	0%	100%	0%						
	APP/DEPART	0	/	5	8	/	0	1,126	/	1,126	624	/	627	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	0	0	0	1	0	5	3	627	0	0	322	1	959					
	APPROACH %	0%	0%	0%	17%	0%	83%	0%	100%	0%	0%	100%	0%						
	PEAK HR FACTOR		0.000			0.500			0.875			0.841		0.940					
	APP/DEPART	0	/	4	6	/	0	630	/	628	323	/	327	0					
PM	4:00 PM	0	0	0	0	0	1	0	141	0	0	148	0	290	0	0	0	0	0
	4:15 PM	0	0	0	0	0	1	0	137	0	0	141	1	280	0	0	0	0	0
	4:30 PM	0	0	0	0	0	2	1	134	0	0	145	0	282	0	0	0	0	0
	4:45 PM	0	0	0	1	0	0	0	161	0	0	130	0	292	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	1	131	0	0	160	0	292	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	147	0	0	123	0	270	0	0	0	0	0
	5:30 PM	0	0	0	1	0	3	1	135	0	0	139	1	280	0	0	0	0	0
	5:45 PM	0	0	0	0	0	1	1	121	0	0	113	0	236	0	0	0	0	0
	VOLUMES	0	0	0	2	0	8	4	1,107	0	0	1,099	2	2,222	0	0	0	0	0
	APPROACH %	0%	0%	0%	20%	0%	80%	0%	100%	0%	0%	100%	0%						
	APP/DEPART	0	/	6	10	/	0	1,111	/	1,109	1,101	/	1,107	0					
	BEGIN PEAK HR		4:15 PM																
	VOLUMES	0	0	0	1	0	3	2	563	0	0	576	1	1,146					
	APPROACH %	0%	0%	0%	25%	0%	75%	0%	100%	0%	0%	100%	0%						
	PEAK HR FACTOR		0.000			0.500			0.877			0.902		0.981					
	APP/DEPART	0	/	3	4	/	0	565	/	564	577	/	579	0					

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:				
Wed, Nov 14, 18	LOCATION:	Lake Elsinore	PROJECT #:	SC1938
	NORTH & SOUTH:	Chaney	LOCATION #:	3
	EAST & WEST:	Lakeshore	CONTROL:	SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER

▲ N ◄ W E ► S ▼

☑ Add U-Turns to Left Turns

		NORTHBOUND Chaney			SOUTHBOUND Chaney			EASTBOUND Lakeshore			WESTBOUND Lakeshore				U-TURNS				
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB	TTL
	LANES:	X	X	X	1	X	1	1	1	X	X	1	0		0	0	0	0	
AM	7:00 AM	0	0	0	6	0	18	34	82	0	0	64	13	217	0	0	0	0	0
	7:15 AM	0	0	0	20	0	20	41	91	0	0	77	14	263	0	0	0	0	0
	7:30 AM	0	0	0	7	0	19	42	122	0	0	58	5	253	0	0	0	0	0
	7:45 AM	0	0	0	5	0	24	59	119	0	0	49	7	263	0	0	0	0	0
	8:00 AM	0	0	0	11	0	27	47	98	0	0	42	14	239	0	0	0	0	0
	8:15 AM	0	0	0	11	0	31	72	74	0	0	52	13	253	0	0	0	0	0
	8:30 AM	0	0	0	7	0	26	37	88	0	0	43	11	212	0	0	0	0	0
	8:45 AM	0	0	0	9	0	22	23	102	0	0	40	11	207	0	0	0	0	0
	VOLUMES	0	0	0	76	0	187	355	776	0	0	425	88	1,907	0	0	0	0	0
	APPROACH %	0%	0%	0%	29%	0%	71%	31%	69%	0%	0%	83%	17%						
	APP/DEPART	0	/	443	263	/	0	1,131	/	852	513	/	612	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	0	0	0	43	0	90	189	430	0	0	226	40	1,018					
	APPROACH %	0%	0%	0%	32%	0%	68%	31%	69%	0%	0%	85%	15%						
	PEAK HR FACTOR		0.000			0.831			0.869			0.731		0.968					
	APP/DEPART	0	/	229	133	/	0	619	/	473	266	/	316	0					
PM	4:00 PM	0	0	0	16	0	37	22	111	0	0	112	7	305	0	0	0	0	0
	4:15 PM	0	0	0	9	0	30	20	116	0	0	96	9	280	0	0	0	0	0
	4:30 PM	0	0	0	13	0	42	21	116	0	0	101	12	305	0	0	0	0	0
	4:45 PM	0	0	0	14	0	26	23	129	0	0	109	10	311	0	0	0	0	0
	5:00 PM	0	0	0	10	0	35	23	115	0	0	121	4	308	0	0	0	0	0
	5:15 PM	0	0	0	13	0	22	22	123	0	0	105	9	294	0	0	0	0	0
	5:30 PM	0	0	0	13	0	28	18	113	0	0	106	8	286	0	0	0	0	0
	5:45 PM	0	0	0	8	0	23	16	111	0	0	86	7	251	0	0	0	0	0
	VOLUMES	0	0	0	96	0	243	165	934	0	0	836	66	2,340	0	0	0	0	0
	APPROACH %	0%	0%	0%	28%	0%	72%	15%	85%	0%	0%	93%	7%						
	APP/DEPART	0	/	231	339	/	0	1,099	/	1,030	902	/	1,079	0					
	BEGIN PEAK HR		4:30 PM																
	VOLUMES	0	0	0	50	0	125	89	483	0	0	436	35	1,218					
	APPROACH %	0%	0%	0%	29%	0%	71%	16%	84%	0%	0%	93%	7%						
	PEAK HR FACTOR		0.000			0.795			0.941			0.942		0.979					
	APP/DEPART	0	/	124	175	/	0	572	/	533	471	/	561	0					

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:				
Wed, Nov 14, 18	LOCATION:	Lake Elsinore	PROJECT #:	SC1938
	NORTH & SOUTH:	Machado	LOCATION #:	4
	EAST & WEST:	Lakeshore	CONTROL:	SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER

▲ N ◄ W E ► S ▼

☑ Add U-Turns to Left Turns

		NORTHBOUND Machado			SOUTHBOUND Machado			EASTBOUND Lakeshore			WESTBOUND Lakeshore				U-TURNS				
	LANES:	NL 1	NT 1	NR 1	SL 0	ST 1	SR 0	EL 1	ET 2	ER 0	WL 1	WT 1	WR 0	TOTAL	NB 0	SB 0	EB 0	WB 0	TTL
AM	7:00 AM	55	1	58	1	2	1	0	96	25	27	73	0	339	0	0	0	0	0
	7:15 AM	78	2	52	4	5	8	2	131	41	37	93	0	453	0	0	0	0	0
	7:30 AM	42	13	79	3	11	4	4	141	44	32	64	1	438	0	0	0	0	0
	7:45 AM	40	8	98	1	11	3	2	106	31	37	50	1	388	0	0	0	0	0
	8:00 AM	26	7	78	2	9	1	0	120	26	37	52	1	359	0	0	0	0	0
	8:15 AM	27	4	70	4	11	3	0	72	19	30	69	1	310	0	0	0	0	0
	8:30 AM	19	2	56	0	4	2	0	72	9	36	79	1	280	0	0	0	0	0
	8:45 AM	9	1	42	2	4	0	1	77	8	14	61	0	219	0	0	0	0	0
	VOLUMES	296	38	533	17	57	22	9	815	203	250	541	5	2,786	0	0	0	0	0
	APPROACH %	34%	4%	61%	18%	59%	23%	1%	79%	20%	31%	68%	1%						
	APP/DEPART	867	/	52	96	/	510	1,027	/	1,365	796	/	859	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	186	30	307	10	36	16	8	498	142	143	259	3	1,638					
	APPROACH %	36%	6%	59%	16%	58%	26%	1%	77%	22%	35%	64%	1%						
	PEAK HR FACTOR		0.896			0.861			0.857			0.779		0.904					
	APP/DEPART	523	/	41	62	/	321	648	/	815	405	/	461	0					
PM	4:00 PM	14	0	63	3	13	2	0	93	28	70	101	2	389	0	0	0	0	0
	4:15 PM	32	5	60	1	8	4	1	98	26	71	129	2	437	0	0	0	0	0
	4:30 PM	21	3	52	4	8	0	2	113	12	72	124	0	411	0	0	0	0	0
	4:45 PM	18	6	55	1	6	2	1	114	21	67	101	3	395	0	0	0	0	0
	5:00 PM	28	3	53	3	10	3	0	116	17	74	111	1	419	0	0	0	0	0
	5:15 PM	23	1	44	0	12	1	1	98	20	77	107	1	385	0	0	0	0	0
	5:30 PM	14	5	64	3	10	3	1	128	20	63	115	1	427	0	0	0	0	0
	5:45 PM	19	5	48	6	10	1	0	113	15	92	116	7	432	0	0	0	0	0
	VOLUMES	169	28	439	21	77	16	6	873	159	586	904	17	3,295	0	0	0	0	0
	APPROACH %	27%	4%	69%	18%	68%	14%	1%	84%	15%	39%	60%	1%						
	APP/DEPART	636	/	51	114	/	822	1,038	/	1,333	1,507	/	1,089	0					
	BEGIN PEAK HR		5:00 PM																
	VOLUMES	84	14	209	12	42	8	2	455	72	306	449	10	1,663					
	APPROACH %	27%	5%	68%	19%	68%	13%	0%	86%	14%	40%	59%	1%						
	PEAK HR FACTOR		0.914			0.912			0.888			0.890		0.962					
	APP/DEPART	307	/	26	62	/	420	529	/	676	765	/	541	0					

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:				
Wed, Nov 14, 18	LOCATION:	Lake Elsinore	PROJECT #:	SC1938
	NORTH & SOUTH:	Riverside	LOCATION #:	5
	EAST & WEST:	Joy	CONTROL:	STOP E/W

NOTES:

AM
PM
MD
OTHER
OTHER

▲ N
◄ W
E ►
S ▼

☑ Add U-Turns to Left Turns

		NORTHBOUND Riverside			SOUTHBOUND Riverside			EASTBOUND Joy			WESTBOUND Joy				U-TURNS				
	LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL	NB 0	SB 0	EB 0	WB 0	TTL
AM	7:00 AM	10	186	0	2	159	24	13	0	10	0	0	0	404	0	0	0	0	0
	7:15 AM	12	209	0	1	149	33	6	0	11	1	0	2	424	0	0	0	0	0
	7:30 AM	13	236	0	3	155	44	8	0	15	0	0	2	476	0	0	0	0	0
	7:45 AM	23	235	1	0	168	42	16	0	13	1	0	1	500	0	0	0	0	0
	8:00 AM	11	248	0	0	186	14	22	0	17	0	0	1	499	1	0	0	0	1
	8:15 AM	10	257	0	1	196	17	9	0	14	0	0	2	506	0	0	0	0	0
	8:30 AM	16	193	0	2	174	25	10	0	7	0	0	0	427	0	0	0	0	0
	8:45 AM	3	219	0	1	147	14	18	0	8	0	0	2	412	0	0	0	0	0
	VOLUMES	98	1,783	1	10	1,334	213	102	0	95	2	0	10	3,648	1	0	0	0	1
	APPROACH %	5%	95%	0%	1%	86%	14%	52%	0%	48%	17%	0%	83%						
	APP/DEPART	1,882	/	1,895	1,557	/	1,432	197	/	11	12	/	310	0					
	BEGIN PEAK HR		7:30 AM																
	VOLUMES	57	976	1	4	705	117	55	0	59	1	0	6	1,981					
	APPROACH %	6%	94%	0%	0%	85%	14%	48%	0%	52%	14%	0%	86%						
	PEAK HR FACTOR		0.968			0.965			0.731			0.875		0.979					
	APP/DEPART	1,034	/	1,037	826	/	766	114	/	5	7	/	173	0					
PM	4:00 PM	7	253	0	1	205	31	6	0	8	2	0	1	514	0	0	0	0	0
	4:15 PM	10	247	2	2	219	37	11	0	15	0	0	4	547	0	0	0	0	0
	4:30 PM	11	306	0	0	246	17	7	0	10	0	0	1	598	0	0	0	0	0
	4:45 PM	10	298	0	3	212	31	13	0	7	0	0	1	575	0	0	0	0	0
	5:00 PM	8	269	0	2	239	29	14	0	6	0	0	2	569	0	0	0	0	0
	5:15 PM	12	258	2	4	243	33	9	0	8	1	0	0	570	0	0	0	0	0
	5:30 PM	15	238	2	2	234	34	9	0	15	2	0	2	553	0	0	0	0	0
	5:45 PM	3	242	0	3	205	33	8	0	10	3	0	3	510	0	0	0	0	0
	VOLUMES	76	2,111	6	17	1,803	245	77	0	79	8	0	14	4,436	0	0	0	0	0
	APPROACH %	3%	96%	0%	1%	87%	12%	49%	0%	51%	36%	0%	64%						
	APP/DEPART	2,193	/	2,202	2,065	/	1,890	156	/	23	22	/	321	0					
	BEGIN PEAK HR		4:30 PM																
	VOLUMES	41	1,131	2	9	940	110	43	0	31	1	0	4	2,312					
	APPROACH %	3%	96%	0%	1%	89%	10%	58%	0%	42%	20%	0%	80%						
	PEAK HR FACTOR		0.926			0.946			0.925			0.625		0.967					
	APP/DEPART	1,174	/	1,178	1,059	/	972	74	/	11	5	/	151	0					

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:			
Wed, Nov 14, 18	LOCATION:	Lake Elsinore	PROJECT #: SC1938
	NORTH & SOUTH:	Main	LOCATION #: 6
	EAST & WEST:	Graham	CONTROL: STOP ALL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N ◄ W E ► S ▼

☑ Add U-Turns to Left Turns

		NORTHBOUND Main			SOUTHBOUND Main			EASTBOUND Graham			WESTBOUND Graham				U-TURNS				
	LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 0	ET 1	ER 1	WL 0	WT 1	WR 0	TOTAL	NB 0	SB 0	EB 0	WB 0	TTL
AM	7:00 AM	42	21	1	3	13	11	14	2	11	0	10	0	128	0	0	0	0	0
	7:15 AM	41	19	2	3	20	12	14	8	16	1	4	2	142	0	0	0	0	0
	7:30 AM	17	17	1	4	18	9	26	9	18	2	8	2	131	0	0	0	0	0
	7:45 AM	34	28	1	5	14	11	17	5	21	3	5	2	146	0	0	0	0	0
	8:00 AM	25	29	2	2	23	13	28	4	21	4	6	1	158	0	0	0	0	0
	8:15 AM	22	30	2	1	18	7	17	2	19	0	5	1	124	0	0	0	0	0
	8:30 AM	29	14	2	0	27	6	31	3	17	3	4	1	137	0	0	0	0	0
	8:45 AM	25	16	0	1	21	9	26	5	20	1	5	1	130	0	0	0	0	0
	VOLUMES	235	174	11	19	154	78	173	38	143	14	47	10	1,096	0	0	0	0	0
	APPROACH %	56%	41%	3%	8%	61%	31%	49%	11%	40%	20%	66%	14%						
	APP/DEPART	420	/	357	251	/	311	354	/	68	71	/	360	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	117	93	6	14	75	45	85	26	76	10	23	7	577					
	APPROACH %	54%	43%	3%	10%	56%	34%	45%	14%	41%	25%	58%	18%						
	PEAK HR FACTOR		0.857			0.882			0.882			0.833		0.913					
	APP/DEPART	216	/	185	134	/	161	187	/	46	40	/	185	0					
PM	4:00 PM	40	41	0	7	41	20	35	5	38	1	2	5	235	0	0	0	0	0
	4:15 PM	50	42	1	2	35	16	31	6	30	1	0	3	217	0	0	0	0	0
	4:30 PM	49	32	2	3	35	17	38	7	28	1	6	6	224	0	0	0	0	0
	4:45 PM	51	49	3	4	33	22	34	4	35	0	12	5	252	0	0	0	0	0
	5:00 PM	50	36	2	3	43	16	40	6	34	5	8	9	252	0	0	0	0	0
	5:15 PM	53	28	1	8	54	21	27	7	38	3	2	9	251	0	0	0	0	0
	5:30 PM	53	36	3	2	51	15	42	5	37	5	1	5	255	0	0	0	0	0
	5:45 PM	38	48	1	1	64	15	42	5	24	3	6	1	248	0	0	0	0	0
	VOLUMES	384	312	13	30	356	142	289	45	264	19	37	43	1,934	0	0	0	0	0
	APPROACH %	54%	44%	2%	6%	67%	27%	48%	8%	44%	19%	37%	43%						
	APP/DEPART	709	/	644	528	/	639	598	/	88	99	/	563	0					
	BEGIN PEAK HR		4:45 PM																
	VOLUMES	207	149	9	17	181	74	143	22	144	13	23	28	1,010					
	APPROACH %	57%	41%	2%	6%	67%	27%	46%	7%	47%	20%	36%	44%						
	PEAK HR FACTOR		0.886			0.819			0.920			0.727		0.990					
	APP/DEPART	365	/	320	272	/	338	309	/	48	64	/	304	0					

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Lake Elsinore
N/S: Gunnerson Drive
E/W: Lakeshore Drive
Weather: Clear

File Name : 01_LKE_Gunnerson_Lakeshore_AM
Site Code : 99919452
Start Date : 5/30/2019
Page No : 1

Groups Printed- Total Volume

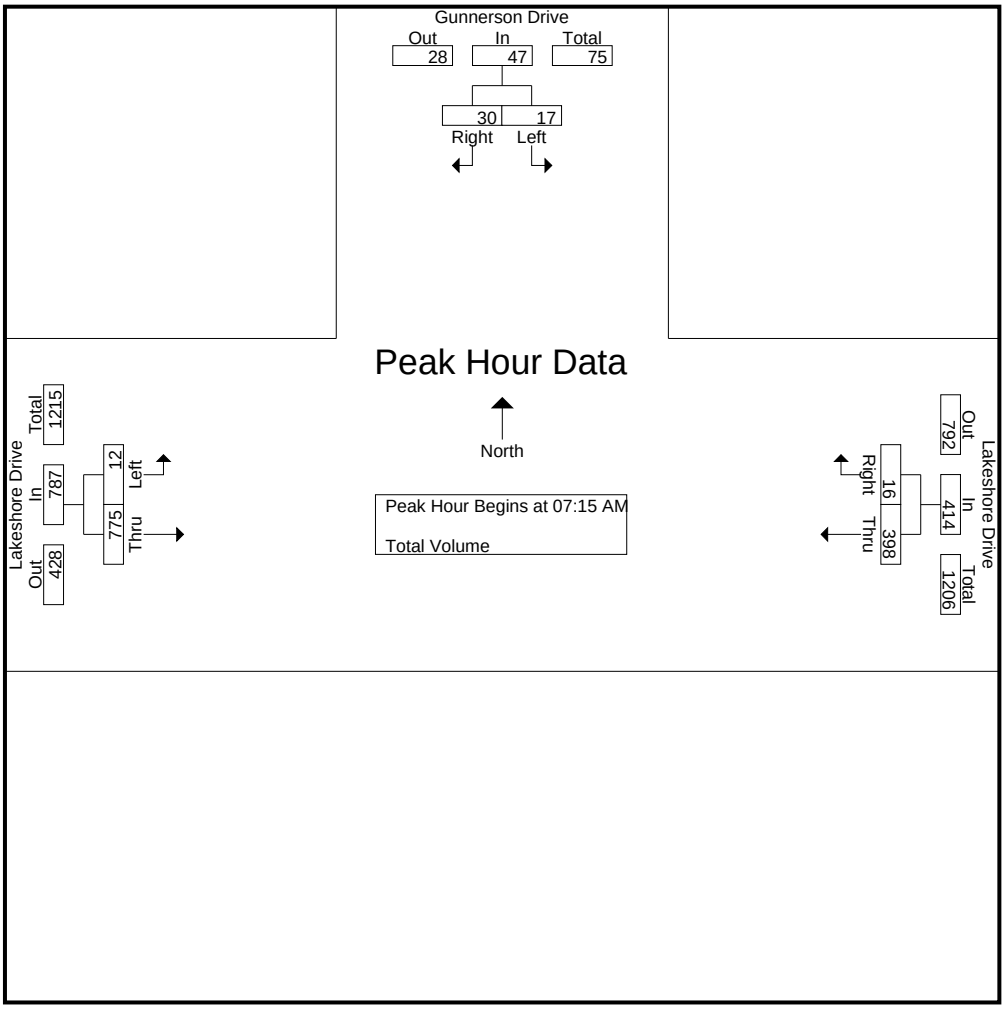
	Gunnerson Drive Southbound			Lakeshore Drive Westbound			Lakeshore Drive Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
07:00 AM	5	10	15	79	3	82	2	134	136	233
07:15 AM	4	13	17	138	5	143	4	205	209	369
07:30 AM	5	5	10	95	1	96	2	214	216	322
07:45 AM	7	8	15	86	7	93	5	185	190	298
Total	21	36	57	398	16	414	13	738	751	1222
08:00 AM	1	4	5	79	3	82	1	171	172	259
08:15 AM	2	5	7	90	2	92	0	108	108	207
08:30 AM	2	10	12	69	3	72	1	129	130	214
08:45 AM	4	7	11	76	4	80	4	126	130	221
Total	9	26	35	314	12	326	6	534	540	901
Grand Total	30	62	92	712	28	740	19	1272	1291	2123
Apprch %	32.6	67.4		96.2	3.8		1.5	98.5		
Total %	1.4	2.9	4.3	33.5	1.3	34.9	0.9	59.9	60.8	

	Gunnerson Drive Southbound			Lakeshore Drive Westbound			Lakeshore Drive Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	4	**13**	**17**	**138**	5	**143**	4	205	209	**369**
07:30 AM	5	5	10	95	1	96	2	**214**	**216**	322
07:45 AM	**7**	8	15	86	**7**	93	**5**	185	190	298
08:00 AM	1	4	5	79	3	82	1	171	172	259
Total Volume	17	30	47	398	16	414	12	775	787	1248
% App. Total	36.2	63.8		96.1	3.9		1.5	98.5		
PHF	.607	.577	.691	.721	.571	.724	.600	.905	.911	.846

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Lake Elsinore
N/S: Gunnerson Drive
E/W: Lakeshore Drive
Weather: Clear

File Name : 01_LKE_Gunnerson_Lakeshore_AM
Site Code : 99919452
Start Date : 5/30/2019
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM			07:00 AM			07:15 AM		
+0 mins.	5	10	15	79	3	82	4	205	209
+15 mins.	4	**13**	**17**	**138**	5	**143**	2	**214**	**216**
+30 mins.	5	5	10	95	1	96	**5**	185	190
+45 mins.	**7**	8	15	86	**7**	93	1	171	172
Total Volume	21	36	57	398	16	414	12	775	787
% App. Total	36.8	63.2		96.1	3.9		1.5	98.5	
PHF	.750	.692	.838	.721	.571	.724	.600	.905	.911

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Lake Elsinore
N/S: Gunnerson Drive
E/W: Lakeshore Drive
Weather: Clear

File Name : 01_LKE_Gunnerson_Lakeshore_PM
Site Code : 99919452
Start Date : 5/30/2019
Page No : 1

Groups Printed- Total Volume

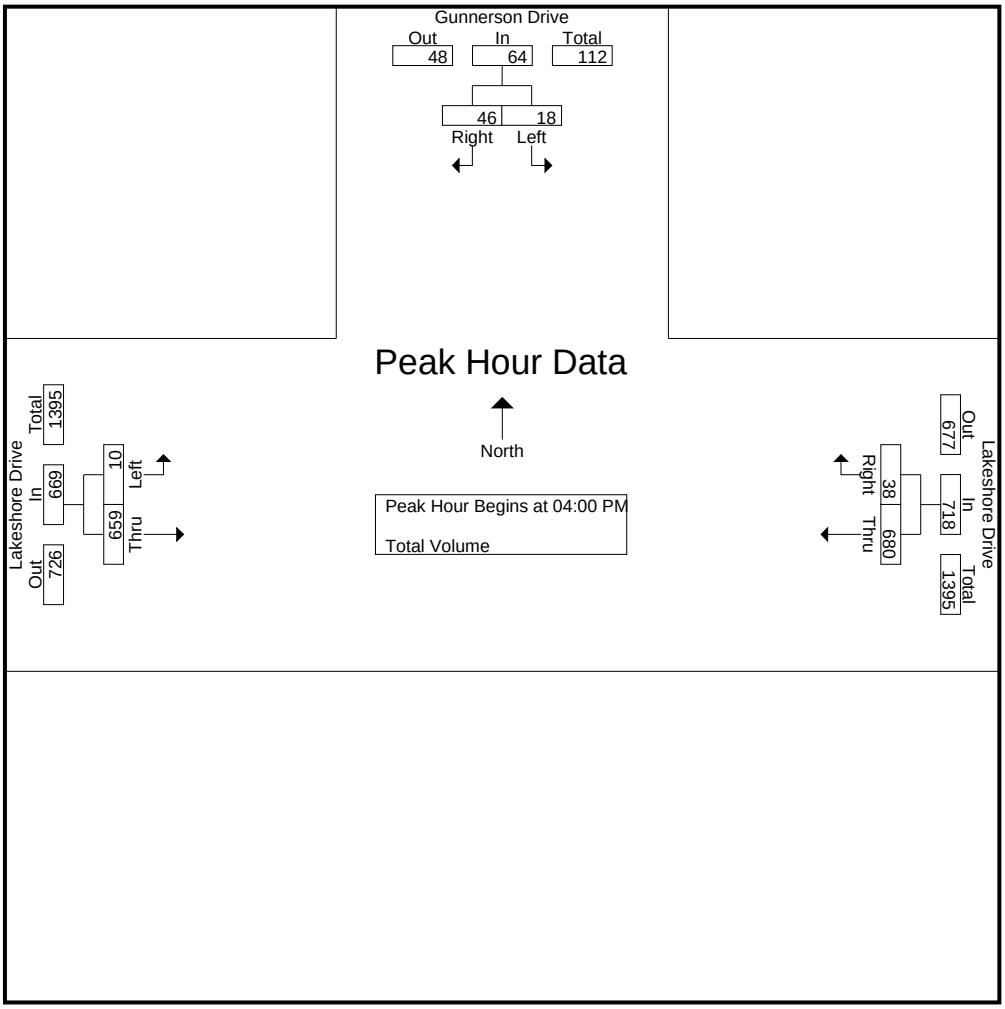
	Gunnerson Drive Southbound			Lakeshore Drive Westbound			Lakeshore Drive Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
04:00 PM	4	11	15	164	6	170	4	159	163	348
04:15 PM	3	12	15	168	10	178	2	160	162	355
04:30 PM	4	10	14	174	7	181	1	173	174	369
04:45 PM	7	13	20	174	15	189	3	167	170	379
Total	18	46	64	680	38	718	10	659	669	1451
05:00 PM	8	9	17	166	4	170	5	134	139	326
05:15 PM	7	11	18	179	8	187	3	161	164	369
05:30 PM	3	10	13	172	5	177	2	162	164	354
05:45 PM	3	7	10	211	6	217	5	141	146	373
Total	21	37	58	728	23	751	15	598	613	1422
Grand Total	39	83	122	1408	61	1469	25	1257	1282	2873
Apprch %	32	68		95.8	4.2		2	98		
Total %	1.4	2.9	4.2	49	2.1	51.1	0.9	43.8	44.6	

	Gunnerson Drive Southbound			Lakeshore Drive Westbound			Lakeshore Drive Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	4	11	15	164	6	170	**4**	159	163	348
04:15 PM	3	12	15	168	10	178	2	160	162	355
04:30 PM	4	10	14	**174**	7	181	1	**173**	**174**	369
04:45 PM	**7**	**13**	**20**	174	**15**	**189**	3	167	170	**379**
Total Volume	18	46	64	680	38	718	10	659	669	1451
% App. Total	28.1	71.9		94.7	5.3		1.5	98.5		
PHF	.643	.885	.800	.977	.633	.950	.625	.952	.961	.957

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Lake Elsinore
N/S: Gunnerson Drive
E/W: Lakeshore Drive
Weather: Clear

File Name : 01_LKE_Gunnerson_Lakeshore_PM
Site Code : 99919452
Start Date : 5/30/2019
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM			05:00 PM			04:00 PM		
+0 mins.	4	10	14	166	4	170	**4**	159	163
+15 mins.	7	**13**	**20**	179	**8**	187	2	160	162
+30 mins.	**8**	9	17	172	5	177	1	**173**	**174**
+45 mins.	7	11	18	**211**	6	**217**	3	167	170
Total Volume	26	43	69	728	23	751	10	659	669
% App. Total	37.7	62.3		96.9	3.1		1.5	98.5	
PHF	.813	.827	.863	.863	.719	.865	.625	.952	.961

Cumulative Trip Generation

Project Number	Project	Land Use	Qty	Units[1]	AM Peak Hour			PM Peak Hour			Daily
					In	Out	Total	In	Out	Total	
1	Walmart[3]	Shopping Center	154.49	TSF	339	256	595	412	417	829	11,723
2	La Quinta Inn	Hotel	64.00	RM	18	12	30	19	19	38	535
3	Chick-fil-A[4]	Fast Food	4.80	TSF	58	55	113	106	97	203	2,301
4	Central Plaza[5]	Shopping Center	65.80	TSF	181	138	319	150	147	297	7,269
5	Honda Dealership[6]	Automobile Sales	27.84	TSF	73	27	100	52	78	130	1,487
6	Kassab Travel Center	Gas Station w/ Conv. Store Fast Food	18.00	VFP	166	160	326	171	164	335	4,892
7	Tige Boat Sales[7]	Boat Sales	35.48	TSF	21	6	27	10	17	27	177
8	Nichols Ranch[8]	Mixed Use	Varies	Varies	297	270	566	209	165	374	4,767
9	Terracina[9]	Single Family Detached	468.00	DU	89	262	351	282	166	448	4,455
10	Lakeview Manor[10]	Low-Rise Apts	104.00	DU	10	38	48	39	21	60	685
11	Lakeshore Pointe[11]	Low-Rise Apts	152.00	DU	24	60	84	62	40	102	1,011
12	Lakeshore Town Center	Hotel	132.00	RM	53	35	88	63	54	117	1,893
		Multi Familiy	118.00	DU	12	42	54	42	24	66	864
		Shopping Center	35.60	TSF	21	13	33	65	71	136	1,344
				Subtotal	86	90	175	170	149	319	4,101
				Total	1,362	1,374	2,734	1,682	1,480	3,162	43,403

[1] DU = Dwelling Units; TSF = Thousand Square Feet; RM = Rooms; VFP = Vehicle Fueling Positions

[2] Source: Institute of Transportation Engineers, Trip Generation Manual, 10th Edition, 2017 (unless otherwise noted)

[3] *Lake Elsinore Walmart Traffic Impact Analysis (Urban Crossroads, 2015)*

[4] *Dexter/Central Chick-fil-A Traffic Impact Analysis (TJW Engineering, 2018)*

[5] *Central Plaza Traffic Impact Suty (RK Engineering, 2017)*

[6] *Traffic Impact Analysis - Honda Dealership (David Evans & Associates, 2018)*

[7] *Tige Watersports Traffic Impact Assessment Scoping Agreement (Albert Grover & Associates, 2017)*

[8] *Nichols Ranch Specific Plan Initial Study/Notice Of Preparation (2018)*

[9] *Terracina Traffic Impact Analysis (Kunzman Associates, 2014)*

[10] *Lakeview Manor Traffic Impact Analysis (LOS Engineering, 2017)*

[11] *Lakeshore Pointe Traffic Impact Analysis (Infrastructure Group, 2015)*

APPENDIX C

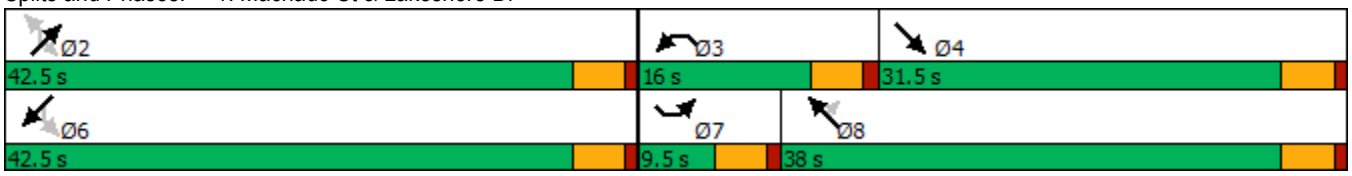
HCM ANALYSIS WORKSHEETS

EXISTING CONDITIONS

Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT
Lane Configurations										
Traffic Volume (vph)	8	498	143	259	3	186	30	307	10	36
Future Volume (vph)	8	498	143	259	3	186	30	307	10	36
Turn Type	Prot	NA	Prot	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases	7	4	3	8			2			6
Permitted Phases					8	2		2	6	
Detector Phase	7	4	3	8	8	2	2	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	31.5	9.5	26.5	26.5	42.5	42.5	42.5	29.5	29.5
Total Split (s)	9.5	31.5	16.0	38.0	38.0	42.5	42.5	42.5	42.5	42.5
Total Split (%)	10.6%	35.0%	17.8%	42.2%	42.2%	47.2%	47.2%	47.2%	47.2%	47.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	Max	Max	Max	Max	Max
Act Effct Green (s)	5.0	22.0	10.7	35.5	35.5	38.2	38.2	38.2		38.2
Actuated g/C Ratio	0.06	0.26	0.13	0.42	0.42	0.45	0.45	0.45		0.45
v/c Ratio	0.09	0.77	0.71	0.37	0.00	0.35	0.04	0.39		0.09
Control Delay	41.9	33.3	54.8	18.9	0.0	18.5	15.0	4.6		12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	41.9	33.3	54.8	18.9	0.0	18.5	15.0	4.6		12.2
LOS	D	C	D	B	A	B	B	A		B
Approach Delay		33.4		31.5			10.1			12.2
Approach LOS		C		C			B			B

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 84.5	
Natural Cycle: 85	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 24.7	Intersection LOS: C
Intersection Capacity Utilization 54.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: Machado St & Lakeshore Dr



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	8	498	142	143	259	3	186	30	307	10	36	16
Future Volume (veh/h)	8	498	142	143	259	3	186	30	307	10	36	16
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	9	553	158	159	288	3	207	33	341	11	40	18
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	2	2	2	2	2	2	2	2	2
Cap, veh/h	20	685	195	196	654	554	733	882	747	139	483	201
Arrive On Green	0.01	0.25	0.25	0.11	0.35	0.35	0.47	0.47	0.47	0.47	0.47	0.47
Sat Flow, veh/h	1781	2730	777	1781	1870	1585	1345	1870	1585	185	1024	427
Grp Volume(v), veh/h	9	359	352	159	288	3	207	33	341	69	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1730	1781	1870	1585	1345	1870	1585	1636	0	0
Q Serve(g_s), s	0.4	15.3	15.4	7.0	9.5	0.1	5.4	0.8	11.7	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.4	15.3	15.4	7.0	9.5	0.1	7.1	0.8	11.7	1.7	0.0	0.0
Prop In Lane	1.00		0.45	1.00		1.00	1.00		1.00	0.16		0.26
Lane Grp Cap(c), veh/h	20	446	434	196	654	554	733	882	747	823	0	0
V/C Ratio(X)	0.45	0.81	0.81	0.81	0.44	0.01	0.28	0.04	0.46	0.08	0.00	0.00
Avail Cap(c_a), veh/h	111	595	580	254	778	659	733	882	747	823	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	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	39.6	28.3	28.4	35.0	20.1	17.1	13.0	11.5	14.3	11.7	0.0	0.0
Incr Delay (d2), s/veh	14.7	5.9	6.3	14.0	0.5	0.0	1.0	0.1	2.0	0.2	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(50%),veh/ln	0.3	6.7	6.6	3.7	3.9	0.0	2.2	0.3	4.1	0.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.3	34.3	34.7	49.1	20.6	17.1	14.0	11.5	16.3	11.9	0.0	0.0
LnGrp LOS	D	C	C	D	C	B	B	B	B	B	A	A
Approach Vol, veh/h		720			450			581			69	
Approach Delay, s/veh		34.7			30.7			15.2			11.9	
Approach LOS		C			C			B			B	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		42.5	13.4	24.7		42.5	5.4	32.7				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		38.0	11.5	27.0		38.0	5.0	33.5				
Max Q Clear Time (g_c+I1), s		13.7	9.0	17.4		3.7	2.4	11.5				
Green Ext Time (p_c), s		2.0	0.1	2.8		0.4	0.0	1.5				

Intersection Summary	
HCM 6th Ctrl Delay	26.6
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	0.9

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	12	775	398	16	17	30
Future Vol, veh/h	12	775	398	16	17	30
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	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	912	468	19	20	35

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	487	0	-	0	1418	478
Stage 1	-	-	-	-	478	-
Stage 2	-	-	-	-	940	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1076	-	-	-	151	587
Stage 1	-	-	-	-	624	-
Stage 2	-	-	-	-	380	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1076	-	-	-	147	587
Mov Cap-2 Maneuver	-	-	-	-	147	-
Stage 1	-	-	-	-	608	-
Stage 2	-	-	-	-	380	-

Approach	SE	NW	SW
HCM Control Delay, s	0.1	0	20.9
HCM LOS			C

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1
Capacity (veh/h)	-	-	1076	-	282
HCM Lane V/C Ratio	-	-	0.013	-	0.196
HCM Control Delay (s)	-	-	8.4	0	20.9
HCM Lane LOS	-	-	A	A	C
HCM 95th %tile Q(veh)	-	-	0	-	0.7

Intersection	
Int Delay, s/veh	13.9

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	55	0	59	1	0	6	57	976	1	4	705	117
Future Vol, veh/h	55	0	59	1	0	6	57	976	1	4	705	117
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	115	100	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	56	0	60	1	0	6	58	996	1	4	719	119

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1843	1840	719	1929	1958	996	838	0	0	997	0	0
Stage 1	727	727	-	1112	1112	-	-	-	-	-	-	-
Stage 2	1116	1113	-	817	846	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	58	75	428	50	64	297	796	-	-	694	-	-
Stage 1	415	429	-	253	284	-	-	-	-	-	-	-
Stage 2	252	284	-	370	378	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 53	69	428	40	59	297	796	-	-	694	-	-
Mov Cap-2 Maneuver	~ 53	69	-	40	59	-	-	-	-	-	-	-
Stage 1	385	426	-	235	263	-	-	-	-	-	-	-
Stage 2	229	263	-	316	376	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	235.4	29.3	0.5	0
HCM LOS	F	D		

Minor Lane/Major Mvmt	NEL	NET	NER	NWLn1	SELn1	SWL	SWT	SWR
Capacity (veh/h)	796	-	-	155	97	694	-	-
HCM Lane V/C Ratio	0.073	-	-	0.046	1.199	0.006	-	-
HCM Control Delay (s)	9.9	-	-	29.3	235.4	10.2	-	-
HCM Lane LOS	A	-	-	D	F	B	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.1	7.9	0	-	-

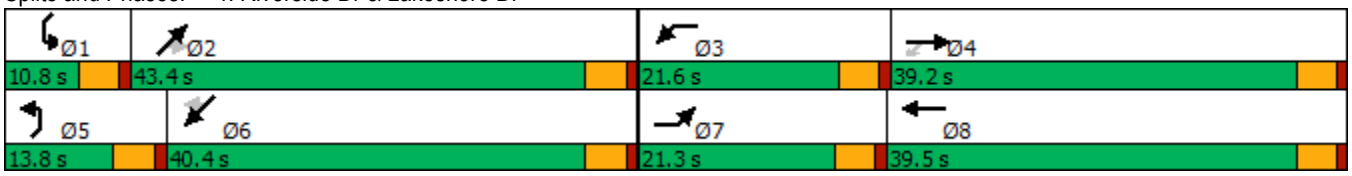
Notes

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

Lane Group	EBL	EBT	EBR	WBL	WBT	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Traffic Volume (vph)	266	321	119	199	130	137	507	338	30	470	123
Future Volume (vph)	266	321	119	199	130	137	507	338	30	470	123
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	2		1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	4	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	37.5	37.5	9.5	39.5	9.5	37.5	37.5	9.5	39.5	39.5
Total Split (s)	21.3	39.2	39.2	21.6	39.5	13.8	43.4	43.4	10.8	40.4	40.4
Total Split (%)	18.5%	34.1%	34.1%	18.8%	34.3%	12.0%	37.7%	37.7%	9.4%	35.1%	35.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	16.8	14.8	14.8	15.0	12.9	9.3	43.5	43.5	6.1	36.0	36.0
Actuated g/C Ratio	0.18	0.16	0.16	0.16	0.14	0.10	0.47	0.47	0.07	0.39	0.39
v/c Ratio	0.85	0.58	0.34	0.71	0.31	0.79	0.31	0.37	0.27	0.67	0.18
Control Delay	62.9	41.2	9.6	52.0	33.6	73.5	18.0	3.5	49.1	30.1	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.9	41.2	9.6	52.0	33.6	73.5	18.0	3.5	49.1	30.1	4.7
LOS	E	D	A	D	C	E	B	A	D	C	A
Approach Delay		44.0			44.2		20.8			26.0	
Approach LOS		D			D		C			C	

Intersection Summary	
Cycle Length: 115	
Actuated Cycle Length: 93.1	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 31.2	Intersection LOS: C
Intersection Capacity Utilization 67.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 4: Riverside Dr & Lakeshore Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	266	321	119	199	130	19	137	507	338	30	470	123
Future Volume (veh/h)	266	321	119	199	130	19	137	507	338	30	470	123
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	271	328	121	203	133	19	140	517	345	31	480	126
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	309	493	220	243	318	45	173	1723	769	54	782	663
Arrive On Green	0.17	0.14	0.14	0.14	0.10	0.10	0.10	0.48	0.48	0.03	0.42	0.42
Sat Flow, veh/h	1781	3554	1585	1781	3129	439	1781	3554	1585	1781	1870	1585
Grp Volume(v), veh/h	271	328	121	203	75	77	140	517	345	31	480	126
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1791	1781	1777	1585	1781	1870	1585
Q Serve(g_s), s	12.7	7.5	6.1	9.5	3.4	3.5	6.6	7.5	12.3	1.5	17.2	4.3
Cycle Q Clear(g_c), s	12.7	7.5	6.1	9.5	3.4	3.5	6.6	7.5	12.3	1.5	17.2	4.3
Prop In Lane	1.00		1.00	1.00		0.25	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	309	493	220	243	181	182	173	1723	769	54	782	663
V/C Ratio(X)	0.88	0.67	0.55	0.84	0.41	0.43	0.81	0.30	0.45	0.57	0.61	0.19
Avail Cap(c_a), veh/h	349	1437	641	355	725	731	193	1723	769	131	782	663
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.6	35.1	34.5	36.1	36.2	36.2	38.0	13.3	14.6	41.1	19.5	15.8
Incr Delay (d2), s/veh	20.0	1.6	2.1	10.9	1.5	1.6	20.4	0.4	1.9	9.1	3.6	0.6
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(50%),veh/ln	6.9	3.2	2.4	4.7	1.5	1.5	3.7	2.8	4.3	0.8	7.6	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.6	36.6	36.6	47.0	37.7	37.8	58.4	13.8	16.4	50.2	23.1	16.4
LnGrp LOS	D	D	D	D	D	D	E	B	B	D	C	B
Approach Vol, veh/h		720			355			1002			637	
Approach Delay, s/veh		43.4			43.0			20.9			23.1	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.1	46.1	16.2	16.4	12.8	40.4	19.4	13.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.3	38.9	17.1	34.7	9.3	35.9	16.8	35.0
Max Q Clear Time (g_c+I1), s	3.5	14.3	11.5	9.5	8.6	19.2	14.7	5.5
Green Ext Time (p_c), s	0.0	4.6	0.3	2.4	0.0	3.0	0.2	0.8

Intersection Summary	
HCM 6th Ctrl Delay	30.3
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	627	322	1	1	5
Future Vol, veh/h	3	627	322	1	1	5
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	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	667	343	1	1	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	344	0	-	0	1017	344
Stage 1	-	-	-	-	344	-
Stage 2	-	-	-	-	673	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1215	-	-	-	263	699
Stage 1	-	-	-	-	718	-
Stage 2	-	-	-	-	507	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1215	-	-	-	262	699
Mov Cap-2 Maneuver	-	-	-	-	262	-
Stage 1	-	-	-	-	715	-
Stage 2	-	-	-	-	507	-

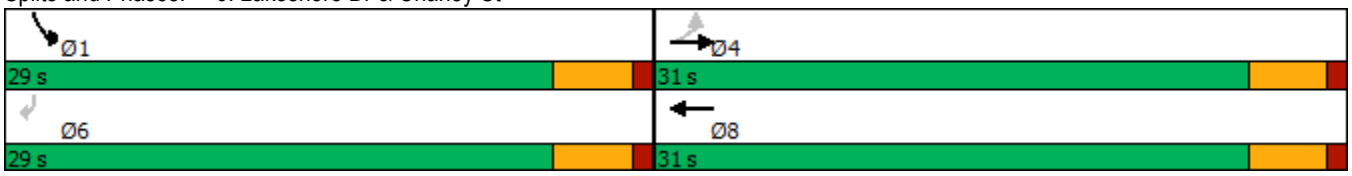
Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1215	-	-	-	547
HCM Lane V/C Ratio	0.003	-	-	-	0.012
HCM Control Delay (s)	8	0	-	-	11.7
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations					
Traffic Volume (vph)	189	430	226	43	90
Future Volume (vph)	189	430	226	43	90
Turn Type	Perm	NA	NA	Prot	Perm
Protected Phases		4	8	1	
Permitted Phases	4				6
Detector Phase	4	4	8	1	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	9.5	27.5	9.5	27.5
Total Split (s)	31.0	31.0	31.0	29.0	29.0
Total Split (%)	51.7%	51.7%	51.7%	48.3%	48.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	None	None	Max
Act Effct Green (s)	17.7	17.7	17.7	9.4	24.8
Actuated g/C Ratio	0.34	0.34	0.34	0.18	0.48
v/c Ratio	0.57	0.69	0.43	0.14	0.12
Control Delay	20.3	20.4	13.7	17.3	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	20.3	20.4	13.7	17.3	3.4
LOS	C	C	B	B	A
Approach Delay		20.4	13.7	7.9	
Approach LOS		C	B	A	

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 51.6	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.69	
Intersection Signal Delay: 17.0	Intersection LOS: B
Intersection Capacity Utilization 40.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: Lakeshore Dr & Chaney St



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	189	430	226	40	43	90
Future Volume (veh/h)	189	430	226	40	43	90
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	195	443	233	41	44	93
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	735	871	721	127	229	204
Arrive On Green	0.47	0.47	0.47	0.47	0.13	0.13
Sat Flow, veh/h	1105	1870	1549	273	1781	1585
Grp Volume(v), veh/h	195	443	0	274	44	93
Grp Sat Flow(s),veh/h/ln	1105	1870	0	1821	1781	1585
Q Serve(g_s), s	3.0	3.7	0.0	2.1	0.5	1.2
Cycle Q Clear(g_c), s	5.1	3.7	0.0	2.1	0.5	1.2
Prop In Lane	1.00			0.15	1.00	1.00
Lane Grp Cap(c), veh/h	735	871	0	848	229	204
V/C Ratio(X)	0.27	0.51	0.00	0.32	0.19	0.46
Avail Cap(c_a), veh/h	1540	2234	0	2176	1967	1750
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	5.3	4.1	0.0	3.7	8.6	8.9
Incr Delay (d2), s/veh	0.2	0.5	0.0	0.2	0.4	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.1	0.0	0.1	0.1	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	5.5	4.6	0.0	3.9	9.0	10.5
LnGrp LOS	A	A	A	A	A	B
Approach Vol, veh/h		638	274		137	
Approach Delay, s/veh		4.9	3.9		10.1	
Approach LOS		A	A		B	

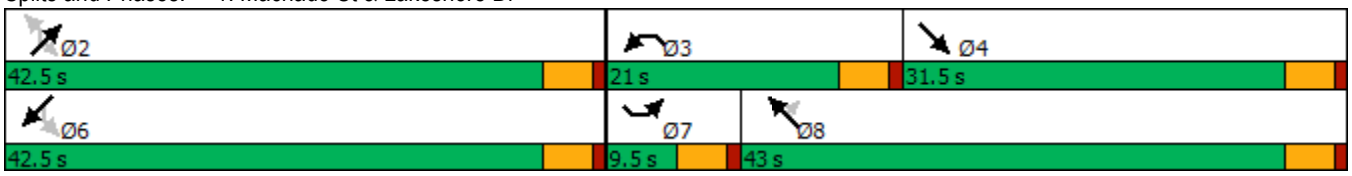
Timer - Assigned Phs		4		6		8
Phs Duration (G+Y+Rc), s		14.8		7.4		14.8
Change Period (Y+Rc), s		4.5		4.5		4.5
Max Green Setting (Gmax), s		26.5		24.5		26.5
Max Q Clear Time (g_c+I1), s		7.1		3.2		4.1
Green Ext Time (p_c), s		3.3		0.4		1.4

Intersection Summary	
HCM 6th Ctrl Delay	5.3
HCM 6th LOS	A

Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT
Lane Configurations										
Traffic Volume (vph)	2	455	306	449	10	84	14	209	12	42
Future Volume (vph)	2	455	306	449	10	84	14	209	12	42
Turn Type	Prot	NA	Prot	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases	7	4	3	8			2			6
Permitted Phases					8	2		2	6	
Detector Phase	7	4	3	8	8	2	2	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	31.5	9.5	26.5	26.5	42.5	42.5	42.5	29.5	29.5
Total Split (s)	9.5	31.5	21.0	43.0	43.0	42.5	42.5	42.5	42.5	42.5
Total Split (%)	10.0%	33.2%	22.1%	45.3%	45.3%	44.7%	44.7%	44.7%	44.7%	44.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	Max	Max	Max	Max	Max
Act Effct Green (s)	5.0	18.8	16.5	38.1	38.1	38.1	38.1	38.1		38.1
Actuated g/C Ratio	0.06	0.22	0.19	0.44	0.44	0.44	0.44	0.44		0.44
v/c Ratio	0.02	0.72	0.95	0.57	0.01	0.15	0.02	0.27		0.08
Control Delay	41.5	36.0	75.5	22.3	0.0	17.0	15.8	3.5		14.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	41.5	36.0	75.5	22.3	0.0	17.0	15.8	3.5		14.5
LOS	D	D	E	C	A	B	B	A		B
Approach Delay		36.0		43.3			7.7			14.5
Approach LOS		D		D			A			B

Intersection Summary	
Cycle Length: 95	
Actuated Cycle Length: 87	
Natural Cycle: 95	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.95	
Intersection Signal Delay: 33.3	Intersection LOS: C
Intersection Capacity Utilization 54.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: Machado St & Lakeshore Dr



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	2	455	72	306	449	10	84	14	209	12	42	8
Future Volume (veh/h)	2	455	72	306	449	10	84	14	209	12	42	8
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	474	75	319	468	10	88	15	218	12	44	8
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	5	611	96	346	730	619	699	838	710	157	552	94
Arrive On Green	0.00	0.20	0.20	0.19	0.39	0.39	0.45	0.45	0.45	0.45	0.45	0.45
Sat Flow, veh/h	1781	3076	484	1781	1870	1585	1352	1870	1585	239	1233	210
Grp Volume(v), veh/h	2	273	276	319	468	10	88	15	218	64	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1783	1781	1870	1585	1352	1870	1585	1682	0	0
Q Serve(g_s), s	0.1	12.3	12.5	14.9	17.3	0.3	1.0	0.4	7.5	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	12.3	12.5	14.9	17.3	0.3	2.7	0.4	7.5	1.7	0.0	0.0
Prop In Lane	1.00		0.27	1.00		1.00	1.00		1.00	0.19		0.12
Lane Grp Cap(c), veh/h	5	353	354	346	730	619	699	838	710	804	0	0
V/C Ratio(X)	0.41	0.77	0.78	0.92	0.64	0.02	0.13	0.02	0.31	0.08	0.00	0.00
Avail Cap(c_a), veh/h	105	565	567	346	849	719	699	838	710	804	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	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	42.2	32.2	32.2	33.5	21.0	15.9	13.6	13.0	15.0	13.4	0.0	0.0
Incr Delay (d2), s/veh	48.0	3.6	3.7	29.2	1.3	0.0	0.4	0.0	1.1	0.2	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(50%),veh/ln	0.1	5.3	5.4	8.9	7.1	0.1	1.0	0.2	2.7	0.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	90.3	35.8	36.0	62.7	22.3	15.9	14.0	13.1	16.1	13.6	0.0	0.0
LnGrp LOS	F	D	D	E	C	B	B	B	B	B	A	A
Approach Vol, veh/h		551			797			321			64	
Approach Delay, s/veh		36.1			38.4			15.4			13.6	
Approach LOS		D			D			B			B	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		42.5	21.0	21.4		42.5	4.7	37.6				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		38.0	16.5	27.0		38.0	5.0	38.5				
Max Q Clear Time (g_c+I1), s		9.5	16.9	14.5		3.7	2.1	19.3				
Green Ext Time (p_c), s		1.0	0.0	2.4		0.3	0.0	2.6				

Intersection Summary	
HCM 6th Ctrl Delay	32.5
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	1

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	10	659	680	38	18	46
Future Vol, veh/h	10	659	680	38	18	46
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	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	686	708	40	19	48

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	748	0	-	0	1434	728
Stage 1	-	-	-	-	728	-
Stage 2	-	-	-	-	706	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	861	-	-	-	147	423
Stage 1	-	-	-	-	478	-
Stage 2	-	-	-	-	489	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	861	-	-	-	144	423
Mov Cap-2 Maneuver	-	-	-	-	144	-
Stage 1	-	-	-	-	469	-
Stage 2	-	-	-	-	489	-

Approach	SE	NW	SW
HCM Control Delay, s	0.1	0	22.3
HCM LOS			C

Minor Lane/Major Mvmt	NWT	NWR	SEL	SETSWLn1	
Capacity (veh/h)	-	-	861	-	274
HCM Lane V/C Ratio	-	-	0.012	-	0.243
HCM Control Delay (s)	-	-	9.2	0	22.3
HCM Lane LOS	-	-	A	A	C
HCM 95th %tile Q(veh)	-	-	0	-	0.9

Intersection	
Int Delay, s/veh	17.4

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	43	0	31	1	0	4	41	1131	2	9	940	110
Future Vol, veh/h	43	0	31	1	0	4	41	1131	2	9	940	110
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	115	100	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	44	0	32	1	0	4	42	1166	2	9	969	113

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2240	2239	969	2310	2350	1166	1082	0	0	1168	0	0
Stage 1	987	987	-	1250	1250	-	-	-	-	-	-	-
Stage 2	1253	1252	-	1060	1100	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 30	42	308	27	36	236	645	-	-	598	-	-
Stage 1	298	325	-	212	244	-	-	-	-	-	-	-
Stage 2	211	244	-	271	288	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 28	39	308	23	33	236	645	-	-	598	-	-
Mov Cap-2 Maneuver	~ 28	39	-	23	33	-	-	-	-	-	-	-
Stage 1	279	320	-	198	228	-	-	-	-	-	-	-
Stage 2	194	228	-	239	284	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	$ 533.9	51.2	0.4	0.1
HCM LOS	F	F		

Minor Lane/Major Mvmt	NEL	NET	NER	NWLn1	SELn1	SWL	SWT	SWR
Capacity (veh/h)	645	-	-	83	45	598	-	-
HCM Lane V/C Ratio	0.066	-	-	0.062	1.695	0.016	-	-
HCM Control Delay (s)	11	-	-	51.2	$ 533.9	11.1	-	-
HCM Lane LOS	B	-	-	F	F	B	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.2	7.7	0	-	-

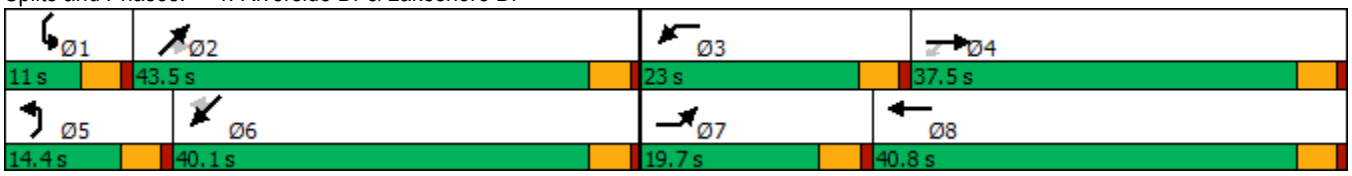
Notes

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

Lane Group	EBL	EBT	EBR	WBL	WBT	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Traffic Volume (vph)	212	256	168	289	307	148	645	316	33	515	309
Future Volume (vph)	212	256	168	289	307	148	645	316	33	515	309
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	2		1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	4	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	37.5	37.5	9.5	39.5	9.5	37.5	37.5	9.5	39.5	39.5
Total Split (s)	19.7	37.5	37.5	23.0	40.8	14.4	43.5	43.5	11.0	40.1	40.1
Total Split (%)	17.1%	32.6%	32.6%	20.0%	35.5%	12.5%	37.8%	37.8%	9.6%	34.9%	34.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	15.1	12.4	12.4	18.5	15.9	9.9	43.5	43.5	6.3	35.6	35.6
Actuated g/C Ratio	0.16	0.13	0.13	0.20	0.17	0.10	0.46	0.46	0.07	0.38	0.38
v/c Ratio	0.78	0.57	0.48	0.86	0.57	0.83	0.41	0.36	0.29	0.76	0.41
Control Delay	58.7	43.4	10.7	62.0	39.5	76.6	19.3	3.5	49.6	34.5	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.7	43.4	10.7	62.0	39.5	76.6	19.3	3.5	49.6	34.5	5.0
LOS	E	D	B	E	D	E	B	A	D	C	A
Approach Delay		39.9			50.0		22.5			24.5	
Approach LOS		D			D		C			C	

Intersection Summary	
Cycle Length: 115	
Actuated Cycle Length: 94.5	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 31.7	Intersection LOS: C
Intersection Capacity Utilization 73.4%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: Riverside Dr & Lakeshore Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	212	256	168	289	307	24	148	645	316	33	515	309
Future Volume (veh/h)	212	256	168	289	307	24	148	645	316	33	515	309
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	219	264	173	298	316	25	153	665	326	34	531	319
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	253	523	233	331	637	50	184	1588	708	56	700	594
Arrive On Green	0.14	0.15	0.15	0.19	0.19	0.19	0.10	0.45	0.45	0.03	0.37	0.37
Sat Flow, veh/h	1781	3554	1585	1781	3337	263	1781	3554	1585	1781	1870	1585
Grp Volume(v), veh/h	219	264	173	298	167	174	153	665	326	34	531	319
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1823	1781	1777	1585	1781	1870	1585
Q Serve(g_s), s	11.4	6.5	9.9	15.6	8.0	8.1	8.0	12.1	13.6	1.8	23.6	15.0
Cycle Q Clear(g_c), s	11.4	6.5	9.9	15.6	8.0	8.1	8.0	12.1	13.6	1.8	23.6	15.0
Prop In Lane	1.00		1.00	1.00		0.14	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	253	523	233	331	339	348	184	1588	708	56	700	594
V/C Ratio(X)	0.87	0.50	0.74	0.90	0.49	0.50	0.83	0.42	0.46	0.61	0.76	0.54
Avail Cap(c_a), veh/h	285	1234	550	347	678	696	185	1588	708	122	700	594
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.9	37.3	38.8	37.9	34.4	34.4	41.8	17.9	18.3	45.5	26.0	23.3
Incr Delay (d2), s/veh	21.6	0.8	4.6	24.9	1.1	1.1	25.9	0.8	2.1	10.4	7.5	3.5
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(50%),veh/ln	6.3	2.8	4.0	8.8	3.4	3.6	4.7	4.8	5.1	0.9	11.2	5.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.5	38.1	43.4	62.7	35.5	35.5	67.7	18.7	20.5	55.9	33.5	26.8
LnGrp LOS	E	D	D	E	D	D	E	B	C	E	C	C
Approach Vol, veh/h		656			639			1144			884	
Approach Delay, s/veh		47.3			48.2			25.8			31.9	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.5	47.0	22.1	18.5	14.3	40.1	18.0	22.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.5	39.0	18.5	33.0	9.9	35.6	15.2	36.3
Max Q Clear Time (g_c+I1), s	3.8	15.6	17.6	11.9	10.0	25.6	13.4	10.1
Green Ext Time (p_c), s	0.0	5.7	0.1	2.1	0.0	3.2	0.1	1.8

Intersection Summary	
HCM 6th Ctrl Delay	36.0
HCM 6th LOS	D

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	563	576	1	1	3
Future Vol, veh/h	2	563	576	1	1	3
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	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	574	588	1	1	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	589	0	-	0	1167	589
Stage 1	-	-	-	-	589	-
Stage 2	-	-	-	-	578	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	986	-	-	-	214	508
Stage 1	-	-	-	-	554	-
Stage 2	-	-	-	-	561	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	986	-	-	-	213	508
Mov Cap-2 Maneuver	-	-	-	-	213	-
Stage 1	-	-	-	-	552	-
Stage 2	-	-	-	-	561	-

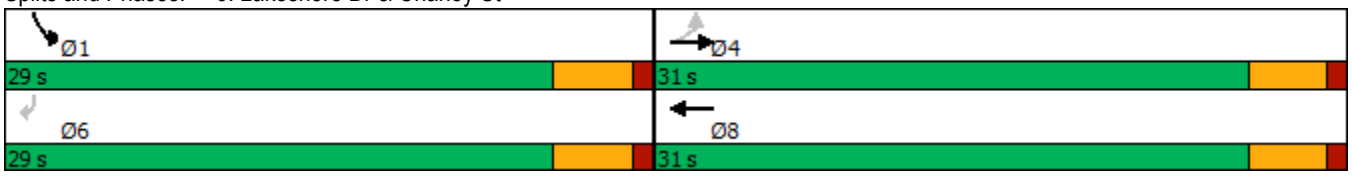
Approach	EB	WB	SB
HCM Control Delay, s	0	0	14.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	986	-	-	-	377
HCM Lane V/C Ratio	0.002	-	-	-	0.011
HCM Control Delay (s)	8.7	0	-	-	14.7
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations					
Traffic Volume (vph)	89	483	436	50	125
Future Volume (vph)	89	483	436	50	125
Turn Type	Perm	NA	NA	Prot	Perm
Protected Phases		4	8	1	
Permitted Phases	4				6
Detector Phase	4	4	8	1	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	9.5	27.5	9.5	27.5
Total Split (s)	31.0	31.0	31.0	29.0	29.0
Total Split (%)	51.7%	51.7%	51.7%	48.3%	48.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	None	None	Max
Act Effct Green (s)	18.8	18.8	18.8	12.8	24.7
Actuated g/C Ratio	0.36	0.36	0.36	0.24	0.47
v/c Ratio	0.48	0.74	0.72	0.12	0.16
Control Delay	22.0	22.0	21.0	13.6	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	22.0	22.0	21.0	13.6	3.2
LOS	C	C	C	B	A
Approach Delay		22.0	21.0	6.1	
Approach LOS		C	C	A	

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 52.6	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 19.3	Intersection LOS: B
Intersection Capacity Utilization 45.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: Lakeshore Dr & Chaney St



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	89	483	436	35	50	125
Future Volume (veh/h)	89	483	436	35	50	125
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	91	493	445	36	51	128
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	571	897	819	66	259	230
Arrive On Green	0.48	0.48	0.48	0.48	0.15	0.15
Sat Flow, veh/h	914	1870	1707	138	1781	1585
Grp Volume(v), veh/h	91	493	0	481	51	128
Grp Sat Flow(s),veh/h/ln	914	1870	0	1845	1781	1585
Q Serve(g_s), s	1.9	4.5	0.0	4.4	0.6	1.8
Cycle Q Clear(g_c), s	6.3	4.5	0.0	4.4	0.6	1.8
Prop In Lane	1.00			0.07	1.00	1.00
Lane Grp Cap(c), veh/h	571	897	0	885	259	230
V/C Ratio(X)	0.16	0.55	0.00	0.54	0.20	0.56
Avail Cap(c_a), veh/h	1143	2067	0	2039	1820	1619
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	6.6	4.4	0.0	4.4	9.0	9.5
Incr Delay (d2), s/veh	0.1	0.5	0.0	0.5	0.4	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.2	0.0	0.2	0.2	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	6.7	4.9	0.0	4.9	9.4	11.6
LnGrp LOS	A	A	A	A	A	B
Approach Vol, veh/h		584	481		179	
Approach Delay, s/veh		5.2	4.9		11.0	
Approach LOS		A	A		B	

Timer - Assigned Phs		4		6		8
Phs Duration (G+Y+Rc), s		16.0		8.0		16.0
Change Period (Y+Rc), s		4.5		4.5		4.5
Max Green Setting (Gmax), s		26.5		24.5		26.5
Max Q Clear Time (g_c+I1), s		8.3		3.8		6.4
Green Ext Time (p_c), s		3.2		0.5		2.8

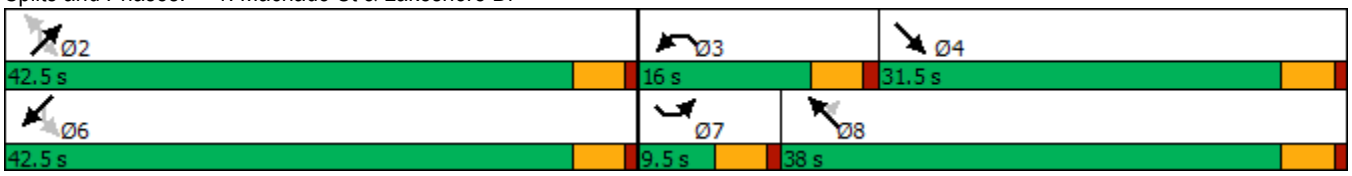
Intersection Summary	
HCM 6th Ctrl Delay	5.9
HCM 6th LOS	A

EXISTING PLUS PROJECT CONDITIONS

Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT
Lane Configurations										
Traffic Volume (vph)	8	511	151	267	3	186	30	320	10	36
Future Volume (vph)	8	511	151	267	3	186	30	320	10	36
Turn Type	Prot	NA	Prot	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases	7	4	3	8			2			6
Permitted Phases					8	2		2	6	
Detector Phase	7	4	3	8	8	2	2	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	31.5	9.5	26.5	26.5	42.5	42.5	42.5	29.5	29.5
Total Split (s)	9.5	31.5	16.0	38.0	38.0	42.5	42.5	42.5	42.5	42.5
Total Split (%)	10.6%	35.0%	17.8%	42.2%	42.2%	47.2%	47.2%	47.2%	47.2%	47.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	Max	Max	Max	Max	Max
Act Effct Green (s)	5.0	22.4	10.9	36.1	36.1	38.2	38.2	38.2		38.2
Actuated g/C Ratio	0.06	0.26	0.13	0.42	0.42	0.45	0.45	0.45		0.45
v/c Ratio	0.09	0.78	0.74	0.38	0.00	0.35	0.04	0.41		0.09
Control Delay	42.0	33.7	57.6	19.0	0.0	18.7	15.1	5.2		12.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	42.0	33.7	57.6	19.0	0.0	18.7	15.1	5.2		12.3
LOS	D	C	E	B	A	B	B	A		B
Approach Delay		33.8		32.7			10.5			12.3
Approach LOS		C		C			B			B

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 85.1	
Natural Cycle: 85	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 25.3	Intersection LOS: C
Intersection Capacity Utilization 55.2%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: Machado St & Lakeshore Dr



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	8	511	142	151	267	3	186	30	320	10	36	16
Future Volume (veh/h)	8	511	142	151	267	3	186	30	320	10	36	16
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	9	568	158	168	297	3	207	33	356	11	40	18
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	2	2	2	2	2	2	2	2	2
Cap, veh/h	20	698	193	205	669	567	724	871	738	137	476	198
Arrive On Green	0.01	0.25	0.25	0.12	0.36	0.36	0.47	0.47	0.47	0.47	0.47	0.47
Sat Flow, veh/h	1781	2748	762	1781	1870	1585	1345	1870	1585	184	1022	426
Grp Volume(v), veh/h	9	367	359	168	297	3	207	33	356	69	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1733	1781	1870	1585	1345	1870	1585	1632	0	0
Q Serve(g_s), s	0.4	15.8	15.9	7.5	9.9	0.1	5.5	0.8	12.6	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.4	15.8	15.9	7.5	9.9	0.1	7.3	0.8	12.6	1.8	0.0	0.0
Prop In Lane	1.00		0.44	1.00		1.00	1.00		1.00	0.16		0.26
Lane Grp Cap(c), veh/h	20	451	440	205	669	567	724	871	738	811	0	0
V/C Ratio(X)	0.45	0.81	0.82	0.82	0.44	0.01	0.29	0.04	0.48	0.09	0.00	0.00
Avail Cap(c_a), veh/h	109	588	573	251	768	651	724	871	738	811	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	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	40.1	28.6	28.7	35.3	20.0	16.9	13.5	11.9	15.0	12.1	0.0	0.0
Incr Delay (d2), s/veh	14.7	6.6	7.0	16.1	0.5	0.0	1.0	0.1	2.3	0.2	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(50%),veh/ln	0.3	7.0	6.9	4.0	4.0	0.0	2.3	0.3	4.5	0.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.8	35.2	35.6	51.3	20.5	16.9	14.5	11.9	17.3	12.3	0.0	0.0
LnGrp LOS	D	D	D	D	C	B	B	B	B	B	A	A
Approach Vol, veh/h		735			468			596			69	
Approach Delay, s/veh		35.7			31.5			16.0			12.3	
Approach LOS		D			C			B			B	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		42.5	13.9	25.2		42.5	5.4	33.7				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		38.0	11.5	27.0		38.0	5.0	33.5				
Max Q Clear Time (g_c+I1), s		14.6	9.5	17.9		3.8	2.4	11.9				
Green Ext Time (p_c), s		2.0	0.1	2.8		0.4	0.0	1.6				

Intersection Summary	
HCM 6th Ctrl Delay	27.5
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	1.1

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	12	800	415	20	23	30
Future Vol, veh/h	12	800	415	20	23	30
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	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	941	488	24	27	35

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	512	0	-	0	1469	500
Stage 1	-	-	-	-	500	-
Stage 2	-	-	-	-	969	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1053	-	-	-	140	571
Stage 1	-	-	-	-	609	-
Stage 2	-	-	-	-	368	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1053	-	-	-	136	571
Mov Cap-2 Maneuver	-	-	-	-	136	-
Stage 1	-	-	-	-	592	-
Stage 2	-	-	-	-	368	-

Approach	SE	NW	SW
HCM Control Delay, s	0.1	0	25.3
HCM LOS			D

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1
Capacity (veh/h)	-	-	1053	-	239
HCM Lane V/C Ratio	-	-	0.013	-	0.261
HCM Control Delay (s)	-	-	8.5	0	25.3
HCM Lane LOS	-	-	A	A	D
HCM 95th %tile Q(veh)	-	-	0	-	1

Intersection	
Int Delay, s/veh	23.1

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	68	0	59	1	0	6	57	995	1	4	717	125
Future Vol, veh/h	68	0	59	1	0	6	57	995	1	4	717	125
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	115	100	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	69	0	60	1	0	6	58	1015	1	4	732	128

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1875	1872	732	1965	1999	1015	860	0	0	1016	0	0
Stage 1	740	740	-	1131	1131	-	-	-	-	-	-	-
Stage 2	1135	1132	-	834	868	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 55	72	421	47	60	289	781	-	-	683	-	-
Stage 1	409	423	-	247	278	-	-	-	-	-	-	-
Stage 2	246	278	-	362	370	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 51	66	421	38	55	289	781	-	-	683	-	-
Mov Cap-2 Maneuver	~ 51	66	-	38	55	-	-	-	-	-	-	-
Stage 1	379	420	-	229	257	-	-	-	-	-	-	-
Stage 2	223	257	-	308	368	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	$ 364.4	30.4	0.5	0
HCM LOS	F	D		

Minor Lane/Major Mvmt	NEL	NET	NER	NWLn1	SELn1	SWL	SWT	SWR
Capacity (veh/h)	781	-	-	149	86	683	-	-
HCM Lane V/C Ratio	0.074	-	-	0.048	1.507	0.006	-	-
HCM Control Delay (s)	10	-	-	30.4	$ 364.4	10.3	-	-
HCM Lane LOS	A	-	-	D	F	B	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.1	10.2	0	-	-

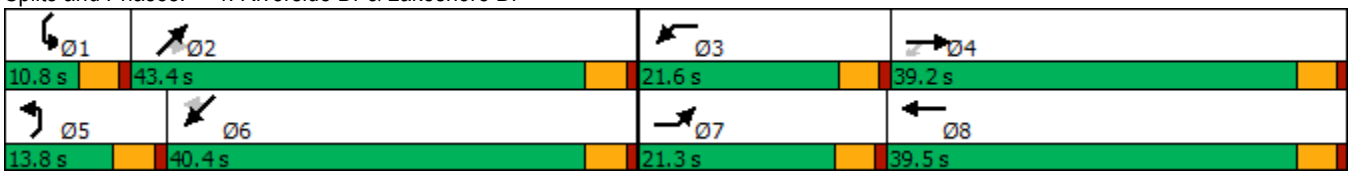
Notes

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

Lane Group	EBL	EBT	EBR	WBL	WBT	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Traffic Volume (vph)	266	352	119	220	151	137	507	369	49	470	123
Future Volume (vph)	266	352	119	220	151	137	507	369	49	470	123
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	2		1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	4	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	37.5	37.5	9.5	39.5	9.5	37.5	37.5	9.5	39.5	39.5
Total Split (s)	21.3	39.2	39.2	21.6	39.5	13.8	43.4	43.4	10.8	40.4	40.4
Total Split (%)	18.5%	34.1%	34.1%	18.8%	34.3%	12.0%	37.7%	37.7%	9.4%	35.1%	35.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	16.8	15.2	15.2	16.0	14.3	9.3	41.3	41.3	6.1	36.0	36.0
Actuated g/C Ratio	0.18	0.16	0.16	0.17	0.15	0.10	0.44	0.44	0.06	0.38	0.38
v/c Ratio	0.86	0.63	0.34	0.75	0.34	0.80	0.33	0.42	0.43	0.68	0.19
Control Delay	65.4	42.4	9.4	54.7	32.7	76.0	19.8	3.7	56.3	31.1	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.4	42.4	9.4	54.7	32.7	76.0	19.8	3.7	56.3	31.1	4.8
LOS	E	D	A	D	C	E	B	A	E	C	A
Approach Delay		45.4			44.7		21.6			28.0	
Approach LOS		D			D		C			C	

Intersection Summary	
Cycle Length: 115	
Actuated Cycle Length: 94.5	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 32.6	Intersection LOS: C
Intersection Capacity Utilization 69.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 4: Riverside Dr & Lakeshore Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	266	352	119	220	151	31	137	507	369	49	470	123
Future Volume (veh/h)	266	352	119	220	151	31	137	507	369	49	470	123
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	271	359	121	224	154	32	140	517	377	50	480	126
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	307	524	234	262	360	73	172	1642	732	71	758	642
Arrive On Green	0.17	0.15	0.15	0.15	0.12	0.12	0.10	0.46	0.46	0.04	0.41	0.41
Sat Flow, veh/h	1781	3554	1585	1781	2942	597	1781	3554	1585	1781	1870	1585
Grp Volume(v), veh/h	271	359	121	224	92	94	140	517	377	50	480	126
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1763	1781	1777	1585	1781	1870	1585
Q Serve(g_s), s	13.2	8.5	6.2	10.9	4.2	4.4	6.8	8.1	14.9	2.5	18.2	4.5
Cycle Q Clear(g_c), s	13.2	8.5	6.2	10.9	4.2	4.4	6.8	8.1	14.9	2.5	18.2	4.5
Prop In Lane	1.00		1.00	1.00		0.34	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	307	524	234	262	217	216	172	1642	732	71	758	642
V/C Ratio(X)	0.88	0.68	0.52	0.85	0.42	0.44	0.81	0.31	0.51	0.70	0.63	0.20
Avail Cap(c_a), veh/h	338	1392	621	344	702	697	187	1642	732	127	758	642
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.8	35.8	34.8	36.8	36.0	36.0	39.2	15.0	16.8	42.0	21.1	17.0
Incr Delay (d2), s/veh	21.5	1.6	1.8	14.8	1.3	1.4	21.9	0.5	2.6	11.9	4.0	0.7
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(50%),veh/ln	7.3	3.6	2.4	5.6	1.8	1.9	3.9	3.1	5.4	1.3	8.1	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.3	37.4	36.6	51.6	37.3	37.4	61.1	15.5	19.4	53.8	25.1	17.7
LnGrp LOS	E	D	D	D	D	D	E	B	B	D	C	B
Approach Vol, veh/h		751			410			1034			656	
Approach Delay, s/veh		44.5			45.2			23.1			25.8	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.0	45.4	17.5	17.6	13.1	40.4	19.8	15.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.3	38.9	17.1	34.7	9.3	35.9	16.8	35.0
Max Q Clear Time (g_c+I1), s	4.5	16.9	12.9	10.5	8.8	20.2	15.2	6.4
Green Ext Time (p_c), s	0.0	4.7	0.2	2.6	0.0	2.9	0.1	1.0

Intersection Summary	
HCM 6th Ctrl Delay	32.5
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	648	359	8	11	19
Future Vol, veh/h	3	648	359	8	11	19
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	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	689	382	9	12	20

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	391	0	-	0	1082	387
Stage 1	-	-	-	-	387	-
Stage 2	-	-	-	-	695	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1168	-	-	-	241	661
Stage 1	-	-	-	-	686	-
Stage 2	-	-	-	-	495	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1168	-	-	-	240	661
Mov Cap-2 Maneuver	-	-	-	-	240	-
Stage 1	-	-	-	-	683	-
Stage 2	-	-	-	-	495	-

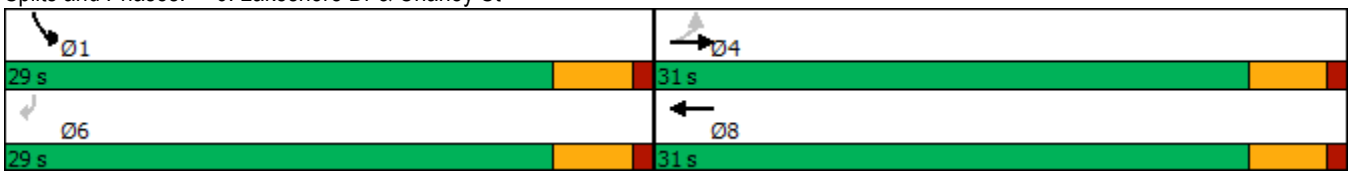
Approach	EB	WB	SB
HCM Control Delay, s	0	0	14.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1168	-	-	-	402
HCM Lane V/C Ratio	0.003	-	-	-	0.079
HCM Control Delay (s)	8.1	0	-	-	14.7
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations					
Traffic Volume (vph)	201	447	251	43	109
Future Volume (vph)	201	447	251	43	109
Turn Type	Perm	NA	NA	Prot	Perm
Protected Phases		4	8	1	
Permitted Phases	4				6
Detector Phase	4	4	8	1	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	9.5	27.5	9.5	27.5
Total Split (s)	31.0	31.0	31.0	29.0	29.0
Total Split (%)	51.7%	51.7%	51.7%	48.3%	48.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	None	None	Max
Act Effct Green (s)	18.2	18.2	18.2	9.5	24.8
Actuated g/C Ratio	0.35	0.35	0.35	0.18	0.48
v/c Ratio	0.63	0.71	0.46	0.14	0.14
Control Delay	23.1	20.9	14.3	17.5	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	23.1	20.9	14.3	17.5	3.3
LOS	C	C	B	B	A
Approach Delay		21.6	14.3	7.3	
Approach LOS		C	B	A	

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 52.1	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 17.6	Intersection LOS: B
Intersection Capacity Utilization 42.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: Lakeshore Dr & Chaney St



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	201	447	251	40	43	109
Future Volume (veh/h)	201	447	251	40	43	109
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	207	461	259	41	44	112
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	715	899	758	120	242	215
Arrive On Green	0.48	0.48	0.48	0.48	0.14	0.14
Sat Flow, veh/h	1079	1870	1576	249	1781	1585
Grp Volume(v), veh/h	207	461	0	300	44	112
Grp Sat Flow(s),veh/h/ln	1079	1870	0	1825	1781	1585
Q Serve(g_s), s	3.5	4.0	0.0	2.4	0.5	1.5
Cycle Q Clear(g_c), s	5.9	4.0	0.0	2.4	0.5	1.5
Prop In Lane	1.00			0.14	1.00	1.00
Lane Grp Cap(c), veh/h	715	899	0	878	242	215
V/C Ratio(X)	0.29	0.51	0.00	0.34	0.18	0.52
Avail Cap(c_a), veh/h	1414	2110	0	2059	1858	1653
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	5.6	4.2	0.0	3.8	9.0	9.4
Incr Delay (d2), s/veh	0.2	0.5	0.0	0.2	0.4	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.1	0.0	0.1	0.1	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	5.8	4.7	0.0	4.0	9.3	11.4
LnGrp LOS	A	A	A	A	A	B
Approach Vol, veh/h		668	300		156	
Approach Delay, s/veh		5.0	4.0		10.8	
Approach LOS		A	A		B	

Timer - Assigned Phs		4		6		8
Phs Duration (G+Y+Rc), s		15.8		7.7		15.8
Change Period (Y+Rc), s		4.5		4.5		4.5
Max Green Setting (Gmax), s		26.5		24.5		26.5
Max Q Clear Time (g_c+I1), s		7.9		3.5		4.4
Green Ext Time (p_c), s		3.5		0.4		1.6

Intersection Summary	
HCM 6th Ctrl Delay	5.6
HCM 6th LOS	A

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑	↱		↱
Traffic Vol, veh/h	0	709	362	22	0	19
Future Vol, veh/h	0	709	362	22	0	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	90	-	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	771	393	24	0	21

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	393
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	-	0	656
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	656
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

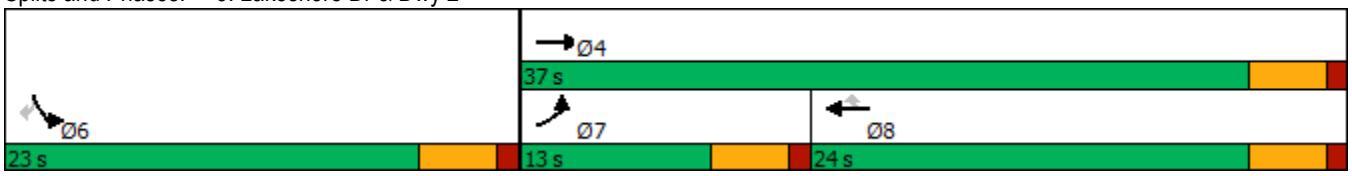
Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.7
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	656
HCM Lane V/C Ratio	-	-	-	0.031
HCM Control Delay (s)	-	-	-	10.7
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	93	616	355	22	24	29
Future Volume (vph)	93	616	355	22	24	29
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases				8		6
Detector Phase	7	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	13.0	37.0	24.0	24.0	23.0	23.0
Total Split (%)	21.7%	61.7%	40.0%	40.0%	38.3%	38.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	None	None	None	Max	Max
Act Effct Green (s)	7.6	26.3	16.7	16.7	18.9	18.9
Actuated g/C Ratio	0.14	0.48	0.31	0.31	0.35	0.35
v/c Ratio	0.41	0.74	0.67	0.05	0.04	0.06
Control Delay	28.5	16.7	24.1	6.9	14.6	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.5	16.7	24.1	6.9	14.6	6.6
LOS	C	B	C	A	B	A
Approach Delay		18.2	23.1		10.2	
Approach LOS		B	C		B	

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 54.3	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 19.5	Intersection LOS: B
Intersection Capacity Utilization 44.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 8: Lakeshore Dr & Dwy 2



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	93	616	355	22	24	29
Future Volume (veh/h)	93	616	355	22	24	29
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	101	670	386	24	26	32
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	136	813	497	421	677	603
Arrive On Green	0.08	0.43	0.27	0.27	0.38	0.38
Sat Flow, veh/h	1781	1870	1870	1585	1781	1585
Grp Volume(v), veh/h	101	670	386	24	26	32
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1585	1781	1585
Q Serve(g_s), s	2.7	15.3	9.3	0.5	0.4	0.6
Cycle Q Clear(g_c), s	2.7	15.3	9.3	0.5	0.4	0.6
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	136	813	497	421	677	603
V/C Ratio(X)	0.74	0.82	0.78	0.06	0.04	0.05
Avail Cap(c_a), veh/h	311	1250	750	635	677	603
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	22.0	12.1	16.5	13.3	9.5	9.5
Incr Delay (d2), s/veh	7.7	2.7	2.9	0.1	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	5.1	3.6	0.2	0.2	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	29.6	14.8	19.5	13.4	9.6	9.7
LnGrp LOS	C	B	B	B	A	A
Approach Vol, veh/h		771	410		58	
Approach Delay, s/veh		16.8	19.1		9.6	
Approach LOS		B	B		A	

Timer - Assigned Phs		4		6	7	8
Phs Duration (G+Y+Rc), s		25.6		23.0	8.2	17.4
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		32.5		18.5	8.5	19.5
Max Q Clear Time (g_c+I1), s		17.3		2.6	4.7	11.3
Green Ext Time (p_c), s		3.8		0.1	0.1	1.4

Intersection Summary	
HCM 6th Ctrl Delay	17.2
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	6.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	24	7	4	6	0
Future Vol, veh/h	0	24	7	4	6	0
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	26	8	4	7	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	27	7	7	0	-	0
Stage 1	7	-	-	-	-	-
Stage 2	20	-	-	-	-	-
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	988	1075	1614	-	-	-
Stage 1	1016	-	-	-	-	-
Stage 2	1003	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	983	1075	1614	-	-	-
Mov Cap-2 Maneuver	983	-	-	-	-	-
Stage 1	1011	-	-	-	-	-
Stage 2	1003	-	-	-	-	-

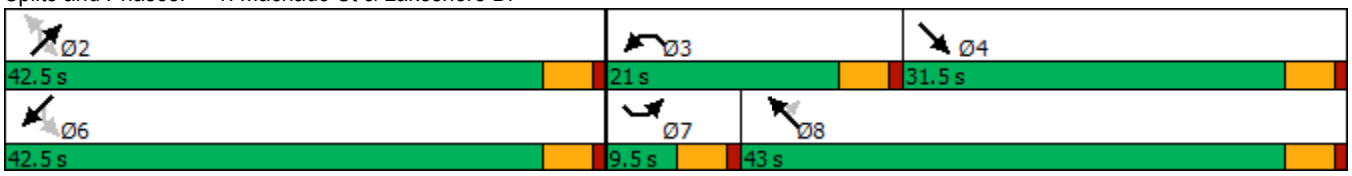
Approach	EB	NB	SB
HCM Control Delay, s	8.4	4.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1614	-	1075	-	-
HCM Lane V/C Ratio	0.005	-	0.024	-	-
HCM Control Delay (s)	7.2	0	8.4	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT
Lane Configurations										
Traffic Volume (vph)	2	467	318	461	10	84	14	221	12	42
Future Volume (vph)	2	467	318	461	10	84	14	221	12	42
Turn Type	Prot	NA	Prot	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases	7	4	3	8			2			6
Permitted Phases					8	2		2	6	
Detector Phase	7	4	3	8	8	2	2	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	31.5	9.5	26.5	26.5	42.5	42.5	42.5	29.5	29.5
Total Split (s)	9.5	31.5	21.0	43.0	43.0	42.5	42.5	42.5	42.5	42.5
Total Split (%)	10.0%	33.2%	22.1%	45.3%	45.3%	44.7%	44.7%	44.7%	44.7%	44.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	Max	Max	Max	Max	Max
Act Effct Green (s)	5.0	19.5	16.5	38.8	38.8	38.1	38.1	38.1		38.1
Actuated g/C Ratio	0.06	0.22	0.19	0.44	0.44	0.43	0.43	0.43		0.43
v/c Ratio	0.02	0.71	0.99	0.58	0.01	0.15	0.02	0.28		0.08
Control Delay	42.0	35.8	86.2	22.4	0.0	17.3	16.1	3.5		14.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	42.0	35.8	86.2	22.4	0.0	17.3	16.1	3.5		14.9
LOS	D	D	F	C	A	B	B	A		B
Approach Delay		35.8		47.8			7.7			14.9
Approach LOS		D		D			A			B

Intersection Summary	
Cycle Length: 95	
Actuated Cycle Length: 87.7	
Natural Cycle: 95	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.99	
Intersection Signal Delay: 35.3	Intersection LOS: D
Intersection Capacity Utilization 55.4%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: Machado St & Lakeshore Dr



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	2	467	72	318	461	10	84	14	221	12	42	8
Future Volume (veh/h)	2	467	72	318	461	10	84	14	221	12	42	8
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	486	75	331	480	10	88	15	230	12	44	8
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	5	623	96	345	735	623	696	834	707	156	549	94
Arrive On Green	0.00	0.20	0.20	0.19	0.39	0.39	0.45	0.45	0.45	0.45	0.45	0.45
Sat Flow, veh/h	1781	3088	474	1781	1870	1585	1352	1870	1585	238	1231	210
Grp Volume(v), veh/h	2	279	282	331	480	10	88	15	230	64	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1785	1781	1870	1585	1352	1870	1585	1678	0	0
Q Serve(g_s), s	0.1	12.7	12.8	15.7	17.9	0.3	1.0	0.4	8.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	12.7	12.8	15.7	17.9	0.3	2.7	0.4	8.0	1.7	0.0	0.0
Prop In Lane	1.00		0.27	1.00		1.00	1.00		1.00	0.19		0.12
Lane Grp Cap(c), veh/h	5	359	360	345	735	623	696	834	707	799	0	0
V/C Ratio(X)	0.41	0.78	0.78	0.96	0.65	0.02	0.13	0.02	0.33	0.08	0.00	0.00
Avail Cap(c_a), veh/h	105	563	566	345	845	716	696	834	707	799	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	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	42.4	32.2	32.2	34.0	21.1	15.8	13.8	13.2	15.3	13.6	0.0	0.0
Incr Delay (d2), s/veh	48.1	3.6	3.8	37.7	1.5	0.0	0.4	0.0	1.2	0.2	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(50%),veh/ln	0.1	5.4	5.5	10.0	7.4	0.1	1.0	0.2	2.9	0.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	90.5	35.8	36.0	71.8	22.6	15.8	14.2	13.2	16.5	13.7	0.0	0.0
LnGrp LOS	F	D	D	E	C	B	B	B	B	B	A	A
Approach Vol, veh/h		563			821			333			64	
Approach Delay, s/veh		36.1			42.3			15.7			13.7	
Approach LOS		D			D			B			B	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		42.5	21.0	21.7		42.5	4.7	38.0				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		38.0	16.5	27.0		38.0	5.0	38.5				
Max Q Clear Time (g_c+I1), s		10.0	17.7	14.8		3.7	2.1	19.9				
Green Ext Time (p_c), s		1.1	0.0	2.4		0.3	0.0	2.7				

Intersection Summary	
HCM 6th Ctrl Delay	34.4
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	1.3

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	10	684	704	44	24	46
Future Vol, veh/h	10	684	704	44	24	46
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	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	713	733	46	25	48

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	779	0	-	0	1489	756
Stage 1	-	-	-	-	756	-
Stage 2	-	-	-	-	733	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	838	-	-	-	136	408
Stage 1	-	-	-	-	464	-
Stage 2	-	-	-	-	475	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	838	-	-	-	133	408
Mov Cap-2 Maneuver	-	-	-	-	133	-
Stage 1	-	-	-	-	455	-
Stage 2	-	-	-	-	475	-

Approach	SE	NW	SW
HCM Control Delay, s	0.1	0	26.5
HCM LOS			D

Minor Lane/Major Mvmt	NWT	NWR	SEL	SETSWLn1	
Capacity (veh/h)	-	-	838	-	239
HCM Lane V/C Ratio	-	-	0.012	-	0.305
HCM Control Delay (s)	-	-	9.3	0	26.5
HCM Lane LOS	-	-	A	A	D
HCM 95th %tile Q(veh)	-	-	0	-	1.2

Intersection	
Int Delay, s/veh	29.5

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	55	0	31	1	0	4	41	1149	2	9	958	122
Future Vol, veh/h	55	0	31	1	0	4	41	1149	2	9	958	122
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	115	100	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	57	0	32	1	0	4	42	1185	2	9	988	126

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2278	2277	988	2354	2401	1185	1114	0	0	1187	0	0
Stage 1	1006	1006	-	1269	1269	-	-	-	-	-	-	-
Stage 2	1272	1271	-	1085	1132	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 28	40	300	25	33	230	627	-	-	588	-	-
Stage 1	291	319	-	206	239	-	-	-	-	-	-	-
Stage 2	206	239	-	262	278	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 26	37	300	21	30	230	627	-	-	588	-	-
Mov Cap-2 Maneuver	~ 26	37	-	21	30	-	-	-	-	-	-	-
Stage 1	272	314	-	192	223	-	-	-	-	-	-	-
Stage 2	189	223	-	231	274	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	$ 803.9	55.1	0.4	0.1
HCM LOS	F	F		

Minor Lane/Major Mvmt	NEL	NET	NER	NWLn1	SELn1	SWL	SWT	SWR
Capacity (veh/h)	627	-	-	77	39	588	-	-
HCM Lane V/C Ratio	0.067	-	-	0.067	2.273	0.016	-	-
HCM Control Delay (s)	11.2	-	-	55.1	$ 803.9	11.2	-	-
HCM Lane LOS	B	-	-	F	F	B	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.2	9.7	0	-	-

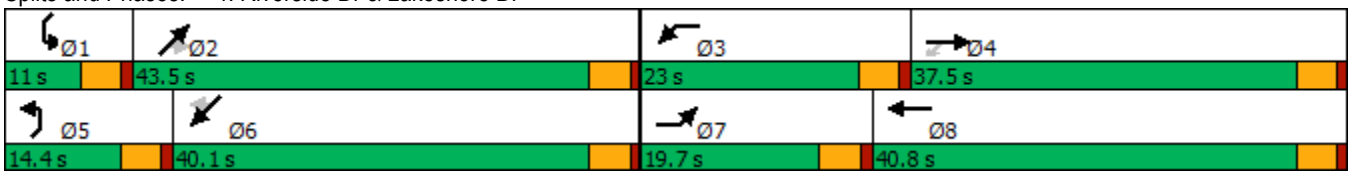
Notes

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

Lane Group	EBL	EBT	EBR	WBL	WBT	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Traffic Volume (vph)	212	287	168	319	337	148	645	347	51	515	309
Future Volume (vph)	212	287	168	319	337	148	645	347	51	515	309
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	2		1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	4	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	37.5	37.5	9.5	39.5	9.5	37.5	37.5	9.5	39.5	39.5
Total Split (s)	19.7	37.5	37.5	23.0	40.8	14.4	43.5	43.5	11.0	40.1	40.1
Total Split (%)	17.1%	32.6%	32.6%	20.0%	35.5%	12.5%	37.8%	37.8%	9.6%	34.9%	34.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	15.1	13.5	13.5	18.5	17.0	9.9	41.3	41.3	6.3	35.6	35.6
Actuated g/C Ratio	0.16	0.14	0.14	0.19	0.18	0.10	0.43	0.43	0.07	0.37	0.37
v/c Ratio	0.78	0.59	0.47	0.96	0.62	0.84	0.43	0.40	0.46	0.77	0.41
Control Delay	60.2	43.4	10.1	80.2	39.8	78.7	21.3	3.7	56.9	35.7	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.2	43.4	10.1	80.2	39.8	78.7	21.3	3.7	56.9	35.7	5.2
LOS	E	D	B	F	D	E	C	A	E	D	A
Approach Delay		40.4			58.3		23.4			26.1	
Approach LOS		D			E		C			C	

Intersection Summary	
Cycle Length: 115	
Actuated Cycle Length: 95.6	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.96	
Intersection Signal Delay: 34.7	Intersection LOS: C
Intersection Capacity Utilization 75.9%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: Riverside Dr & Lakeshore Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	212	287	168	319	337	42	148	645	347	51	515	309
Future Volume (veh/h)	212	287	168	319	337	42	148	645	347	51	515	309
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	219	296	173	329	347	43	153	665	358	53	531	319
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	252	528	235	342	634	78	183	1539	686	70	691	586
Arrive On Green	0.14	0.15	0.15	0.19	0.20	0.20	0.10	0.43	0.43	0.04	0.37	0.37
Sat Flow, veh/h	1781	3554	1585	1781	3185	392	1781	3554	1585	1781	1870	1585
Grp Volume(v), veh/h	219	296	173	329	192	198	153	665	358	53	531	319
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1800	1781	1777	1585	1781	1870	1585
Q Serve(g_s), s	11.6	7.5	10.0	17.6	9.4	9.5	8.1	12.6	15.9	2.8	24.1	15.3
Cycle Q Clear(g_c), s	11.6	7.5	10.0	17.6	9.4	9.5	8.1	12.6	15.9	2.8	24.1	15.3
Prop In Lane	1.00		1.00	1.00		0.22	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	252	528	235	342	354	358	183	1539	686	70	691	586
V/C Ratio(X)	0.87	0.56	0.73	0.96	0.54	0.55	0.84	0.43	0.52	0.76	0.77	0.54
Avail Cap(c_a), veh/h	281	1218	543	342	670	678	183	1539	686	120	691	586
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.4	38.1	39.2	38.6	34.7	34.7	42.4	19.0	20.0	45.8	26.7	24.0
Incr Delay (d2), s/veh	22.2	0.9	4.4	38.4	1.3	1.3	27.1	0.9	2.8	15.1	8.0	3.6
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(50%),veh/ln	6.5	3.2	4.1	11.0	4.0	4.1	4.8	5.0	6.0	1.5	11.6	6.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.7	39.0	43.6	76.9	36.0	36.0	69.5	19.9	22.8	60.9	34.7	27.6
LnGrp LOS	E	D	D	E	D	D	E	B	C	E	C	C
Approach Vol, veh/h		688			719			1176			903	
Approach Delay, s/veh		47.7			54.7			27.3			33.7	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.3	46.2	23.0	18.8	14.4	40.1	18.1	23.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.5	39.0	18.5	33.0	9.9	35.6	15.2	36.3
Max Q Clear Time (g_c+I1), s	4.8	17.9	19.6	12.0	10.1	26.1	13.6	11.5
Green Ext Time (p_c), s	0.0	5.6	0.0	2.3	0.0	3.1	0.1	2.1

Intersection Summary	
HCM 6th Ctrl Delay	38.6
HCM 6th LOS	D

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	593	611	9	17	27
Future Vol, veh/h	2	593	611	9	17	27
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	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	605	623	9	17	28

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	632	0	-	0	1237	628
Stage 1	-	-	-	-	628	-
Stage 2	-	-	-	-	609	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	951	-	-	-	194	483
Stage 1	-	-	-	-	532	-
Stage 2	-	-	-	-	543	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	951	-	-	-	193	483
Mov Cap-2 Maneuver	-	-	-	-	193	-
Stage 1	-	-	-	-	530	-
Stage 2	-	-	-	-	543	-

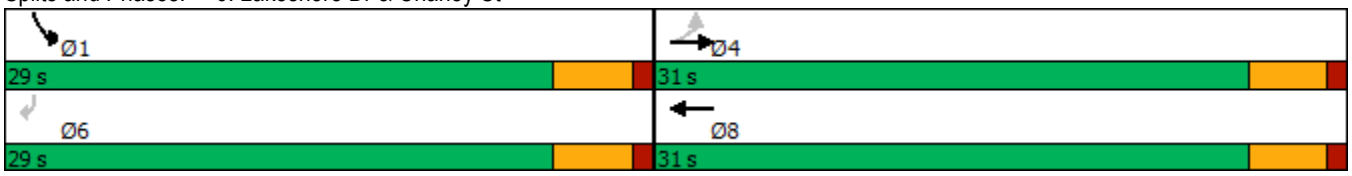
Approach	EB	WB	SB
HCM Control Delay, s	0	0	18.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	951	-	-	-	306
HCM Lane V/C Ratio	0.002	-	-	-	0.147
HCM Control Delay (s)	8.8	0	-	-	18.8
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.5

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations					
Traffic Volume (vph)	107	507	461	50	143
Future Volume (vph)	107	507	461	50	143
Turn Type	Perm	NA	NA	Prot	Perm
Protected Phases		4	8	1	
Permitted Phases	4				6
Detector Phase	4	4	8	1	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	9.5	27.5	9.5	27.5
Total Split (s)	31.0	31.0	31.0	29.0	29.0
Total Split (%)	51.7%	51.7%	51.7%	48.3%	48.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	None	None	Max
Act Effct Green (s)	19.6	19.6	19.6	12.8	24.8
Actuated g/C Ratio	0.37	0.37	0.37	0.24	0.46
v/c Ratio	0.60	0.76	0.74	0.12	0.18
Control Delay	28.6	22.4	21.5	14.0	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	28.6	22.4	21.5	14.0	3.1
LOS	C	C	C	B	A
Approach Delay		23.5	21.5	5.9	
Approach LOS		C	C	A	

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 53.5	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.76	
Intersection Signal Delay: 20.1	Intersection LOS: C
Intersection Capacity Utilization 47.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: Lakeshore Dr & Chaney St



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	107	507	461	35	50	143
Future Volume (veh/h)	107	507	461	35	50	143
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	109	517	470	36	51	146
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	560	934	856	66	263	234
Arrive On Green	0.50	0.50	0.50	0.50	0.15	0.15
Sat Flow, veh/h	893	1870	1715	131	1781	1585
Grp Volume(v), veh/h	109	517	0	506	51	146
Grp Sat Flow(s),veh/h/ln	893	1870	0	1847	1781	1585
Q Serve(g_s), s	2.4	4.9	0.0	4.8	0.6	2.2
Cycle Q Clear(g_c), s	7.3	4.9	0.0	4.8	0.6	2.2
Prop In Lane	1.00			0.07	1.00	1.00
Lane Grp Cap(c), veh/h	560	934	0	922	263	234
V/C Ratio(X)	0.19	0.55	0.00	0.55	0.19	0.62
Avail Cap(c_a), veh/h	1043	1945	0	1921	1713	1524
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	6.9	4.4	0.0	4.4	9.5	10.2
Incr Delay (d2), s/veh	0.2	0.5	0.0	0.5	0.4	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.3	0.0	0.3	0.2	0.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	7.1	4.9	0.0	4.9	9.9	12.9
LnGrp LOS	A	A	A	A	A	B
Approach Vol, veh/h		626	506		197	
Approach Delay, s/veh		5.3	4.9		12.1	
Approach LOS		A	A		B	

Timer - Assigned Phs		4		6		8
Phs Duration (G+Y+Rc), s		17.2		8.3		17.2
Change Period (Y+Rc), s		4.5		4.5		4.5
Max Green Setting (Gmax), s		26.5		24.5		26.5
Max Q Clear Time (g_c+I1), s		9.3		4.2		6.8
Green Ext Time (p_c), s		3.5		0.5		2.9

Intersection Summary	
HCM 6th Ctrl Delay	6.2
HCM 6th LOS	A

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑	↱		↱
Traffic Vol, veh/h	0	644	626	25	0	32
Future Vol, veh/h	0	644	626	25	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	-	-	-	90	-	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	700	680	27	0	35

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	680
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	-	0	451
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	451
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

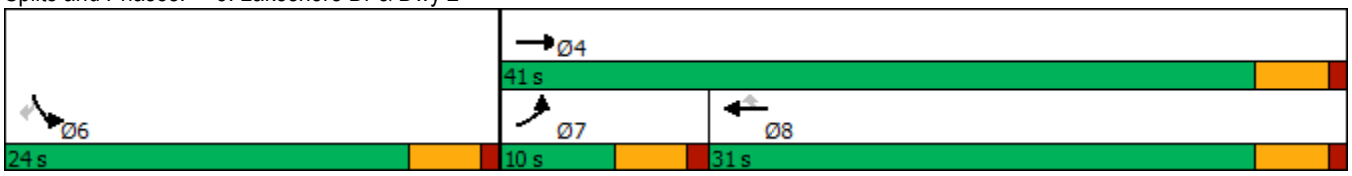
Approach	EB	WB	SB
HCM Control Delay, s	0	0	13.6
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	451
HCM Lane V/C Ratio	-	-	-	0.077
HCM Control Delay (s)	-	-	-	13.6
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.2

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	107	537	609	25	40	47
Future Volume (vph)	107	537	609	25	40	47
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases				8		6
Detector Phase	7	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	10.0	41.0	31.0	31.0	24.0	24.0
Total Split (%)	15.4%	63.1%	47.7%	47.7%	36.9%	36.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	None	None	None	Max	Max
Act Effct Green (s)	5.6	32.7	25.1	25.1	19.8	19.8
Actuated g/C Ratio	0.09	0.53	0.41	0.41	0.32	0.32
v/c Ratio	0.72	0.59	0.87	0.04	0.08	0.09
Control Delay	58.6	12.4	32.5	7.3	16.9	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.6	12.4	32.5	7.3	16.9	6.2
LOS	E	B	C	A	B	A
Approach Delay		20.1	31.5		11.1	
Approach LOS		C	C		B	

Intersection Summary	
Cycle Length: 65	
Actuated Cycle Length: 61.6	
Natural Cycle: 65	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 24.8	Intersection LOS: C
Intersection Capacity Utilization 53.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 8: Lakeshore Dr & Dwy 2



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	107	537	609	25	40	47
Future Volume (veh/h)	107	537	609	25	40	47
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	116	584	662	27	43	51
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	148	1018	728	617	555	494
Arrive On Green	0.08	0.54	0.39	0.39	0.31	0.31
Sat Flow, veh/h	1781	1870	1870	1585	1781	1585
Grp Volume(v), veh/h	116	584	662	27	43	51
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1585	1781	1585
Q Serve(g_s), s	4.0	12.9	20.9	0.7	1.1	1.4
Cycle Q Clear(g_c), s	4.0	12.9	20.9	0.7	1.1	1.4
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	148	1018	728	617	555	494
V/C Ratio(X)	0.78	0.57	0.91	0.04	0.08	0.10
Avail Cap(c_a), veh/h	157	1091	792	671	555	494
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	28.1	9.4	18.0	11.9	15.2	15.3
Incr Delay (d2), s/veh	21.5	0.6	13.7	0.0	0.3	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	4.1	10.2	0.2	0.4	1.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	49.6	10.1	31.8	11.9	15.5	15.7
LnGrp LOS	D	B	C	B	B	B
Approach Vol, veh/h		700	689		94	
Approach Delay, s/veh		16.6	31.0		15.6	
Approach LOS		B	C		B	

Timer - Assigned Phs		4		6	7	8
Phs Duration (G+Y+Rc), s		38.6		24.0	9.7	28.9
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		36.5		19.5	5.5	26.5
Max Q Clear Time (g_c+I1), s		14.9		3.4	6.0	22.9
Green Ext Time (p_c), s		3.6		0.2	0.0	1.4

Intersection Summary	
HCM 6th Ctrl Delay	23.2
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	7.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	40	8	3	4	0
Future Vol, veh/h	0	40	8	3	4	0
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	43	9	3	4	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	25	4	4	0	-	0
Stage 1	4	-	-	-	-	-
Stage 2	21	-	-	-	-	-
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	991	1080	1618	-	-	-
Stage 1	1019	-	-	-	-	-
Stage 2	1002	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	985	1080	1618	-	-	-
Mov Cap-2 Maneuver	985	-	-	-	-	-
Stage 1	1013	-	-	-	-	-
Stage 2	1002	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	5.3	0
HCM LOS	A		

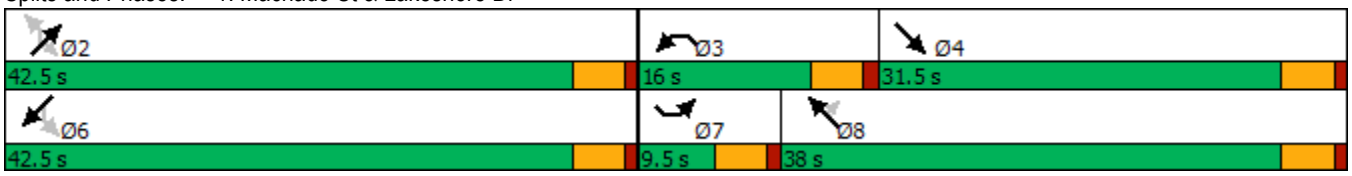
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1618	-	1080	-	-
HCM Lane V/C Ratio	0.005	-	0.04	-	-
HCM Control Delay (s)	7.2	0	8.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

EAP CONDITIONS

Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT
Lane Configurations										
Traffic Volume (vph)	8	531	157	277	3	194	31	332	10	37
Future Volume (vph)	8	531	157	277	3	194	31	332	10	37
Turn Type	Prot	NA	Prot	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases	7	4	3	8			2			6
Permitted Phases					8	2		2	6	
Detector Phase	7	4	3	8	8	2	2	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	31.5	9.5	26.5	26.5	42.5	42.5	42.5	29.5	29.5
Total Split (s)	9.5	31.5	16.0	38.0	38.0	42.5	42.5	42.5	42.5	42.5
Total Split (%)	10.6%	35.0%	17.8%	42.2%	42.2%	47.2%	47.2%	47.2%	47.2%	47.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	Max	Max	Max	Max	Max
Act Effct Green (s)	5.0	23.1	11.0	36.8	36.8	38.1	38.1	38.1		38.1
Actuated g/C Ratio	0.06	0.27	0.13	0.43	0.43	0.44	0.44	0.44		0.44
v/c Ratio	0.09	0.79	0.77	0.39	0.00	0.37	0.04	0.43		0.09
Control Delay	42.2	34.3	60.4	19.0	0.0	19.3	15.3	6.0		12.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	42.2	34.3	60.4	19.0	0.0	19.3	15.3	6.0		12.3
LOS	D	C	E	B	A	B	B	A		B
Approach Delay		34.4		33.7			11.2			12.3
Approach LOS		C		C			B			B

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 85.8	
Natural Cycle: 85	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 26.0	Intersection LOS: C
Intersection Capacity Utilization 56.8%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: Machado St & Lakeshore Dr



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	8	531	148	157	277	3	194	31	332	10	37	17
Future Volume (veh/h)	8	531	148	157	277	3	194	31	332	10	37	17
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	9	590	164	174	308	3	216	34	369	11	41	19
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	2	2	2	2	2	2	2	2	2
Cap, veh/h	20	715	198	211	686	582	713	858	727	131	467	200
Arrive On Green	0.01	0.26	0.26	0.12	0.37	0.37	0.46	0.46	0.46	0.46	0.46	0.46
Sat Flow, veh/h	1781	2748	762	1781	1870	1585	1343	1870	1585	177	1018	437
Grp Volume(v), veh/h	9	381	373	174	308	3	216	34	369	71	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1733	1781	1870	1585	1343	1870	1585	1632	0	0
Q Serve(g_s), s	0.4	16.7	16.8	7.9	10.3	0.1	6.0	0.8	13.6	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.4	16.7	16.8	7.9	10.3	0.1	7.9	0.8	13.6	1.9	0.0	0.0
Prop In Lane	1.00		0.44	1.00		1.00	1.00		1.00	0.15		0.27
Lane Grp Cap(c), veh/h	20	462	451	211	686	582	713	858	727	799	0	0
V/C Ratio(X)	0.45	0.82	0.83	0.83	0.45	0.01	0.30	0.04	0.51	0.09	0.00	0.00
Avail Cap(c_a), veh/h	108	579	565	247	756	641	713	858	727	799	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	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	40.7	28.9	28.9	35.7	19.9	16.6	14.1	12.4	15.8	12.6	0.0	0.0
Incr Delay (d2), s/veh	14.8	7.7	8.1	17.7	0.5	0.0	1.1	0.1	2.5	0.2	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(50%),veh/ln	0.3	7.5	7.4	4.3	4.2	0.0	2.5	0.3	4.9	0.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.5	36.6	37.0	53.4	20.3	16.6	15.2	12.4	18.3	12.9	0.0	0.0
LnGrp LOS	E	D	D	D	C	B	B	B	B	B	A	A
Approach Vol, veh/h		763			485			619			71	
Approach Delay, s/veh		37.0			32.2			16.9			12.9	
Approach LOS		D			C			B			B	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		42.5	14.3	26.0		42.5	5.4	34.9				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		38.0	11.5	27.0		38.0	5.0	33.5				
Max Q Clear Time (g_c+I1), s		15.6	9.9	18.8		3.9	2.4	12.3				
Green Ext Time (p_c), s		2.1	0.1	2.7		0.4	0.0	1.6				

Intersection Summary	
HCM 6th Ctrl Delay	28.5
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	1.2

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	12	831	431	21	24	31
Future Vol, veh/h	12	831	431	21	24	31
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	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	978	507	25	28	36

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	532	0	-	0	1526	520
Stage 1	-	-	-	-	520	-
Stage 2	-	-	-	-	1006	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1036	-	-	-	130	556
Stage 1	-	-	-	-	597	-
Stage 2	-	-	-	-	353	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1036	-	-	-	126	556
Mov Cap-2 Maneuver	-	-	-	-	126	-
Stage 1	-	-	-	-	579	-
Stage 2	-	-	-	-	353	-

Approach	SE	NW	SW
HCM Control Delay, s	0.1	0	27.6
HCM LOS			D

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1
Capacity (veh/h)	-	-	1036	-	223
HCM Lane V/C Ratio	-	-	0.014	-	0.29
HCM Control Delay (s)	-	-	8.5	0	27.6
HCM Lane LOS	-	-	A	A	D
HCM 95th %tile Q(veh)	-	-	0	-	1.2

Intersection	
Int Delay, s/veh	29.5

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	70	0	61	1	0	6	59	1034	1	4	745	130
Future Vol, veh/h	70	0	61	1	0	6	59	1034	1	4	745	130
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	115	100	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	71	0	62	1	0	6	60	1055	1	4	760	133

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1947	1944	760	2041	2076	1055	893	0	0	1056	0	0
Stage 1	768	768	-	1175	1175	-	-	-	-	-	-	-
Stage 2	1179	1176	-	866	901	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 49	65	406	42	54	274	759	-	-	659	-	-
Stage 1	394	411	-	233	265	-	-	-	-	-	-	-
Stage 2	232	265	-	348	357	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 45	59	406	33	49	274	759	-	-	659	-	-
Mov Cap-2 Maneuver	~ 45	59	-	33	49	-	-	-	-	-	-	-
Stage 1	363	409	-	215	244	-	-	-	-	-	-	-
Stage 2	209	244	-	293	355	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	$ 470.2	33.4	0.5	0
HCM LOS	F	D		

Minor Lane/Major Mvmt	NEL	NET	NER	NWLn1	SELn1	SWL	SWT	SWR
Capacity (veh/h)	759	-	-	134	77	659	-	-
HCM Lane V/C Ratio	0.079	-	-	0.053	1.736	0.006	-	-
HCM Control Delay (s)	10.2	-	-	33.4	$ 470.2	10.5	-	-
HCM Lane LOS	B	-	-	D	F	B	-	-
HCM 95th %tile Q(veh)	0.3	-	-	0.2	11.5	0	-	-

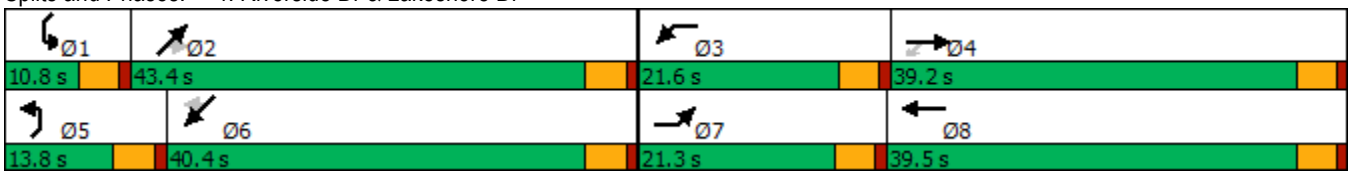
Notes

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

Lane Group	EBL	EBT	EBR	WBL	WBT	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Traffic Volume (vph)	277	365	124	228	156	143	527	383	50	489	128
Future Volume (vph)	277	365	124	228	156	143	527	383	50	489	128
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	2		1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	4	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	37.5	37.5	9.5	39.5	9.5	37.5	37.5	9.5	39.5	39.5
Total Split (s)	21.3	39.2	39.2	21.6	39.5	13.8	43.4	43.4	10.8	40.4	40.4
Total Split (%)	18.5%	34.1%	34.1%	18.8%	34.3%	12.0%	37.7%	37.7%	9.4%	35.1%	35.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	16.8	15.5	15.5	16.4	15.0	9.3	41.3	41.3	6.1	36.0	36.0
Actuated g/C Ratio	0.18	0.16	0.16	0.17	0.16	0.10	0.43	0.43	0.06	0.38	0.38
v/c Ratio	0.90	0.64	0.35	0.77	0.34	0.84	0.35	0.43	0.45	0.71	0.19
Control Delay	72.5	42.8	9.2	56.2	32.6	82.2	20.3	3.8	57.4	32.8	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.5	42.8	9.2	56.2	32.6	82.2	20.3	3.8	57.4	32.8	4.8
LOS	E	D	A	E	C	F	C	A	E	C	A
Approach Delay		48.1			45.5		22.7			29.2	
Approach LOS		D			D		C			C	

Intersection Summary	
Cycle Length: 115	
Actuated Cycle Length: 95.2	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 34.2	Intersection LOS: C
Intersection Capacity Utilization 71.4%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 4: Riverside Dr & Lakeshore Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	277	365	124	228	156	32	143	527	383	50	489	128
Future Volume (veh/h)	277	365	124	228	156	32	143	527	383	50	489	128
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	283	372	127	233	159	33	146	538	391	51	499	131
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	317	537	239	270	367	75	178	1627	725	71	744	631
Arrive On Green	0.18	0.15	0.15	0.15	0.12	0.12	0.10	0.46	0.46	0.04	0.40	0.40
Sat Flow, veh/h	1781	3554	1585	1781	2943	597	1781	3554	1585	1781	1870	1585
Grp Volume(v), veh/h	283	372	127	233	95	97	146	538	391	51	499	131
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1763	1781	1777	1585	1781	1870	1585
Q Serve(g_s), s	14.0	9.0	6.7	11.5	4.4	4.6	7.3	8.7	16.0	2.6	19.8	4.9
Cycle Q Clear(g_c), s	14.0	9.0	6.7	11.5	4.4	4.6	7.3	8.7	16.0	2.6	19.8	4.9
Prop In Lane	1.00		1.00	1.00		0.34	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	317	537	239	270	222	220	178	1627	725	71	744	631
V/C Ratio(X)	0.89	0.69	0.53	0.86	0.43	0.44	0.82	0.33	0.54	0.72	0.67	0.21
Avail Cap(c_a), veh/h	332	1366	609	338	689	684	184	1627	725	124	744	631
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.2	36.3	35.4	37.4	36.5	36.6	39.8	15.6	17.6	42.8	22.3	17.8
Incr Delay (d2), s/veh	24.1	1.6	1.8	16.8	1.3	1.4	24.2	0.5	2.9	12.6	4.8	0.7
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(50%),veh/ln	7.9	3.8	2.6	6.1	1.9	2.0	4.2	3.4	5.9	1.3	9.0	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.4	37.9	37.2	54.2	37.8	38.0	64.0	16.2	20.5	55.4	27.1	18.6
LnGrp LOS	E	D	D	D	D	D	E	B	C	E	C	B
Approach Vol, veh/h		782			425			1075			681	
Approach Delay, s/veh		45.9			46.8			24.2			27.6	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.1	45.8	18.2	18.1	13.5	40.4	20.6	15.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.3	38.9	17.1	34.7	9.3	35.9	16.8	35.0
Max Q Clear Time (g_c+I1), s	4.6	18.0	13.5	11.0	9.3	21.8	16.0	6.6
Green Ext Time (p_c), s	0.0	4.8	0.2	2.7	0.0	2.9	0.1	1.0

Intersection Summary	
HCM 6th Ctrl Delay	34.0
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	673	372	8	11	19
Future Vol, veh/h	3	673	372	8	11	19
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	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	716	396	9	12	20

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	405	0	-	0	1123	401
Stage 1	-	-	-	-	401	-
Stage 2	-	-	-	-	722	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1154	-	-	-	227	649
Stage 1	-	-	-	-	676	-
Stage 2	-	-	-	-	481	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1154	-	-	-	226	649
Mov Cap-2 Maneuver	-	-	-	-	226	-
Stage 1	-	-	-	-	673	-
Stage 2	-	-	-	-	481	-

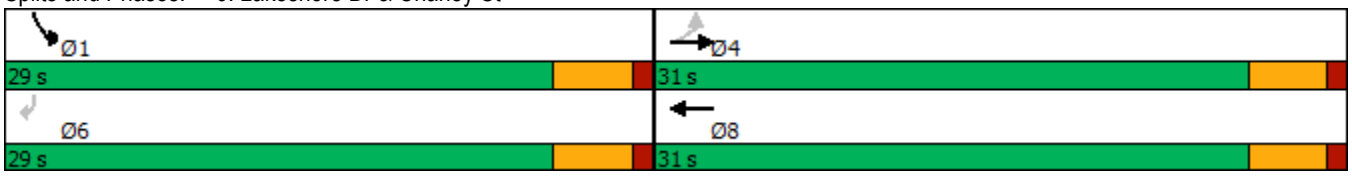
Approach	EB	WB	SB
HCM Control Delay, s	0	0	15.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1154	-	-	-	385
HCM Lane V/C Ratio	0.003	-	-	-	0.083
HCM Control Delay (s)	8.1	0	-	-	15.2
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations					
Traffic Volume (vph)	209	464	260	45	113
Future Volume (vph)	209	464	260	45	113
Turn Type	Perm	NA	NA	Prot	Perm
Protected Phases		4	8	1	
Permitted Phases	4				6
Detector Phase	4	4	8	1	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	9.5	27.5	9.5	27.5
Total Split (s)	31.0	31.0	31.0	29.0	29.0
Total Split (%)	51.7%	51.7%	51.7%	48.3%	48.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	None	None	Max
Act Effct Green (s)	18.8	18.8	18.8	9.5	24.8
Actuated g/C Ratio	0.36	0.36	0.36	0.18	0.47
v/c Ratio	0.66	0.72	0.47	0.14	0.14
Control Delay	24.3	21.0	14.3	17.8	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	24.3	21.0	14.3	17.8	3.2
LOS	C	C	B	B	A
Approach Delay		22.0	14.3	7.4	
Approach LOS		C	B	A	

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 52.7	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 17.9	Intersection LOS: B
Intersection Capacity Utilization 43.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: Lakeshore Dr & Chaney St



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	209	464	260	42	45	113
Future Volume (veh/h)	209	464	260	42	45	113
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	215	478	268	43	46	116
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	710	918	771	124	244	217
Arrive On Green	0.49	0.49	0.49	0.49	0.14	0.14
Sat Flow, veh/h	1068	1870	1573	252	1781	1585
Grp Volume(v), veh/h	215	478	0	311	46	116
Grp Sat Flow(s),veh/h/ln	1068	1870	0	1825	1781	1585
Q Serve(g_s), s	3.7	4.2	0.0	2.5	0.6	1.6
Cycle Q Clear(g_c), s	6.3	4.2	0.0	2.5	0.6	1.6
Prop In Lane	1.00			0.14	1.00	1.00
Lane Grp Cap(c), veh/h	710	918	0	895	244	217
V/C Ratio(X)	0.30	0.52	0.00	0.35	0.19	0.53
Avail Cap(c_a), veh/h	1357	2050	0	2001	1805	1606
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	5.7	4.2	0.0	3.8	9.2	9.7
Incr Delay (d2), s/veh	0.2	0.5	0.0	0.2	0.4	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.2	0.0	0.1	0.2	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	5.9	4.7	0.0	4.0	9.6	11.7
LnGrp LOS	A	A	A	A	A	B
Approach Vol, veh/h		693	311		162	
Approach Delay, s/veh		5.1	4.0		11.1	
Approach LOS		A	A		B	

Timer - Assigned Phs		4		6		8
Phs Duration (G+Y+Rc), s		16.4		7.8		16.4
Change Period (Y+Rc), s		4.5		4.5		4.5
Max Green Setting (Gmax), s		26.5		24.5		26.5
Max Q Clear Time (g_c+I1), s		8.3		3.6		4.5
Green Ext Time (p_c), s		3.6		0.4		1.7

Intersection Summary	
HCM 6th Ctrl Delay	5.6
HCM 6th LOS	A

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑	↱		↱
Traffic Vol, veh/h	0	734	375	22	0	19
Future Vol, veh/h	0	734	375	22	0	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	90	-	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	798	408	24	0	21

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	408
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	-	0	643
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	643
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

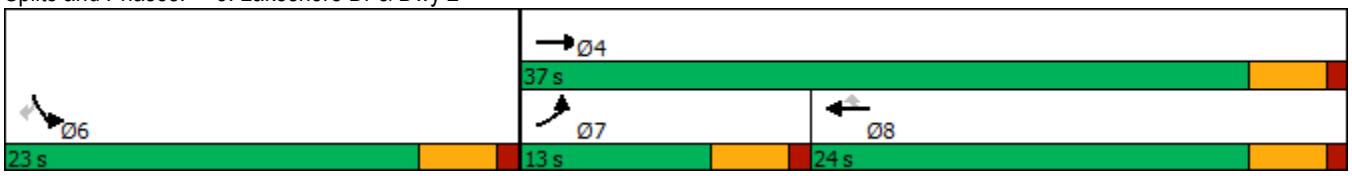
Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.8
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	643
HCM Lane V/C Ratio	-	-	-	0.032
HCM Control Delay (s)	-	-	-	10.8
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	93	641	368	22	24	29
Future Volume (vph)	93	641	368	22	24	29
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases				8		6
Detector Phase	7	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	13.0	37.0	24.0	24.0	23.0	23.0
Total Split (%)	21.7%	61.7%	40.0%	40.0%	38.3%	38.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	None	None	None	Max	Max
Act Effct Green (s)	7.6	26.6	17.0	17.0	18.8	18.8
Actuated g/C Ratio	0.14	0.49	0.31	0.31	0.34	0.34
v/c Ratio	0.41	0.77	0.69	0.05	0.04	0.06
Control Delay	28.6	17.6	24.5	6.9	14.7	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.6	17.6	24.5	6.9	14.7	6.6
LOS	C	B	C	A	B	A
Approach Delay		19.0	23.5		10.2	
Approach LOS		B	C		B	

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 54.6	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 20.1	Intersection LOS: C
Intersection Capacity Utilization 45.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 8: Lakeshore Dr & Dwy 2



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	93	641	368	22	24	29
Future Volume (veh/h)	93	641	368	22	24	29
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	101	697	400	24	26	32
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	135	836	525	445	663	590
Arrive On Green	0.08	0.45	0.28	0.28	0.37	0.37
Sat Flow, veh/h	1781	1870	1870	1585	1781	1585
Grp Volume(v), veh/h	101	697	400	24	26	32
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1585	1781	1585
Q Serve(g_s), s	2.8	16.3	9.7	0.5	0.5	0.6
Cycle Q Clear(g_c), s	2.8	16.3	9.7	0.5	0.5	0.6
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	135	836	525	445	663	590
V/C Ratio(X)	0.75	0.83	0.76	0.05	0.04	0.05
Avail Cap(c_a), veh/h	305	1223	734	622	663	590
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	22.5	12.1	16.4	13.1	9.9	10.0
Incr Delay (d2), s/veh	8.1	3.4	3.1	0.0	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	5.5	3.8	0.2	0.2	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	30.6	15.5	19.4	13.1	10.1	10.2
LnGrp LOS	C	B	B	B	B	B
Approach Vol, veh/h		798	424		58	
Approach Delay, s/veh		17.4	19.1		10.1	
Approach LOS		B	B		B	

Timer - Assigned Phs		4		6	7	8
Phs Duration (G+Y+Rc), s		26.7		23.0	8.3	18.5
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		32.5		18.5	8.5	19.5
Max Q Clear Time (g_c+I1), s		18.3		2.6	4.8	11.7
Green Ext Time (p_c), s		3.9		0.1	0.1	1.4

Intersection Summary	
HCM 6th Ctrl Delay	17.6
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	6.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	24	7	4	6	0
Future Vol, veh/h	0	24	7	4	6	0
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	26	8	4	7	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	27	7	7	0	-	0
Stage 1	7	-	-	-	-	-
Stage 2	20	-	-	-	-	-
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	988	1075	1614	-	-	-
Stage 1	1016	-	-	-	-	-
Stage 2	1003	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	983	1075	1614	-	-	-
Mov Cap-2 Maneuver	983	-	-	-	-	-
Stage 1	1011	-	-	-	-	-
Stage 2	1003	-	-	-	-	-

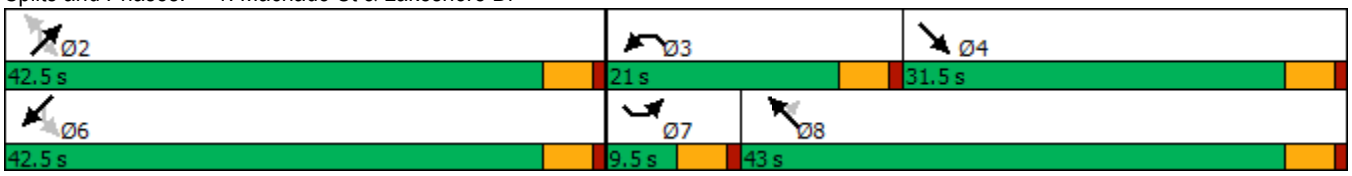
Approach	EB	NB	SB
HCM Control Delay, s	8.4	4.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1614	-	1075	-	-
HCM Lane V/C Ratio	0.005	-	0.024	-	-
HCM Control Delay (s)	7.2	0	8.4	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT
Lane Configurations										
Traffic Volume (vph)	2	485	330	479	10	87	15	229	12	44
Future Volume (vph)	2	485	330	479	10	87	15	229	12	44
Turn Type	Prot	NA	Prot	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases	7	4	3	8			2			6
Permitted Phases					8	2		2	6	
Detector Phase	7	4	3	8	8	2	2	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	31.5	9.5	26.5	26.5	42.5	42.5	42.5	29.5	29.5
Total Split (s)	9.5	31.5	21.0	43.0	43.0	42.5	42.5	42.5	42.5	42.5
Total Split (%)	10.0%	33.2%	22.1%	45.3%	45.3%	44.7%	44.7%	44.7%	44.7%	44.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	Max	Max	Max	Max	Max
Act Effct Green (s)	5.0	20.0	16.5	39.3	39.3	38.1	38.1	38.1		38.1
Actuated g/C Ratio	0.06	0.23	0.19	0.45	0.45	0.43	0.43	0.43		0.43
v/c Ratio	0.02	0.73	1.04	0.60	0.01	0.16	0.02	0.29		0.09
Control Delay	42.0	36.1	97.4	22.8	0.0	17.6	16.3	3.5		15.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	42.0	36.1	97.4	22.8	0.0	17.6	16.3	3.5		15.1
LOS	D	D	F	C	A	B	B	A		B
Approach Delay		36.2		52.6			7.8			15.1
Approach LOS		D		D			A			B

Intersection Summary	
Cycle Length: 95	
Actuated Cycle Length: 88.2	
Natural Cycle: 95	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.04	
Intersection Signal Delay: 37.7	Intersection LOS: D
Intersection Capacity Utilization 56.8%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: Machado St & Lakeshore Dr



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	2	485	75	330	479	10	87	15	229	12	44	8
Future Volume (veh/h)	2	485	75	330	479	10	87	15	229	12	44	8
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	505	78	344	499	10	91	16	239	12	46	8
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	5	642	99	342	743	630	690	828	702	151	553	90
Arrive On Green	0.00	0.21	0.21	0.19	0.40	0.40	0.44	0.44	0.44	0.44	0.44	0.44
Sat Flow, veh/h	1781	3087	475	1781	1870	1585	1350	1870	1585	229	1249	204
Grp Volume(v), veh/h	2	290	293	344	499	10	91	16	239	66	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1785	1781	1870	1585	1350	1870	1585	1682	0	0
Q Serve(g_s), s	0.1	13.3	13.4	16.5	18.8	0.3	1.1	0.4	8.5	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	13.3	13.4	16.5	18.8	0.3	2.8	0.4	8.5	1.8	0.0	0.0
Prop In Lane	1.00		0.27	1.00		1.00	1.00		1.00	0.18		0.12
Lane Grp Cap(c), veh/h	5	369	371	342	743	630	690	828	702	794	0	0
V/C Ratio(X)	0.41	0.78	0.79	1.00	0.67	0.02	0.13	0.02	0.34	0.08	0.00	0.00
Avail Cap(c_a), veh/h	104	559	561	342	839	711	690	828	702	794	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	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	42.7	32.2	32.2	34.7	21.3	15.7	14.1	13.4	15.7	13.8	0.0	0.0
Incr Delay (d2), s/veh	48.1	4.2	4.4	49.8	1.8	0.0	0.4	0.0	1.3	0.2	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(50%),veh/ln	0.1	5.7	5.8	11.5	7.9	0.1	1.0	0.2	3.1	0.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	90.8	36.3	36.6	84.5	23.0	15.7	14.5	13.5	17.0	14.0	0.0	0.0
LnGrp LOS	F	D	D	F	C	B	B	B	B	B	A	A
Approach Vol, veh/h		585			853			346			66	
Approach Delay, s/veh		36.7			47.7			16.2			14.0	
Approach LOS		D			D			B			B	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		42.5	21.0	22.3		42.5	4.7	38.6				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		38.0	16.5	27.0		38.0	5.0	38.5				
Max Q Clear Time (g_c+I1), s		10.5	18.5	15.4		3.8	2.1	20.8				
Green Ext Time (p_c), s		1.1	0.0	2.5		0.3	0.0	2.8				

Intersection Summary	
HCM 6th Ctrl Delay	37.1
HCM 6th LOS	D

Intersection	
Int Delay, s/veh	1.4

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	10	711	731	46	25	48
Future Vol, veh/h	10	711	731	46	25	48
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	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	741	761	48	26	50

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	809	0	-	0	1546	785
Stage 1	-	-	-	-	785	-
Stage 2	-	-	-	-	761	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	817	-	-	-	126	393
Stage 1	-	-	-	-	449	-
Stage 2	-	-	-	-	461	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	817	-	-	-	123	393
Mov Cap-2 Maneuver	-	-	-	-	123	-
Stage 1	-	-	-	-	440	-
Stage 2	-	-	-	-	461	-

Approach	SE	NW	SW
HCM Control Delay, s	0.1	0	29.1
HCM LOS			D

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1
Capacity (veh/h)	-	-	817	-	224
HCM Lane V/C Ratio	-	-	0.013	-	0.339
HCM Control Delay (s)	-	-	9.5	0	29.1
HCM Lane LOS	-	-	A	A	D
HCM 95th %tile Q(veh)	-	-	0	-	1.4

Intersection	
Int Delay, s/veh	38.6

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	57	0	32	1	0	4	43	1195	2	9	996	126
Future Vol, veh/h	57	0	32	1	0	4	43	1195	2	9	996	126
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	115	100	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	59	0	33	1	0	4	44	1232	2	9	1027	130

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2368	2367	1027	2447	2495	1232	1157	0	0	1234	0	0
Stage 1	1045	1045	-	1320	1320	-	-	-	-	-	-	-
Stage 2	1323	1322	-	1127	1175	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 24	35	285	21	29	216	604	-	-	565	-	-
Stage 1	276	306	-	193	226	-	-	-	-	-	-	-
Stage 2	192	226	-	249	265	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 22	32	285	17	26	216	604	-	-	565	-	-
Mov Cap-2 Maneuver	~ 22	32	-	17	26	-	-	-	-	-	-	-
Stage 1	256	301	-	179	210	-	-	-	-	-	-	-
Stage 2	175	210	-	217	261	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, $	1059.6	65.1	0.4	0.1
HCM LOS	F	F		

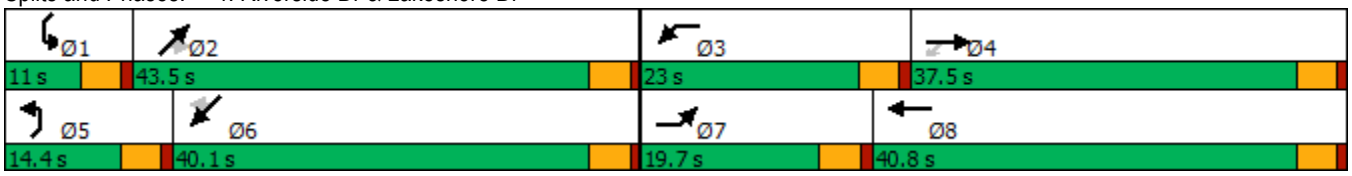
Minor Lane/Major Mvmt	NEL	NET	NER	NWLn1	SELn1	SWL	SWT	SWR
Capacity (veh/h)	604	-	-	65	33	565	-	-
HCM Lane V/C Ratio	0.073	-	-	0.079	2.78	0.016	-	-
HCM Control Delay (s)	11.4	-	-	65.$	1059.6	11.5	-	-
HCM Lane LOS	B	-	-	F	F	B	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.2	10.6	0.1	-	-

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

Lane Group	EBL	EBT	EBR	WBL	WBT	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Traffic Volume (vph)	221	297	175	331	349	154	671	360	52	536	321
Future Volume (vph)	221	297	175	331	349	154	671	360	52	536	321
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	2		1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	4	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	37.5	37.5	9.5	39.5	9.5	37.5	37.5	9.5	39.5	39.5
Total Split (s)	19.7	37.5	37.5	23.0	40.8	14.4	43.5	43.5	11.0	40.1	40.1
Total Split (%)	17.1%	32.6%	32.6%	20.0%	35.5%	12.5%	37.8%	37.8%	9.6%	34.9%	34.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	15.2	13.8	13.8	18.5	17.1	9.9	41.3	41.3	6.3	35.6	35.6
Actuated g/C Ratio	0.16	0.14	0.14	0.19	0.18	0.10	0.43	0.43	0.07	0.37	0.37
v/c Ratio	0.81	0.60	0.47	1.00	0.64	0.87	0.45	0.42	0.47	0.80	0.43
Control Delay	63.0	43.5	10.0	89.5	40.3	84.8	21.7	3.7	57.6	37.9	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.0	43.5	10.0	89.5	40.3	84.8	21.7	3.7	57.6	37.9	5.8
LOS	E	D	B	F	D	F	C	A	E	D	A
Approach Delay		41.3			62.8		24.4			27.7	
Approach LOS		D			E		C			C	

Intersection Summary	
Cycle Length: 115	
Actuated Cycle Length: 95.9	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.00	
Intersection Signal Delay: 36.5	Intersection LOS: D
Intersection Capacity Utilization 78.3%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: Riverside Dr & Lakeshore Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	221	297	175	331	349	43	154	671	360	52	536	321
Future Volume (veh/h)	221	297	175	331	349	43	154	671	360	52	536	321
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	228	306	180	341	360	44	159	692	371	54	553	331
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	261	545	243	340	631	77	182	1529	682	70	688	583
Arrive On Green	0.15	0.15	0.15	0.19	0.20	0.20	0.10	0.43	0.43	0.04	0.37	0.37
Sat Flow, veh/h	1781	3554	1585	1781	3190	387	1781	3554	1585	1781	1870	1585
Grp Volume(v), veh/h	228	306	180	341	199	205	159	692	371	54	553	331
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1801	1781	1777	1585	1781	1870	1585
Q Serve(g_s), s	12.1	7.7	10.5	18.5	9.8	10.0	8.5	13.3	16.9	2.9	25.7	16.2
Cycle Q Clear(g_c), s	12.1	7.7	10.5	18.5	9.8	10.0	8.5	13.3	16.9	2.9	25.7	16.2
Prop In Lane	1.00		1.00	1.00		0.22	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	261	545	243	340	352	356	182	1529	682	70	688	583
V/C Ratio(X)	0.87	0.56	0.74	1.00	0.57	0.57	0.87	0.45	0.54	0.77	0.80	0.57
Avail Cap(c_a), veh/h	280	1211	540	340	666	675	182	1529	682	120	688	583
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.5	38.0	39.2	39.2	35.1	35.1	42.9	19.5	20.5	46.1	27.5	24.5
Incr Delay (d2), s/veh	24.0	0.9	4.4	49.3	1.4	1.5	34.1	1.0	3.1	15.8	9.7	4.0
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(50%),veh/ln	6.9	3.3	4.2	12.4	4.2	4.4	5.4	5.3	6.4	1.6	12.6	6.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.5	38.9	43.6	88.5	36.5	36.6	77.0	20.5	23.6	61.8	37.2	28.5
LnGrp LOS	E	D	D	F	D	D	E	C	C	E	D	C
Approach Vol, veh/h		714			745			1222			938	
Approach Delay, s/veh		48.2			60.3			28.8			35.5	
Approach LOS		D			E			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.3	46.2	23.0	19.3	14.4	40.1	18.7	23.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.5	39.0	18.5	33.0	9.9	35.6	15.2	36.3
Max Q Clear Time (g_c+I1), s	4.9	18.9	20.5	12.5	10.5	27.7	14.1	12.0
Green Ext Time (p_c), s	0.0	5.8	0.0	2.3	0.0	2.9	0.1	2.2

Intersection Summary	
HCM 6th Ctrl Delay	40.9
HCM 6th LOS	D

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	616	634	9	17	27
Future Vol, veh/h	2	616	634	9	17	27
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	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	629	647	9	17	28

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	656	0	-	0	1285	652
Stage 1	-	-	-	-	652	-
Stage 2	-	-	-	-	633	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	931	-	-	-	182	468
Stage 1	-	-	-	-	518	-
Stage 2	-	-	-	-	529	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	931	-	-	-	181	468
Mov Cap-2 Maneuver	-	-	-	-	181	-
Stage 1	-	-	-	-	516	-
Stage 2	-	-	-	-	529	-

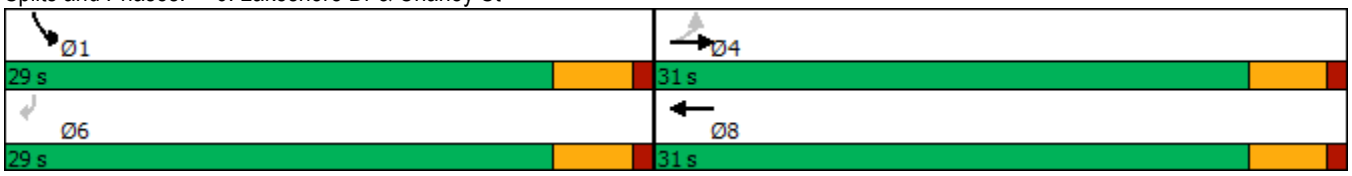
Approach	EB	WB	SB
HCM Control Delay, s	0	0	19.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	931	-	-	-	290
HCM Lane V/C Ratio	0.002	-	-	-	0.155
HCM Control Delay (s)	8.9	0	-	-	19.7
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.5

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations					
Traffic Volume (vph)	111	527	479	52	148
Future Volume (vph)	111	527	479	52	148
Turn Type	Perm	NA	NA	Prot	Perm
Protected Phases		4	8	1	
Permitted Phases	4				6
Detector Phase	4	4	8	1	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	9.5	27.5	9.5	27.5
Total Split (s)	31.0	31.0	31.0	29.0	29.0
Total Split (%)	51.7%	51.7%	51.7%	48.3%	48.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	None	None	Max
Act Effct Green (s)	20.2	20.2	20.2	16.3	24.8
Actuated g/C Ratio	0.37	0.37	0.37	0.30	0.46
v/c Ratio	0.65	0.77	0.76	0.10	0.19
Control Delay	33.3	23.0	22.0	11.6	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	33.3	23.0	22.0	11.6	3.1
LOS	C	C	C	B	A
Approach Delay		24.8	22.0	5.3	
Approach LOS		C	C	A	

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 54.1	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 20.8	Intersection LOS: C
Intersection Capacity Utilization 49.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: Lakeshore Dr & Chaney St



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	111	527	479	36	52	148
Future Volume (veh/h)	111	527	479	36	52	148
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	113	538	489	37	53	151
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	550	954	876	66	263	234
Arrive On Green	0.51	0.51	0.51	0.51	0.15	0.15
Sat Flow, veh/h	877	1870	1717	130	1781	1585
Grp Volume(v), veh/h	113	538	0	526	53	151
Grp Sat Flow(s),veh/h/ln	877	1870	0	1847	1781	1585
Q Serve(g_s), s	2.7	5.2	0.0	5.1	0.7	2.4
Cycle Q Clear(g_c), s	7.8	5.2	0.0	5.1	0.7	2.4
Prop In Lane	1.00			0.07	1.00	1.00
Lane Grp Cap(c), veh/h	550	954	0	942	263	234
V/C Ratio(X)	0.21	0.56	0.00	0.56	0.20	0.65
Avail Cap(c_a), veh/h	988	1887	0	1863	1661	1478
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	7.1	4.4	0.0	4.4	9.8	10.6
Incr Delay (d2), s/veh	0.2	0.5	0.0	0.5	0.4	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.3	0.0	0.3	0.2	0.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	7.3	5.0	0.0	4.9	10.2	13.5
LnGrp LOS	A	A	A	A	B	B
Approach Vol, veh/h		651	526		204	
Approach Delay, s/veh		5.4	4.9		12.7	
Approach LOS		A	A		B	

Timer - Assigned Phs		4		6		8
Phs Duration (G+Y+Rc), s		17.9		8.4		17.9
Change Period (Y+Rc), s		4.5		4.5		4.5
Max Green Setting (Gmax), s		26.5		24.5		26.5
Max Q Clear Time (g_c+I1), s		9.8		4.4		7.1
Green Ext Time (p_c), s		3.6		0.6		3.1

Intersection Summary	
HCM 6th Ctrl Delay	6.3
HCM 6th LOS	A

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑	↱		↱
Traffic Vol, veh/h	0	667	649	25	0	32
Future Vol, veh/h	0	667	649	25	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	-	-	-	90	-	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	725	705	27	0	35

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	705
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	-	0	436
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	436
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

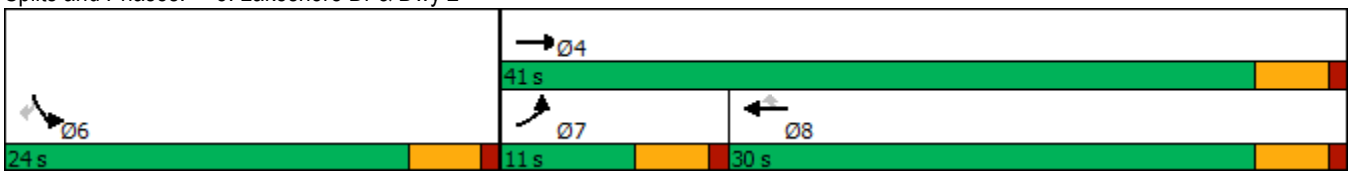
Approach	EB	WB	SB
HCM Control Delay, s	0	0	14
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	436
HCM Lane V/C Ratio	-	-	-	0.08
HCM Control Delay (s)	-	-	-	14
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.3

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	107	560	632	25	40	47
Future Volume (vph)	107	560	632	25	40	47
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases				8		6
Detector Phase	7	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	11.0	41.0	30.0	30.0	24.0	24.0
Total Split (%)	16.9%	63.1%	46.2%	46.2%	36.9%	36.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	None	None	None	Max	Max
Act Effct Green (s)	6.5	32.8	24.5	24.5	19.8	19.8
Actuated g/C Ratio	0.11	0.53	0.40	0.40	0.32	0.32
v/c Ratio	0.62	0.62	0.93	0.04	0.08	0.09
Control Delay	45.5	12.9	41.4	8.2	16.9	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.5	12.9	41.4	8.2	16.9	6.2
LOS	D	B	D	A	B	A
Approach Delay		18.1	40.1		11.1	
Approach LOS		B	D		B	

Intersection Summary	
Cycle Length: 65	
Actuated Cycle Length: 61.7	
Natural Cycle: 65	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 27.9	Intersection LOS: C
Intersection Capacity Utilization 54.6%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 8: Lakeshore Dr & Dwy 2



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	107	560	632	25	40	47
Future Volume (veh/h)	107	560	632	25	40	47
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	116	609	687	27	43	51
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	148	1025	736	624	551	490
Arrive On Green	0.08	0.55	0.39	0.39	0.31	0.31
Sat Flow, veh/h	1781	1870	1870	1585	1781	1585
Grp Volume(v), veh/h	116	609	687	27	43	51
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1585	1781	1585
Q Serve(g_s), s	4.0	13.8	22.2	0.7	1.1	1.4
Cycle Q Clear(g_c), s	4.0	13.8	22.2	0.7	1.1	1.4
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	148	1025	736	624	551	490
V/C Ratio(X)	0.78	0.59	0.93	0.04	0.08	0.10
Avail Cap(c_a), veh/h	184	1083	756	641	551	490
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	28.3	9.6	18.3	11.8	15.4	15.5
Incr Delay (d2), s/veh	15.9	0.8	18.3	0.0	0.3	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	4.3	11.6	0.2	0.4	1.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	44.2	10.4	36.6	11.8	15.7	16.0
LnGrp LOS	D	B	D	B	B	B
Approach Vol, veh/h		725	714		94	
Approach Delay, s/veh		15.8	35.7		15.8	
Approach LOS		B	D		B	

Timer - Assigned Phs		4		6	7	8
Phs Duration (G+Y+Rc), s		39.1		24.0	9.7	29.3
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		36.5		19.5	6.5	25.5
Max Q Clear Time (g_c+I1), s		15.8		3.4	6.0	24.2
Green Ext Time (p_c), s		3.8		0.2	0.0	0.6

Intersection Summary	
HCM 6th Ctrl Delay	25.0
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	7.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	40	8	3	4	0
Future Vol, veh/h	0	40	8	3	4	0
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	43	9	3	4	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	25	4	4	0	-	0
Stage 1	4	-	-	-	-	-
Stage 2	21	-	-	-	-	-
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	991	1080	1618	-	-	-
Stage 1	1019	-	-	-	-	-
Stage 2	1002	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	985	1080	1618	-	-	-
Mov Cap-2 Maneuver	985	-	-	-	-	-
Stage 1	1013	-	-	-	-	-
Stage 2	1002	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	5.3	0
HCM LOS	A		

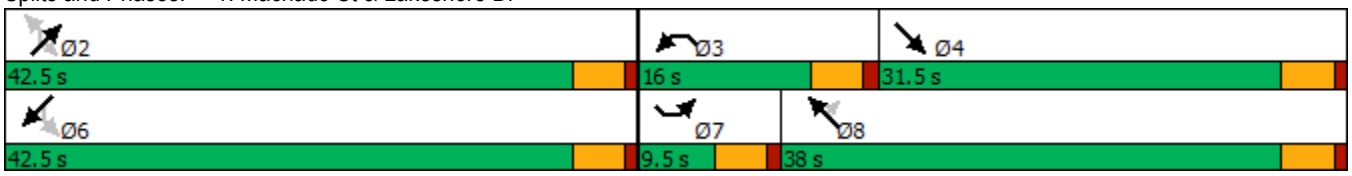
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1618	-	1080	-	-
HCM Lane V/C Ratio	0.005	-	0.04	-	-
HCM Control Delay (s)	7.2	0	8.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

EAPC CONDITIONS

Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT
Lane Configurations										
Traffic Volume (vph)	8	618	185	340	3	200	31	363	10	37
Future Volume (vph)	8	618	185	340	3	200	31	363	10	37
Turn Type	Prot	NA	Prot	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases	7	4	3	8			2			6
Permitted Phases					8	2		2	6	
Detector Phase	7	4	3	8	8	2	2	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	31.5	9.5	26.5	26.5	42.5	42.5	42.5	29.5	29.5
Total Split (s)	9.5	31.5	16.0	38.0	38.0	42.5	42.5	42.5	42.5	42.5
Total Split (%)	10.6%	35.0%	17.8%	42.2%	42.2%	47.2%	47.2%	47.2%	47.2%	47.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	Max	Max	Max	Max	Max
Act Effct Green (s)	5.0	25.5	11.5	39.7	39.7	38.0	38.0	38.0		38.0
Actuated g/C Ratio	0.06	0.29	0.13	0.45	0.45	0.43	0.43	0.43		0.43
v/c Ratio	0.09	0.86	0.90	0.45	0.00	0.39	0.04	0.49		0.09
Control Delay	42.5	38.4	78.5	19.9	0.0	20.4	15.6	8.4		12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	42.5	38.4	78.5	19.9	0.0	20.4	15.6	8.4		12.6
LOS	D	D	E	B	A	C	B	A		B
Approach Delay		38.4		40.3			12.8			12.6
Approach LOS		D		D			B			B

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 88.6	
Natural Cycle: 85	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 30.4	Intersection LOS: C
Intersection Capacity Utilization 61.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: Machado St & Lakeshore Dr



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	8	618	167	185	340	3	200	31	363	10	37	17
Future Volume (veh/h)	8	618	167	185	340	3	200	31	363	10	37	17
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	9	687	186	206	378	3	222	34	403	11	41	19
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	2	2	2	2	2	2	2	2	2
Cap, veh/h	20	780	211	233	752	637	674	810	686	123	439	188
Arrive On Green	0.01	0.28	0.28	0.13	0.40	0.40	0.43	0.43	0.43	0.43	0.43	0.43
Sat Flow, veh/h	1781	2764	748	1781	1870	1585	1343	1870	1585	175	1013	434
Grp Volume(v), veh/h	9	441	432	206	378	3	222	34	403	71	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1736	1781	1870	1585	1343	1870	1585	1623	0	0
Q Serve(g_s), s	0.4	20.8	20.8	10.0	13.3	0.1	7.0	0.9	17.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.4	20.8	20.8	10.0	13.3	0.1	9.1	0.9	17.0	2.1	0.0	0.0
Prop In Lane	1.00		0.43	1.00		1.00	1.00		1.00	0.15		0.27
Lane Grp Cap(c), veh/h	20	501	490	233	752	637	674	810	686	750	0	0
V/C Ratio(X)	0.45	0.88	0.88	0.88	0.50	0.00	0.33	0.04	0.59	0.09	0.00	0.00
Avail Cap(c_a), veh/h	101	547	534	233	752	637	674	810	686	750	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	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	43.1	30.1	30.1	37.5	19.7	15.7	16.5	14.4	18.9	14.7	0.0	0.0
Incr Delay (d2), s/veh	15.0	14.5	14.9	30.1	0.5	0.0	1.3	0.1	3.7	0.3	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(50%),veh/ln	0.3	10.2	10.0	6.1	5.4	0.0	3.0	0.4	6.4	0.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.1	44.6	45.0	67.6	20.2	15.7	17.8	14.5	22.6	14.9	0.0	0.0
LnGrp LOS	E	D	D	E	C	B	B	B	C	B	A	A
Approach Vol, veh/h		882			587			659			71	
Approach Delay, s/veh		44.9			36.8			20.6			14.9	
Approach LOS		D			D			C			B	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		42.5	16.0	29.3		42.5	5.5	39.8				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		38.0	11.5	27.0		38.0	5.0	33.5				
Max Q Clear Time (g_c+I1), s		19.0	12.0	22.8		4.1	2.4	15.3				
Green Ext Time (p_c), s		2.2	0.0	1.9		0.4	0.0	2.0				

Intersection Summary	
HCM 6th Ctrl Delay	34.5
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	1.6

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	12	975	525	21	24	31
Future Vol, veh/h	12	975	525	21	24	31
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	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	1147	618	25	28	36

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	643	0	-	0	1806	631
Stage 1	-	-	-	-	631	-
Stage 2	-	-	-	-	1175	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	942	-	-	-	87	481
Stage 1	-	-	-	-	530	-
Stage 2	-	-	-	-	293	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	942	-	-	-	83	481
Mov Cap-2 Maneuver	-	-	-	-	83	-
Stage 1	-	-	-	-	508	-
Stage 2	-	-	-	-	293	-

Approach	SE	NW	SW
HCM Control Delay, s	0.1	0	43.5
HCM LOS			E

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1
Capacity (veh/h)	-	-	942	-	156
HCM Lane V/C Ratio	-	-	0.015	-	0.415
HCM Control Delay (s)	-	-	8.9	0	43.5
HCM Lane LOS	-	-	A	A	E
HCM 95th %tile Q(veh)	-	-	0	-	1.8

Intersection	
Int Delay, s/veh	78.3

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	93	0	61	1	0	6	59	1128	1	4	871	150
Future Vol, veh/h	93	0	61	1	0	6	59	1128	1	4	871	150
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	115	100	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	95	0	62	1	0	6	60	1151	1	4	889	153

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2172	2169	889	2276	2321	1151	1042	0	0	1152	0	0
Stage 1	897	897	-	1271	1271	-	-	-	-	-	-	-
Stage 2	1275	1272	-	1005	1050	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 34	47	342	28	37	241	667	-	-	606	-	-
Stage 1	334	358	-	206	239	-	-	-	-	-	-	-
Stage 2	205	239	-	291	304	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 31	42	342	21	33	241	667	-	-	606	-	-
Mov Cap-2 Maneuver	~ 31	42	-	21	33	-	-	-	-	-	-	-
Stage 1	304	355	-	187	217	-	-	-	-	-	-	-
Stage 2	182	217	-	236	302	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	$ 1201.7	45	0.5	0
HCM LOS	F	E		

Minor Lane/Major Mvmt	NEL	NET	NER	NWLn1	SELn1	SWL	SWT	SWR
Capacity (veh/h)	667	-	-	97	48	606	-	-
HCM Lane V/C Ratio	0.09	-	-	0.074	3.274	0.007	-	-
HCM Control Delay (s)	10.9	-	-	45	$ 1201.7	11	-	-
HCM Lane LOS	B	-	-	E	F	B	-	-
HCM 95th %tile Q(veh)	0.3	-	-	0.2	17.1	0	-	-

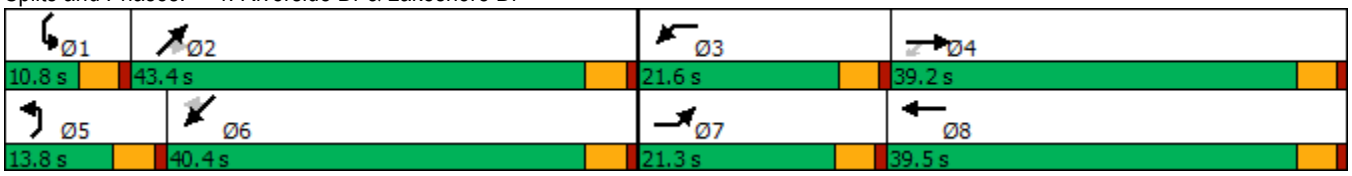
Notes

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

Lane Group	EBL	EBT	EBR	WBL	WBT	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Traffic Volume (vph)	389	382	164	229	161	161	648	386	68	582	202
Future Volume (vph)	389	382	164	229	161	161	648	386	68	582	202
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	2		1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	4	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	37.5	37.5	9.5	39.5	9.5	37.5	37.5	9.5	39.5	39.5
Total Split (s)	21.3	39.2	39.2	21.6	39.5	13.8	43.4	43.4	10.8	40.4	40.4
Total Split (%)	18.5%	34.1%	34.1%	18.8%	34.3%	12.0%	37.7%	37.7%	9.4%	35.1%	35.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	16.8	16.4	16.4	16.4	16.0	9.3	41.3	41.3	6.3	36.0	36.0
Actuated g/C Ratio	0.17	0.17	0.17	0.17	0.17	0.10	0.43	0.43	0.07	0.37	0.37
v/c Ratio	1.28	0.65	0.41	0.78	0.37	0.96	0.43	0.44	0.59	0.85	0.29
Control Delay	184.8	42.4	8.7	57.5	29.8	105.2	21.9	3.9	67.4	42.3	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	184.8	42.4	8.7	57.5	29.8	105.2	21.9	3.9	67.4	42.3	6.6
LOS	F	D	A	E	C	F	C	A	E	D	A
Approach Delay		95.8			44.1		27.3			35.8	
Approach LOS		F			D		C			D	

Intersection Summary	
Cycle Length: 115	
Actuated Cycle Length: 96.2	
Natural Cycle: 150	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.28	
Intersection Signal Delay: 50.3	Intersection LOS: D
Intersection Capacity Utilization 82.3%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 4: Riverside Dr & Lakeshore Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	389	382	164	229	161	55	161	648	386	68	582	202
Future Volume (veh/h)	389	382	164	229	161	55	161	648	386	68	582	202
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	397	390	167	234	164	56	164	661	394	69	594	206
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	327	560	250	271	331	109	181	1577	704	89	733	622
Arrive On Green	0.18	0.16	0.16	0.15	0.13	0.13	0.10	0.44	0.44	0.05	0.39	0.39
Sat Flow, veh/h	1781	3554	1585	1781	2625	866	1781	3554	1585	1781	1870	1585
Grp Volume(v), veh/h	397	390	167	234	109	111	164	661	394	69	594	206
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1714	1781	1777	1585	1781	1870	1585
Q Serve(g_s), s	16.8	9.5	9.1	11.7	5.2	5.5	8.3	11.6	16.8	3.5	25.9	8.3
Cycle Q Clear(g_c), s	16.8	9.5	9.1	11.7	5.2	5.5	8.3	11.6	16.8	3.5	25.9	8.3
Prop In Lane	1.00		1.00	1.00		0.51	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	327	560	250	271	224	216	181	1577	704	89	733	622
V/C Ratio(X)	1.21	0.70	0.67	0.86	0.49	0.51	0.91	0.42	0.56	0.78	0.81	0.33
Avail Cap(c_a), veh/h	327	1347	601	333	679	655	181	1577	704	123	733	622
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.4	36.5	36.3	37.9	37.2	37.4	40.7	17.4	18.8	43.0	24.8	19.4
Incr Delay (d2), s/veh	121.3	1.6	3.1	17.6	1.6	1.9	41.4	0.8	3.2	18.8	9.4	1.4
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(50%),veh/ln	18.0	4.1	3.6	6.2	2.3	2.3	5.6	4.6	6.3	2.0	12.5	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	158.7	38.0	39.4	55.5	38.9	39.2	82.1	18.2	22.0	61.8	34.2	20.9
LnGrp LOS	F	D	D	E	D	D	F	B	C	E	C	C
Approach Vol, veh/h		954			454			1219			869	
Approach Delay, s/veh		88.5			47.5			28.0			33.2	
Approach LOS		F			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.1	45.1	18.4	18.9	13.8	40.4	21.3	16.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.3	38.9	17.1	34.7	9.3	35.9	16.8	35.0
Max Q Clear Time (g_c+I1), s	5.5	18.8	13.7	11.5	10.3	27.9	18.8	7.5
Green Ext Time (p_c), s	0.0	5.7	0.2	2.9	0.0	2.8	0.0	1.2

Intersection Summary	
HCM 6th Ctrl Delay	48.4
HCM 6th LOS	D

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	714	402	9	11	21
Future Vol, veh/h	5	714	402	9	11	21
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	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	760	428	10	12	22

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	438	0	-	0	1203	433
Stage 1	-	-	-	-	433	-
Stage 2	-	-	-	-	770	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1122	-	-	-	204	623
Stage 1	-	-	-	-	654	-
Stage 2	-	-	-	-	457	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1122	-	-	-	202	623
Mov Cap-2 Maneuver	-	-	-	-	202	-
Stage 1	-	-	-	-	649	-
Stage 2	-	-	-	-	457	-

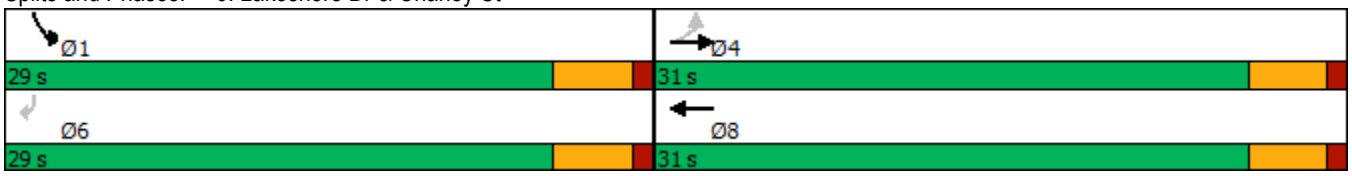
Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	15.9
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1122	-	-	-	363
HCM Lane V/C Ratio	0.005	-	-	-	0.094
HCM Control Delay (s)	8.2	0	-	-	15.9
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations					
Traffic Volume (vph)	215	489	771	133	334
Future Volume (vph)	215	489	771	133	334
Turn Type	Perm	NA	NA	Prot	Perm
Protected Phases		4	8	1	
Permitted Phases	4				6
Detector Phase	4	4	8	1	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	9.5	27.5	9.5	27.5
Total Split (s)	31.0	31.0	31.0	29.0	29.0
Total Split (%)	51.7%	51.7%	51.7%	48.3%	48.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	None	None	Max
Act Effct Green (s)	26.5	26.5	26.5	20.8	24.5
Actuated g/C Ratio	0.44	0.44	0.44	0.35	0.41
v/c Ratio	1.79	0.61	1.13	0.22	0.49
Control Delay	406.9	16.8	94.5	13.0	11.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	406.9	16.8	94.5	13.0	11.9
LOS	F	B	F	B	B
Approach Delay		136.1	94.5	12.2	
Approach LOS		F	F	B	

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 60	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.79	
Intersection Signal Delay: 90.1	Intersection LOS: F
Intersection Capacity Utilization 78.6%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 6: Lakeshore Dr & Chaney St



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	215	489	771	124	133	334
Future Volume (veh/h)	215	489	771	124	133	334
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	222	504	795	128	137	344
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	195	1018	856	138	482	429
Arrive On Green	0.54	0.54	0.54	0.54	0.27	0.27
Sat Flow, veh/h	606	1870	1572	253	1781	1585
Grp Volume(v), veh/h	222	504	0	923	137	344
Grp Sat Flow(s),veh/h/ln	606	1870	0	1825	1781	1585
Q Serve(g_s), s	3.8	8.2	0.0	22.7	3.0	9.8
Cycle Q Clear(g_c), s	26.5	8.2	0.0	22.7	3.0	9.8
Prop In Lane	1.00			0.14	1.00	1.00
Lane Grp Cap(c), veh/h	195	1018	0	994	482	429
V/C Ratio(X)	1.14	0.49	0.00	0.93	0.28	0.80
Avail Cap(c_a), veh/h	195	1018	0	994	897	798
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.9	6.9	0.0	10.2	14.0	16.5
Incr Delay (d2), s/veh	105.7	0.4	0.0	14.5	0.3	3.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.7	2.0	0.0	9.3	1.0	3.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	129.6	7.3	0.0	24.7	14.3	20.1
LnGrp LOS	F	A	A	C	B	C
Approach Vol, veh/h		726	923		481	
Approach Delay, s/veh		44.7	24.7		18.4	
Approach LOS		D	C		B	

Timer - Assigned Phs		4		6		8
Phs Duration (G+Y+Rc), s		31.0		17.7		31.0
Change Period (Y+Rc), s		4.5		4.5		4.5
Max Green Setting (Gmax), s		26.5		24.5		26.5
Max Q Clear Time (g_c+I1), s		28.5		11.8		24.7
Green Ext Time (p_c), s		0.0		1.3		1.1

Intersection Summary	
HCM 6th Ctrl Delay	30.1
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑	↱		↱
Traffic Vol, veh/h	0	774	406	22	0	19
Future Vol, veh/h	0	774	406	22	0	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	90	-	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	841	441	24	0	21

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	441
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	-	0	616
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	616
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

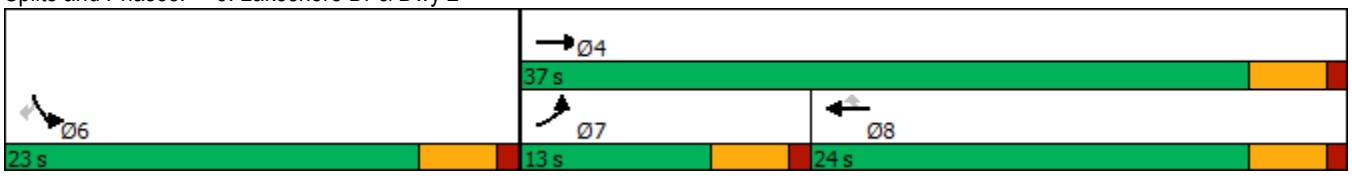
Approach	EB	WB	SB
HCM Control Delay, s	0	0	11
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	616
HCM Lane V/C Ratio	-	-	-	0.034
HCM Control Delay (s)	-	-	-	11
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	93	681	399	22	24	29
Future Volume (vph)	93	681	399	22	24	29
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases				8		6
Detector Phase	7	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	13.0	37.0	24.0	24.0	23.0	23.0
Total Split (%)	21.7%	61.7%	40.0%	40.0%	38.3%	38.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	None	None	None	Max	Max
Act Effct Green (s)	7.6	27.5	17.9	17.9	18.8	18.8
Actuated g/C Ratio	0.14	0.50	0.32	0.32	0.34	0.34
v/c Ratio	0.42	0.80	0.72	0.05	0.04	0.06
Control Delay	29.1	19.0	26.1	7.2	14.8	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.1	19.0	26.1	7.2	14.8	6.6
LOS	C	B	C	A	B	A
Approach Delay		20.2	25.1		10.3	
Approach LOS		C	C		B	

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 55.4	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 21.5	Intersection LOS: C
Intersection Capacity Utilization 47.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 8: Lakeshore Dr & Dwy 2



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	93	681	399	22	24	29
Future Volume (veh/h)	93	681	399	22	24	29
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	101	740	434	24	26	32
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	132	870	568	481	641	570
Arrive On Green	0.07	0.47	0.30	0.30	0.36	0.36
Sat Flow, veh/h	1781	1870	1870	1585	1781	1585
Grp Volume(v), veh/h	101	740	434	24	26	32
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1585	1781	1585
Q Serve(g_s), s	2.9	18.0	10.8	0.6	0.5	0.7
Cycle Q Clear(g_c), s	2.9	18.0	10.8	0.6	0.5	0.7
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	132	870	568	481	641	570
V/C Ratio(X)	0.76	0.85	0.76	0.05	0.04	0.06
Avail Cap(c_a), veh/h	294	1182	709	601	641	570
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	23.4	12.2	16.2	12.7	10.7	10.8
Incr Delay (d2), s/veh	8.8	4.6	3.9	0.0	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	6.3	4.3	0.2	0.2	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	32.1	16.7	20.1	12.7	10.8	10.9
LnGrp LOS	C	B	C	B	B	B
Approach Vol, veh/h		841	458		58	
Approach Delay, s/veh		18.6	19.7		10.9	
Approach LOS		B	B		B	

Timer - Assigned Phs	4	6	7	8
Phs Duration (G+Y+Rc), s	28.4	23.0	8.3	20.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	32.5	18.5	8.5	19.5
Max Q Clear Time (g_c+I1), s	20.0	2.7	4.9	12.8
Green Ext Time (p_c), s	3.9	0.1	0.1	1.4

Intersection Summary	
HCM 6th Ctrl Delay	18.6
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	24	7	8	12	0
Future Vol, veh/h	0	24	7	8	12	0
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	26	8	9	13	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	38	13	13	0	-	0
Stage 1	13	-	-	-	-	-
Stage 2	25	-	-	-	-	-
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	974	1067	1606	-	-	-
Stage 1	1010	-	-	-	-	-
Stage 2	998	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	969	1067	1606	-	-	-
Mov Cap-2 Maneuver	969	-	-	-	-	-
Stage 1	1005	-	-	-	-	-
Stage 2	998	-	-	-	-	-

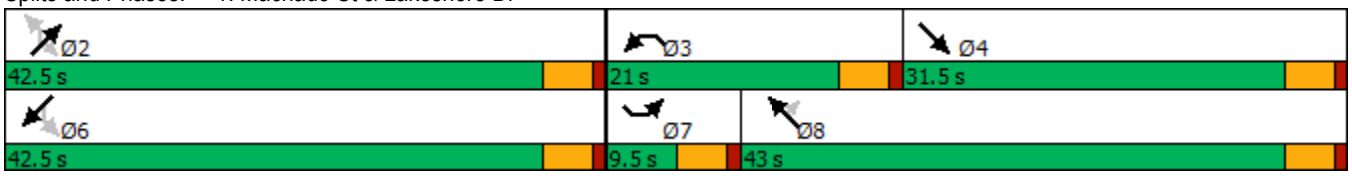
Approach	EB	NB	SB
HCM Control Delay, s	8.5	3.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1606	-	1067	-	-
HCM Lane V/C Ratio	0.005	-	0.024	-	-
HCM Control Delay (s)	7.3	0	8.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT
Lane Configurations										
Traffic Volume (vph)	2	568	357	572	10	107	15	258	12	44
Future Volume (vph)	2	568	357	572	10	107	15	258	12	44
Turn Type	Prot	NA	Prot	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases	7	4	3	8			2			6
Permitted Phases					8	2		2	6	
Detector Phase	7	4	3	8	8	2	2	2	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	31.5	9.5	26.5	26.5	42.5	42.5	42.5	29.5	29.5
Total Split (s)	9.5	31.5	21.0	43.0	43.0	42.5	42.5	42.5	42.5	42.5
Total Split (%)	10.0%	33.2%	22.1%	45.3%	45.3%	44.7%	44.7%	44.7%	44.7%	44.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	Max	Max	Max	Max	Max
Act Effct Green (s)	5.0	22.7	16.5	42.0	42.0	38.1	38.1	38.1		38.1
Actuated g/C Ratio	0.06	0.25	0.18	0.46	0.46	0.42	0.42	0.42		0.42
v/c Ratio	0.02	0.78	1.16	0.69	0.01	0.20	0.02	0.33		0.09
Control Delay	43.0	37.4	135.9	25.3	0.0	19.0	17.1	3.6		16.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	43.0	37.4	135.9	25.3	0.0	19.0	17.1	3.6		16.0
LOS	D	D	F	C	A	B	B	A		B
Approach Delay		37.4		67.1			8.5			16.0
Approach LOS		D		E			A			B

Intersection Summary	
Cycle Length: 95	
Actuated Cycle Length: 90.9	
Natural Cycle: 95	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.16	
Intersection Signal Delay: 45.0	Intersection LOS: D
Intersection Capacity Utilization 62.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: Machado St & Lakeshore Dr



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	2	568	87	357	572	10	107	15	258	12	44	8
Future Volume (veh/h)	2	568	87	357	572	10	107	15	258	12	44	8
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	592	91	372	596	10	111	16	269	12	46	8
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	5	721	111	331	780	661	669	801	679	145	532	87
Arrive On Green	0.00	0.23	0.23	0.19	0.42	0.42	0.43	0.43	0.43	0.43	0.43	0.43
Sat Flow, veh/h	1781	3088	474	1781	1870	1585	1350	1870	1585	227	1243	203
Grp Volume(v), veh/h	2	340	343	372	596	10	111	16	269	66	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1785	1781	1870	1585	1350	1870	1585	1673	0	0
Q Serve(g_s), s	0.1	16.1	16.2	16.5	24.2	0.3	2.0	0.4	10.4	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	16.1	16.2	16.5	24.2	0.3	3.9	0.4	10.4	1.9	0.0	0.0
Prop In Lane	1.00		0.27	1.00		1.00	1.00		1.00	0.18		0.12
Lane Grp Cap(c), veh/h	5	415	417	331	780	661	669	801	679	764	0	0
V/C Ratio(X)	0.41	0.82	0.82	1.12	0.76	0.02	0.17	0.02	0.40	0.09	0.00	0.00
Avail Cap(c_a), veh/h	100	541	543	331	812	688	669	801	679	764	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	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	44.2	32.2	32.3	36.1	22.1	15.2	15.5	14.6	17.5	15.0	0.0	0.0
Incr Delay (d2), s/veh	48.2	7.5	7.7	86.9	4.2	0.0	0.5	0.0	1.7	0.2	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(50%),veh/ln	0.1	7.3	7.4	14.8	10.6	0.1	1.4	0.2	3.8	0.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	92.3	39.8	40.0	123.0	26.4	15.2	16.1	14.7	19.2	15.3	0.0	0.0
LnGrp LOS	F	D	D	F	C	B	B	B	B	B	A	A
Approach Vol, veh/h		685			978			396			66	
Approach Delay, s/veh		40.0			63.0			18.1			15.3	
Approach LOS		D			E			B			B	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		42.5	21.0	25.2		42.5	4.7	41.5				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		38.0	16.5	27.0		38.0	5.0	38.5				
Max Q Clear Time (g_c+I1), s		12.4	18.5	18.2		3.9	2.1	26.2				
Green Ext Time (p_c), s		1.3	0.0	2.5		0.3	0.0	3.0				

Intersection Summary	
HCM 6th Ctrl Delay	45.7
HCM 6th LOS	D

Intersection	
Int Delay, s/veh	1.9

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	10	835	878	46	25	48
Future Vol, veh/h	10	835	878	46	25	48
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	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	870	915	48	26	50

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	963	0	-	0	1829	939
Stage 1	-	-	-	-	939	-
Stage 2	-	-	-	-	890	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	715	-	-	-	84	320
Stage 1	-	-	-	-	380	-
Stage 2	-	-	-	-	401	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	715	-	-	-	82	320
Mov Cap-2 Maneuver	-	-	-	-	82	-
Stage 1	-	-	-	-	370	-
Stage 2	-	-	-	-	401	-

Approach	SE	NW	SW
HCM Control Delay, s	0.1	0	46.4
HCM LOS			E

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1
Capacity (veh/h)	-	-	715	-	160
HCM Lane V/C Ratio	-	-	0.015	-	0.475
HCM Control Delay (s)	-	-	10.1	0	46.4
HCM Lane LOS	-	-	B	A	E
HCM 95th %tile Q(veh)	-	-	0	-	2.2

Intersection	
Int Delay, s/veh	110.1

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	80	0	32	1	0	4	43	1307	2	9	1120	145
Future Vol, veh/h	80	0	32	1	0	4	43	1307	2	9	1120	145
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	115	100	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	82	0	33	1	0	4	44	1347	2	9	1155	149

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2611	2610	1155	2699	2757	1347	1304	0	0	1349	0	0
Stage 1	1173	1173	-	1435	1435	-	-	-	-	-	-	-
Stage 2	1438	1437	-	1264	1322	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 16	24	240	14	20	185	531	-	-	510	-	-
Stage 1	234	266	-	166	199	-	-	-	-	-	-	-
Stage 2	165	199	-	208	226	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 14	22	240	11	18	185	531	-	-	510	-	-
Mov Cap-2 Maneuver	~ 14	22	-	11	18	-	-	-	-	-	-	-
Stage 1	215	261	-	152	182	-	-	-	-	-	-	-
Stage 2	148	182	-	176	222	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	$ 2687	97.4	0.4	0.1
HCM LOS	F	F		

Minor Lane/Major Mvmt	NEL	NET	NER	NWLn1	SELn1	SWL	SWT	SWR
Capacity (veh/h)	531	-	-	44	19	510	-	-
HCM Lane V/C Ratio	0.083	-	-	0.117	6.077	0.018	-	-
HCM Control Delay (s)	12.4	-	-	97.4	$ 2687	12.2	-	-
HCM Lane LOS	B	-	-	F	F	B	-	-
HCM 95th %tile Q(veh)	0.3	-	-	0.4	15	0.1	-	-

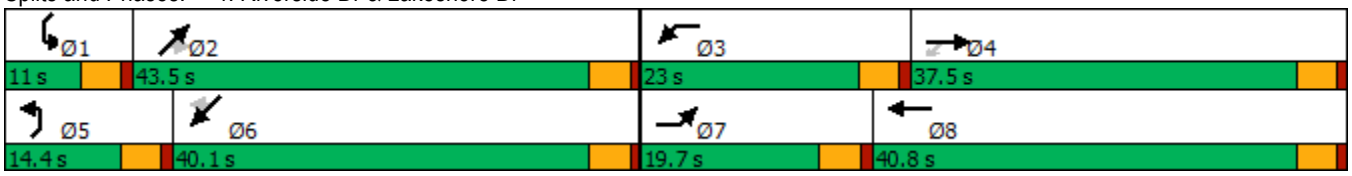
Notes

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

Lane Group	EBL	EBT	EBR	WBL	WBT	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Traffic Volume (vph)	316	307	205	334	367	198	775	362	77	643	432
Future Volume (vph)	316	307	205	334	367	198	775	362	77	643	432
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	2		1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	4	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	37.5	37.5	9.5	39.5	9.5	37.5	37.5	9.5	39.5	39.5
Total Split (s)	19.7	37.5	37.5	23.0	40.8	14.4	43.5	43.5	11.0	40.1	40.1
Total Split (%)	17.1%	32.6%	32.6%	20.0%	35.5%	12.5%	37.8%	37.8%	9.6%	34.9%	34.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	15.2	14.3	14.3	18.5	17.6	9.9	39.0	39.0	6.5	35.6	35.6
Actuated g/C Ratio	0.16	0.15	0.15	0.19	0.18	0.10	0.40	0.40	0.07	0.37	0.37
v/c Ratio	1.17	0.60	0.55	1.01	0.69	1.12	0.56	0.43	0.66	0.96	0.56
Control Delay	145.8	43.3	14.2	93.0	41.1	145.6	24.4	3.9	71.8	58.1	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	145.8	43.3	14.2	93.0	41.1	145.6	24.4	3.9	71.8	58.1	9.4
LOS	F	D	B	F	D	F	C	A	E	E	A
Approach Delay		75.3			63.6		36.8			40.8	
Approach LOS		E			E		D			D	

Intersection Summary	
Cycle Length: 115	
Actuated Cycle Length: 96.4	
Natural Cycle: 150	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.17	
Intersection Signal Delay: 50.8	Intersection LOS: D
Intersection Capacity Utilization 89.7%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 4: Riverside Dr & Lakeshore Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	316	307	205	334	367	69	198	775	362	77	643	432
Future Volume (veh/h)	316	307	205	334	367	69	198	775	362	77	643	432
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	326	316	211	344	378	71	204	799	373	79	663	445
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	273	611	273	333	614	114	178	1431	638	101	672	570
Arrive On Green	0.15	0.17	0.17	0.19	0.21	0.21	0.10	0.40	0.40	0.06	0.36	0.36
Sat Flow, veh/h	1781	3554	1585	1781	2991	557	1781	3554	1585	1781	1870	1585
Grp Volume(v), veh/h	326	316	211	344	223	226	204	799	373	79	663	445
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1770	1781	1777	1585	1781	1870	1585
Q Serve(g_s), s	15.2	8.0	12.6	18.5	11.3	11.5	9.9	17.2	18.2	4.3	34.8	24.8
Cycle Q Clear(g_c), s	15.2	8.0	12.6	18.5	11.3	11.5	9.9	17.2	18.2	4.3	34.8	24.8
Prop In Lane	1.00		1.00	1.00		0.31	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	273	611	273	333	365	363	178	1431	638	101	672	570
V/C Ratio(X)	1.19	0.52	0.77	1.03	0.61	0.62	1.15	0.56	0.58	0.78	0.99	0.78
Avail Cap(c_a), veh/h	273	1184	528	333	651	649	178	1431	638	117	672	570
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.9	37.3	39.2	40.3	35.8	35.8	44.6	22.8	23.1	46.1	31.5	28.2
Incr Delay (d2), s/veh	116.8	0.7	4.7	58.3	1.7	1.7	112.0	1.6	3.9	25.0	31.5	10.2
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(50%),veh/ln	15.3	3.4	5.1	13.2	4.9	5.0	9.8	7.0	7.1	2.6	20.5	10.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	158.7	37.9	43.8	98.6	37.4	37.6	156.6	24.4	27.0	71.1	63.0	38.5
LnGrp LOS	F	D	D	F	D	D	F	C	C	E	E	D
Approach Vol, veh/h		853			793			1376			1187	
Approach Delay, s/veh		85.6			64.0			44.7			54.3	
Approach LOS		F			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.1	44.4	23.0	21.5	14.4	40.1	19.7	24.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.5	39.0	18.5	33.0	9.9	35.6	15.2	36.3
Max Q Clear Time (g_c+I1), s	6.3	20.2	20.5	14.6	11.9	36.8	17.2	13.5
Green Ext Time (p_c), s	0.0	6.5	0.0	2.4	0.0	0.0	0.0	2.5

Intersection Summary	
HCM 6th Ctrl Delay	59.3
HCM 6th LOS	E

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	656	682	10	17	29
Future Vol, veh/h	4	656	682	10	17	29
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	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	669	696	10	17	30

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	706	0	-	0	1378	701
Stage 1	-	-	-	-	701	-
Stage 2	-	-	-	-	677	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	892	-	-	-	160	439
Stage 1	-	-	-	-	492	-
Stage 2	-	-	-	-	505	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	892	-	-	-	159	439
Mov Cap-2 Maneuver	-	-	-	-	159	-
Stage 1	-	-	-	-	489	-
Stage 2	-	-	-	-	505	-

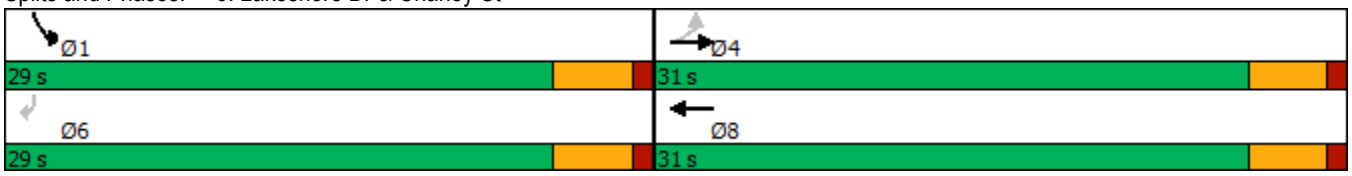
Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	21.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	892	-	-	-	266
HCM Lane V/C Ratio	0.005	-	-	-	0.176
HCM Control Delay (s)	9.1	0	-	-	21.4
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.6

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations					
Traffic Volume (vph)	115	550	965	102	311
Future Volume (vph)	115	550	965	102	311
Turn Type	Perm	NA	NA	Prot	Perm
Protected Phases		4	8	1	
Permitted Phases	4				6
Detector Phase	4	4	8	1	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	9.5	27.5	9.5	27.5
Total Split (s)	31.0	31.0	31.0	29.0	29.0
Total Split (%)	51.7%	51.7%	51.7%	48.3%	48.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	None	None	Max
Act Effct Green (s)	26.5	26.5	26.5	20.7	24.5
Actuated g/C Ratio	0.44	0.44	0.44	0.34	0.41
v/c Ratio	0.94	0.68	1.29	0.17	0.47
Control Delay	92.9	18.6	160.7	12.2	13.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	92.9	18.6	160.7	12.2	13.3
LOS	F	B	F	B	B
Approach Delay		31.4	160.7	13.1	
Approach LOS		C	F	B	

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 60	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.29	
Intersection Signal Delay: 91.2	Intersection LOS: F
Intersection Capacity Utilization 81.8%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 6: Lakeshore Dr & Chaney St



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	115	550	965	71	102	311
Future Volume (veh/h)	115	550	965	71	102	311
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	117	561	985	72	104	317
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	152	1043	960	70	450	401
Arrive On Green	0.56	0.56	0.56	0.56	0.25	0.25
Sat Flow, veh/h	534	1870	1722	126	1781	1585
Grp Volume(v), veh/h	117	561	0	1057	104	317
Grp Sat Flow(s),veh/h/ln	534	1870	0	1848	1781	1585
Q Serve(g_s), s	0.0	9.0	0.0	26.5	2.2	8.9
Cycle Q Clear(g_c), s	26.5	9.0	0.0	26.5	2.2	8.9
Prop In Lane	1.00			0.07	1.00	1.00
Lane Grp Cap(c), veh/h	152	1043	0	1030	450	401
V/C Ratio(X)	0.77	0.54	0.00	1.03	0.23	0.79
Avail Cap(c_a), veh/h	152	1043	0	1030	918	817
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.8	6.6	0.0	10.5	14.1	16.6
Incr Delay (d2), s/veh	21.4	0.6	0.0	34.8	0.3	3.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	2.2	0.0	15.8	0.8	3.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	45.2	7.2	0.0	45.3	14.3	20.1
LnGrp LOS	D	A	A	F	B	C
Approach Vol, veh/h		678	1057		421	
Approach Delay, s/veh		13.7	45.3		18.7	
Approach LOS		B	D		B	

Timer - Assigned Phs		4		6		8
Phs Duration (G+Y+Rc), s		31.0		16.5		31.0
Change Period (Y+Rc), s		4.5		4.5		4.5
Max Green Setting (Gmax), s		26.5		24.5		26.5
Max Q Clear Time (g_c+I1), s		28.5		10.9		28.5
Green Ext Time (p_c), s		0.0		1.2		0.0

Intersection Summary	
HCM 6th Ctrl Delay	30.2
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑	↱		↱
Traffic Vol, veh/h	0	707	699	25	0	32
Future Vol, veh/h	0	707	699	25	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	-	-	-	90	-	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	768	760	27	0	35

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	760
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	-	0	406
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	406
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

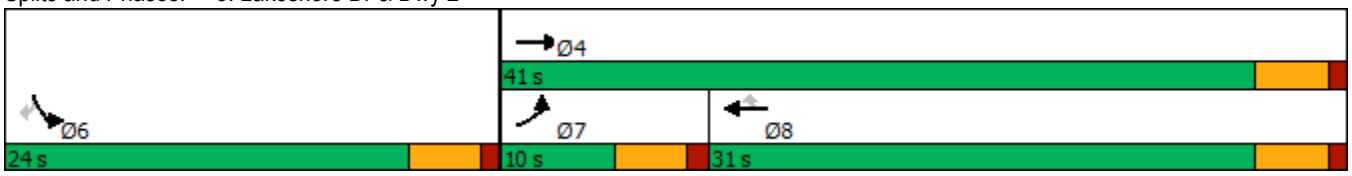
Approach	EB	WB	SB
HCM Control Delay, s	0	0	14.7
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	406
HCM Lane V/C Ratio	-	-	-	0.086
HCM Control Delay (s)	-	-	-	14.7
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.3

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	107	600	682	25	40	47
Future Volume (vph)	107	600	682	25	40	47
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases				8		6
Detector Phase	7	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	10.0	41.0	31.0	31.0	24.0	24.0
Total Split (%)	15.4%	63.1%	47.7%	47.7%	36.9%	36.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	None	None	None	Max	Max
Act Effct Green (s)	5.5	36.5	26.5	26.5	19.5	19.5
Actuated g/C Ratio	0.08	0.56	0.41	0.41	0.30	0.30
v/c Ratio	0.78	0.62	0.98	0.04	0.08	0.10
Control Delay	65.6	12.9	49.3	7.8	16.9	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.6	12.9	49.3	7.8	16.9	6.2
LOS	E	B	D	A	B	A
Approach Delay		20.9	47.9		11.1	
Approach LOS		C	D		B	

Intersection Summary	
Cycle Length: 65	
Actuated Cycle Length: 65	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.98	
Intersection Signal Delay: 33.0	Intersection LOS: C
Intersection Capacity Utilization 57.2%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Lakeshore Dr & Dwy 2



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	107	600	682	25	40	47
Future Volume (veh/h)	107	600	682	25	40	47
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	116	652	741	27	43	51
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	148	1049	764	647	535	476
Arrive On Green	0.08	0.56	0.41	0.41	0.30	0.30
Sat Flow, veh/h	1781	1870	1870	1585	1781	1585
Grp Volume(v), veh/h	116	652	741	27	43	51
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1585	1781	1585
Q Serve(g_s), s	4.1	15.3	25.2	0.7	1.1	1.5
Cycle Q Clear(g_c), s	4.1	15.3	25.2	0.7	1.1	1.5
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	148	1049	764	647	535	476
V/C Ratio(X)	0.78	0.62	0.97	0.04	0.08	0.11
Avail Cap(c_a), veh/h	151	1052	764	647	535	476
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	29.2	9.6	18.8	11.6	16.3	16.4
Incr Delay (d2), s/veh	22.9	1.1	25.3	0.0	0.3	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	4.9	14.4	0.2	0.5	1.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	52.0	10.7	44.1	11.6	16.6	16.9
LnGrp LOS	D	B	D	B	B	B
Approach Vol, veh/h		768	768		94	
Approach Delay, s/veh		17.0	42.9		16.7	
Approach LOS		B	D		B	

Timer - Assigned Phs		4		6	7	8
Phs Duration (G+Y+Rc), s		40.9		24.0	9.9	31.0
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		36.5		19.5	5.5	26.5
Max Q Clear Time (g_c+I1), s		17.3		3.5	6.1	27.2
Green Ext Time (p_c), s		4.0		0.2	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	29.2
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	40	8	8	10	0
Future Vol, veh/h	0	40	8	8	10	0
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	43	9	9	11	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	38	11	11	0	-	0
Stage 1	11	-	-	-	-	-
Stage 2	27	-	-	-	-	-
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	974	1070	1608	-	-	-
Stage 1	1012	-	-	-	-	-
Stage 2	996	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	968	1070	1608	-	-	-
Mov Cap-2 Maneuver	968	-	-	-	-	-
Stage 1	1006	-	-	-	-	-
Stage 2	996	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	3.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1608	-	1070	-	-
HCM Lane V/C Ratio	0.005	-	0.041	-	-
HCM Control Delay (s)	7.3	0	8.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

EP CONDITIONS WITH IMPROVEMENTS

Lane Group	SEL	SET	NWL	NWT	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations										
Traffic Volume (vph)	68	0	1	0	57	995	1	4	717	125
Future Volume (vph)	68	0	1	0	57	995	1	4	717	125
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8	5	2		1	6	
Permitted Phases	4		8				2			6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	22.5	22.5	22.5	22.5	11.7	58.0	58.0	9.5	55.8	55.8
Total Split (%)	25.0%	25.0%	25.0%	25.0%	13.0%	64.4%	64.4%	10.6%	62.0%	62.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	Min	None	Min	Min
Act Effct Green (s)		8.7		8.7	7.0	46.7	46.7	5.3	41.7	41.7
Actuated g/C Ratio		0.14		0.14	0.11	0.75	0.75	0.09	0.67	0.67
v/c Ratio		0.49		0.02	0.29	0.72	0.00	0.03	0.59	0.12
Control Delay		21.3		0.1	34.7	12.1	0.0	34.2	12.0	2.5
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		21.3		0.1	34.7	12.1	0.0	34.2	12.0	2.5
LOS		C		A	C	B	A	C	B	A
Approach Delay		21.3		0.1		13.3			10.7	
Approach LOS		C		A		B			B	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 62.1	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 12.6	Intersection LOS: B
Intersection Capacity Utilization 73.9%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: Riverside Dr & Joy St

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	68	0	59	1	0	6	57	995	1	4	717	125
Future Volume (veh/h)	68	0	59	1	0	6	57	995	1	4	717	125
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	69	0	60	1	0	6	58	1015	1	4	732	128
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	182	9	78	86	16	156	95	1189	1008	10	1099	931
Arrive On Green	0.11	0.00	0.11	0.11	0.00	0.11	0.05	0.64	0.64	0.01	0.59	0.59
Sat Flow, veh/h	728	78	701	92	142	1399	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	129	0	0	7	0	0	58	1015	1	4	732	128
Grp Sat Flow(s),veh/h/ln	1506	0	0	1632	0	0	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	4.0	0.0	0.0	0.0	0.0	0.0	1.7	23.6	0.0	0.1	14.5	2.0
Cycle Q Clear(g_c), s	4.5	0.0	0.0	0.2	0.0	0.0	1.7	23.6	0.0	0.1	14.5	2.0
Prop In Lane	0.53		0.47	0.14		0.86	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	269	0	0	257	0	0	95	1189	1008	10	1099	931
V/C Ratio(X)	0.48	0.00	0.00	0.03	0.00	0.00	0.61	0.85	0.00	0.42	0.67	0.14
Avail Cap(c_a), veh/h	594	0	0	595	0	0	235	1833	1554	163	1758	1490
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	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.5	0.0	0.0	21.6	0.0	0.0	25.3	7.9	3.6	27.1	7.6	5.1
Incr Delay (d2), s/veh	1.3	0.0	0.0	0.0	0.0	0.0	6.1	2.6	0.0	26.3	0.7	0.1
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(50%),veh/ln	1.6	0.0	0.0	0.1	0.0	0.0	0.8	5.7	0.0	0.1	3.7	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.8	0.0	0.0	21.7	0.0	0.0	31.4	10.5	3.6	53.3	8.3	5.1
LnGrp LOS	C	A	A	C	A	A	C	B	A	D	A	A
Approach Vol, veh/h		129			7			1074			864	
Approach Delay, s/veh		24.8			21.7			11.6			8.1	
Approach LOS		C			C			B			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.8	39.2		10.6	7.4	36.6		10.6
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.0	53.5		18.0	7.2	51.3		18.0
Max Q Clear Time (g_c+I1), s	2.1	25.6		6.5	3.7	16.5		2.2
Green Ext Time (p_c), s	0.0	9.1		0.5	0.0	6.0		0.0

Intersection Summary			
HCM 6th Ctrl Delay			11.0
HCM 6th LOS			B

Lane Group	SEL	SET	NWL	NWT	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations										
Traffic Volume (vph)	55	0	1	0	41	1149	2	9	958	122
Future Volume (vph)	55	0	1	0	41	1149	2	9	958	122
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8	5	2		1	6	
Permitted Phases	4		8				2			6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	22.5	22.5	22.5	22.5	9.5	68.0	68.0	9.5	68.0	68.0
Total Split (%)	22.5%	22.5%	22.5%	22.5%	9.5%	68.0%	68.0%	9.5%	68.0%	68.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	Min	None	Min	Min
Act Effct Green (s)		7.6		7.6	5.1	66.0	66.0	5.1	62.2	62.2
Actuated g/C Ratio		0.09		0.09	0.06	0.82	0.82	0.06	0.77	0.77
v/c Ratio		0.46		0.02	0.38	0.78	0.00	0.08	0.69	0.10
Control Delay		23.0		0.2	49.5	12.1	0.0	41.0	11.1	2.1
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		23.0		0.2	49.5	12.1	0.0	41.0	11.1	2.1
LOS		C		A	D	B	A	D	B	A
Approach Delay		23.0		0.2		13.4			10.4	
Approach LOS		C		A		B			B	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 80.8	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 12.3	Intersection LOS: B
Intersection Capacity Utilization 79.6%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: Riverside Dr & Joy St

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	55	0	31	1	0	4	41	1149	2	9	958	122
Future Volume (veh/h)	55	0	31	1	0	4	41	1149	2	9	958	122
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	57	0	32	1	0	4	42	1185	2	9	988	126
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	159	2	41	76	14	102	72	1330	1127	20	1276	1082
Arrive On Green	0.08	0.00	0.08	0.08	0.00	0.08	0.04	0.71	0.71	0.01	0.68	0.68
Sat Flow, veh/h	925	24	533	154	178	1329	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	89	0	0	5	0	0	42	1185	2	9	988	126
Grp Sat Flow(s),veh/h/ln	1481	0	0	1661	0	0	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	3.8	0.0	0.0	0.0	0.0	0.0	1.6	33.6	0.0	0.3	23.9	1.8
Cycle Q Clear(g_c), s	4.0	0.0	0.0	0.2	0.0	0.0	1.6	33.6	0.0	0.3	23.9	1.8
Prop In Lane	0.64		0.36	0.20		0.80	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	201	0	0	192	0	0	72	1330	1127	20	1276	1082
V/C Ratio(X)	0.44	0.00	0.00	0.03	0.00	0.00	0.58	0.89	0.00	0.44	0.77	0.12
Avail Cap(c_a), veh/h	482	0	0	485	0	0	132	1764	1495	132	1764	1495
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	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.5	0.0	0.0	28.8	0.0	0.0	31.7	7.7	2.8	33.1	7.2	3.7
Incr Delay (d2), s/veh	1.5	0.0	0.0	0.1	0.0	0.0	7.3	4.9	0.0	14.1	1.5	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(50%),veh/ln	1.4	0.0	0.0	0.1	0.0	0.0	0.8	8.5	0.0	0.2	6.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.0	0.0	0.0	28.8	0.0	0.0	39.0	12.5	2.8	47.1	8.7	3.7
LnGrp LOS	C	A	A	C	A	A	D	B	A	D	A	A
Approach Vol, veh/h		89			5			1229			1123	
Approach Delay, s/veh		32.0			28.8			13.4			8.4	
Approach LOS		C			C			B			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.3	52.4		9.7	7.2	50.4		9.7
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.0	63.5		18.0	5.0	63.5		18.0
Max Q Clear Time (g_c+I1), s	2.3	35.6		6.0	3.6	25.9		2.2
Green Ext Time (p_c), s	0.0	12.3		0.3	0.0	10.0		0.0

Intersection Summary			
HCM 6th Ctrl Delay			11.8
HCM 6th LOS			B

EAP CONDITIONS WITH IMPROVEMENTS

Lane Group	SEL	SET	NWL	NWT	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations										
Traffic Volume (vph)	70	0	1	0	59	1034	1	4	745	130
Future Volume (vph)	70	0	1	0	59	1034	1	4	745	130
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8	5	2		1	6	
Permitted Phases	4		8				2			6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	22.5	22.5	22.5	22.5	10.3	58.0	58.0	9.5	57.2	57.2
Total Split (%)	25.0%	25.0%	25.0%	25.0%	11.4%	64.4%	64.4%	10.6%	63.6%	63.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	Min	None	Min	Min
Act Effct Green (s)		8.9		8.9	5.9	49.3	49.3	5.1	44.9	44.9
Actuated g/C Ratio		0.13		0.13	0.09	0.72	0.72	0.07	0.65	0.65
v/c Ratio		0.53		0.03	0.40	0.79	0.00	0.03	0.62	0.12
Control Delay		23.6		0.1	42.1	14.3	0.0	36.0	11.7	2.2
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		23.6		0.1	42.1	14.3	0.0	36.0	11.7	2.2
LOS		C		A	D	B	A	D	B	A
Approach Delay		23.6		0.1		15.8			10.4	
Approach LOS		C		A		B			B	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 68.8	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 14.0	Intersection LOS: B
Intersection Capacity Utilization 76.2%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: Riverside Dr & Joy St

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	70	0	61	1	0	6	59	1034	1	4	745	130
Future Volume (veh/h)	70	0	61	1	0	6	59	1034	1	4	745	130
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	71	0	62	1	0	6	60	1055	1	4	760	133
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	177	10	80	80	17	159	95	1214	1029	10	1124	953
Arrive On Green	0.11	0.00	0.11	0.11	0.00	0.11	0.05	0.65	0.65	0.01	0.60	0.60
Sat Flow, veh/h	721	84	703	85	148	1394	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	133	0	0	7	0	0	60	1055	1	4	760	133
Grp Sat Flow(s),veh/h/ln	1508	0	0	1627	0	0	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	4.4	0.0	0.0	0.0	0.0	0.0	1.9	26.5	0.0	0.1	15.9	2.1
Cycle Q Clear(g_c), s	5.0	0.0	0.0	0.2	0.0	0.0	1.9	26.5	0.0	0.1	15.9	2.1
Prop In Lane	0.53		0.47	0.14		0.86	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	267	0	0	256	0	0	95	1214	1029	10	1124	953
V/C Ratio(X)	0.50	0.00	0.00	0.03	0.00	0.00	0.63	0.87	0.00	0.42	0.68	0.14
Avail Cap(c_a), veh/h	556	0	0	556	0	0	177	1715	1454	153	1690	1432
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	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.0	0.0	0.0	23.0	0.0	0.0	27.1	8.2	3.6	28.9	7.8	5.1
Incr Delay (d2), s/veh	1.4	0.0	0.0	0.0	0.0	0.0	6.8	3.7	0.0	26.4	0.7	0.1
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(50%),veh/ln	1.8	0.0	0.0	0.1	0.0	0.0	0.9	6.9	0.0	0.1	4.2	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.5	0.0	0.0	23.0	0.0	0.0	33.8	11.9	3.6	55.3	8.5	5.1
LnGrp LOS	C	A	A	C	A	A	C	B	A	E	A	A
Approach Vol, veh/h		133			7			1116			897	
Approach Delay, s/veh		26.5			23.0			13.1			8.2	
Approach LOS		C			C			B			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.8	42.4		11.2	7.6	39.6		11.2
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.0	53.5		18.0	5.8	52.7		18.0
Max Q Clear Time (g_c+I1), s	2.1	28.5		7.0	3.9	17.9		2.2
Green Ext Time (p_c), s	0.0	9.4		0.5	0.0	6.4		0.0

Intersection Summary	
HCM 6th Ctrl Delay	11.9
HCM 6th LOS	B

Lane Group	SEL	SET	NWL	NWT	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations										
Traffic Volume (vph)	57	0	1	0	43	1195	2	9	996	126
Future Volume (vph)	57	0	1	0	43	1195	2	9	996	126
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8	5	2		1	6	
Permitted Phases	4		8				2			6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	22.5	22.5	22.5	22.5	9.5	78.0	78.0	9.5	78.0	78.0
Total Split (%)	20.5%	20.5%	20.5%	20.5%	8.6%	70.9%	70.9%	8.6%	70.9%	70.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	Min	None	Min	Min
Act Effct Green (s)		8.1		8.1	5.1	70.8	70.8	5.1	65.2	65.2
Actuated g/C Ratio		0.09		0.09	0.06	0.83	0.83	0.06	0.76	0.76
v/c Ratio		0.49		0.02	0.42	0.80	0.00	0.08	0.73	0.11
Control Delay		27.3		0.2	56.6	12.8	0.0	46.2	12.5	2.1
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		27.3		0.2	56.6	12.8	0.0	46.2	12.5	2.1
LOS		C		A	E	B	A	D	B	A
Approach Delay		27.3		0.2		14.3			11.6	
Approach LOS		C		A		B			B	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 85.8	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 13.5	Intersection LOS: B
Intersection Capacity Utilization 82.2%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 3: Riverside Dr & Joy St

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	57	0	32	1	0	4	43	1195	2	9	996	126
Future Volume (veh/h)	57	0	32	1	0	4	43	1195	2	9	996	126
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	59	0	33	1	0	4	44	1232	2	9	1027	130
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	149	4	42	68	15	104	71	1369	1160	20	1315	1115
Arrive On Green	0.08	0.00	0.08	0.08	0.00	0.08	0.04	0.73	0.73	0.01	0.70	0.70
Sat Flow, veh/h	905	45	531	136	194	1320	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	92	0	0	5	0	0	44	1232	2	9	1027	130
Grp Sat Flow(s),veh/h/ln	1481	0	0	1651	0	0	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	4.4	0.0	0.0	0.0	0.0	0.0	1.8	39.3	0.0	0.4	27.4	2.0
Cycle Q Clear(g_c), s	4.6	0.0	0.0	0.2	0.0	0.0	1.8	39.3	0.0	0.4	27.4	2.0
Prop In Lane	0.64		0.36	0.20		0.80	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	195	0	0	187	0	0	71	1369	1160	20	1315	1115
V/C Ratio(X)	0.47	0.00	0.00	0.03	0.00	0.00	0.62	0.90	0.00	0.44	0.78	0.12
Avail Cap(c_a), veh/h	427	0	0	431	0	0	117	1811	1535	117	1811	1535
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	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.3	0.0	0.0	32.3	0.0	0.0	35.9	8.0	2.7	37.3	7.4	3.6
Incr Delay (d2), s/veh	1.8	0.0	0.0	0.1	0.0	0.0	8.5	5.3	0.0	14.5	1.5	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(50%),veh/ln	1.7	0.0	0.0	0.1	0.0	0.0	0.9	10.4	0.0	0.2	7.2	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.1	0.0	0.0	32.3	0.0	0.0	44.4	13.3	2.7	51.7	9.0	3.7
LnGrp LOS	D	A	A	C	A	A	D	B	A	D	A	A
Approach Vol, veh/h		92			5			1278			1166	
Approach Delay, s/veh		36.1			32.3			14.4			8.7	
Approach LOS		D			C			B			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.4	60.0		10.5	7.5	57.9		10.5
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.0	73.5		18.0	5.0	73.5		18.0
Max Q Clear Time (g_c+I1), s	2.4	41.3		6.6	3.8	29.4		2.2
Green Ext Time (p_c), s	0.0	14.2		0.3	0.0	11.2		0.0

Intersection Summary			
HCM 6th Ctrl Delay			12.6
HCM 6th LOS			B

EAPC CONDITIONS WITH IMPROVEMENTS

Intersection	
Int Delay, s/veh	1.2

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	12	960	515	19	21	31
Future Vol, veh/h	12	960	515	19	21	31
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	100	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	1129	606	22	25	36

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	628	0	-	0	1774	617
Stage 1	-	-	-	-	617	-
Stage 2	-	-	-	-	1157	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	954	-	-	-	91	490
Stage 1	-	-	-	-	538	-
Stage 2	-	-	-	-	299	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	954	-	-	-	87	490
Mov Cap-2 Maneuver	-	-	-	-	87	-
Stage 1	-	-	-	-	517	-
Stage 2	-	-	-	-	299	-

Approach	SE	NW	SW
HCM Control Delay, s	0.1	0	32.7
HCM LOS			D

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1	SWLn2
Capacity (veh/h)	-	-	954	-	87	490
HCM Lane V/C Ratio	-	-	0.015	-	0.284	0.074
HCM Control Delay (s)	-	-	8.8	0	62	12.9
HCM Lane LOS	-	-	A	A	F	B
HCM 95th %tile Q(veh)	-	-	0	-	1	0.2

Lane Group	SEL	SET	NWL	NWT	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations										
Traffic Volume (vph)	85	0	1	0	59	1117	1	4	864	146
Future Volume (vph)	85	0	1	0	59	1117	1	4	864	146
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		8		2			6	
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	2	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	22.5	22.5	22.5	22.5	57.5	57.5	57.5	57.5	57.5	57.5
Total Split (%)	28.1%	28.1%	28.1%	28.1%	71.9%	71.9%	71.9%	71.9%	71.9%	71.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	Min	Min	Min	Min	Min	Min
Act Effct Green (s)		11.0		11.0	51.8	51.8	51.8	51.8	51.8	51.8
Actuated g/C Ratio		0.15		0.15	0.72	0.72	0.72	0.72	0.72	0.72
v/c Ratio		0.59		0.03	0.19	0.85	0.00	0.03	0.66	0.13
Control Delay		31.1		4.7	5.8	16.7	0.0	4.5	9.1	1.1
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		31.1		4.7	5.8	16.7	0.0	4.5	9.1	1.1
LOS		C		A	A	B	A	A	A	A
Approach Delay		31.1		4.7		16.2			7.9	
Approach LOS		C		A		B			A	

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 71.9	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 13.5	Intersection LOS: B
Intersection Capacity Utilization 81.4%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: Riverside Dr & Joy St

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	85	0	61	1	0	6	59	1117	1	4	864	146
Future Volume (veh/h)	85	0	61	1	0	6	59	1117	1	4	864	146
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	87	0	62	1	0	6	60	1140	1	4	882	149
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	206	10	80	85	20	179	375	1323	1122	255	1323	1122
Arrive On Green	0.13	0.00	0.13	0.13	0.00	0.13	0.71	0.71	0.71	0.71	0.71	0.71
Sat Flow, veh/h	798	76	623	80	152	1390	547	1870	1585	493	1870	1585
Grp Volume(v), veh/h	149	0	0	7	0	0	60	1140	1	4	882	149
Grp Sat Flow(s),veh/h/ln	1497	0	0	1622	0	0	547	1870	1585	493	1870	1585
Q Serve(g_s), s	4.7	0.0	0.0	0.0	0.0	0.0	3.7	25.1	0.0	0.3	14.3	1.7
Cycle Q Clear(g_c), s	5.3	0.0	0.0	0.2	0.0	0.0	18.1	25.1	0.0	25.4	14.3	1.7
Prop In Lane	0.58		0.42	0.14		0.86	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	296	0	0	284	0	0	375	1323	1122	255	1323	1122
V/C Ratio(X)	0.50	0.00	0.00	0.02	0.00	0.00	0.16	0.86	0.00	0.02	0.67	0.13
Avail Cap(c_a), veh/h	590	0	0	591	0	0	516	1804	1529	381	1804	1529
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	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.1	0.0	0.0	21.0	0.0	0.0	9.5	6.0	2.4	15.5	4.4	2.6
Incr Delay (d2), s/veh	1.3	0.0	0.0	0.0	0.0	0.0	0.2	3.4	0.0	0.0	0.6	0.1
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(50%),veh/ln	1.8	0.0	0.0	0.1	0.0	0.0	0.4	4.5	0.0	0.0	2.1	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.4	0.0	0.0	21.0	0.0	0.0	9.6	9.4	2.4	15.6	5.0	2.6
LnGrp LOS	C	A	A	C	A	A	A	A	A	B	A	A
Approach Vol, veh/h		149			7			1201			1035	
Approach Delay, s/veh		24.4			21.0			9.4			4.7	
Approach LOS		C			C			A			A	

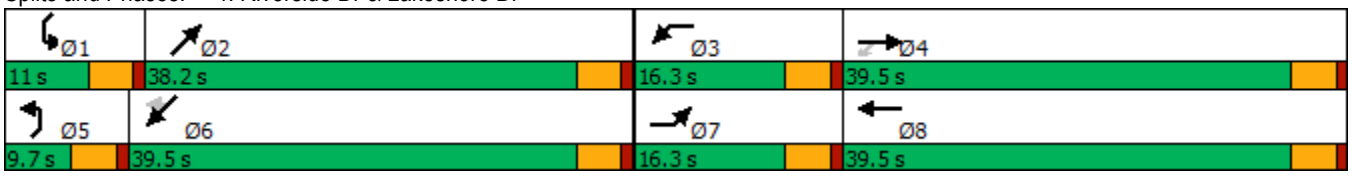
Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	43.4	11.6	43.4	11.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	53.0	18.0	53.0	18.0
Max Q Clear Time (g_c+I1), s	27.1	7.3	27.4	2.2
Green Ext Time (p_c), s	11.8	0.5	7.6	0.0

Intersection Summary	
HCM 6th Ctrl Delay	8.4
HCM 6th LOS	A

Lane Group	EBL	EBT	EBR	WBL	WBT	NEL	NET	SWL	SWT	SWR
Lane Configurations										
Traffic Volume (vph)	389	364	164	217	149	161	648	57	582	202
Future Volume (vph)	389	364	164	217	149	161	648	57	582	202
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA	Perm
Protected Phases	7	4		3	8	5	2	1	6	
Permitted Phases			4							6
Detector Phase	7	4	4	3	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	37.5	37.5	9.5	39.5	9.5	37.5	9.5	39.5	39.5
Total Split (s)	16.3	39.5	39.5	16.3	39.5	9.7	38.2	11.0	39.5	39.5
Total Split (%)	15.5%	37.6%	37.6%	15.5%	37.6%	9.2%	36.4%	10.5%	37.6%	37.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	Max	Max
Act Effct Green (s)	11.8	14.6	14.6	10.2	13.0	5.2	36.2	6.3	35.1	35.1
Actuated g/C Ratio	0.14	0.18	0.18	0.12	0.16	0.06	0.44	0.08	0.42	0.42
v/c Ratio	0.81	0.60	0.40	0.52	0.25	0.76	0.48	0.43	0.31	0.26
Control Delay	50.5	35.9	8.2	39.6	23.2	63.6	16.5	48.8	17.0	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.5	35.9	8.2	39.6	23.2	63.6	16.5	48.8	17.0	4.0
LOS	D	D	A	D	C	E	B	D	B	A
Approach Delay		37.1			31.8		22.9		16.5	
Approach LOS		D			C		C		B	

Intersection Summary	
Cycle Length: 105	
Actuated Cycle Length: 83.2	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 26.3	Intersection LOS: C
Intersection Capacity Utilization 56.2%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 4: Riverside Dr & Lakeshore Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	389	364	164	217	149	48	161	648	368	57	582	202
Future Volume (veh/h)	389	364	164	217	149	48	161	648	368	57	582	202
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	397	371	167	221	152	49	164	661	376	58	603	200
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	483	573	255	314	438	131	231	1602	746	82	2524	713
Arrive On Green	0.14	0.16	0.16	0.09	0.11	0.11	0.07	0.47	0.47	0.05	0.45	0.45
Sat Flow, veh/h	3456	3554	1585	3456	3899	1165	3456	3404	1585	1781	5611	1585
Grp Volume(v), veh/h	397	371	167	221	131	70	164	661	376	58	603	200
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1702	1661	1728	1702	1585	1781	1870	1585
Q Serve(g_s), s	8.7	7.6	7.7	4.8	2.8	3.0	3.6	9.9	12.8	2.5	5.2	6.2
Cycle Q Clear(g_c), s	8.7	7.6	7.7	4.8	2.8	3.0	3.6	9.9	12.8	2.5	5.2	6.2
Prop In Lane	1.00		1.00	1.00		0.70	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	483	573	255	314	383	187	231	1602	746	82	2524	713
V/C Ratio(X)	0.82	0.65	0.65	0.70	0.34	0.37	0.71	0.41	0.50	0.71	0.24	0.28
Avail Cap(c_a), veh/h	524	1598	713	524	1531	747	231	1602	746	149	2524	713
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.5	30.6	30.6	34.4	31.9	32.0	35.6	13.5	14.3	36.6	13.2	13.5
Incr Delay (d2), s/veh	9.6	1.2	2.8	2.9	0.5	1.2	9.7	0.8	2.4	10.7	0.2	1.0
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(50%),veh/ln	4.1	3.2	3.0	2.0	1.1	1.2	1.8	3.5	4.5	1.3	2.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.1	31.8	33.4	37.2	32.4	33.2	45.3	14.3	16.7	47.3	13.4	14.5
LnGrp LOS	D	C	C	D	C	C	D	B	B	D	B	B
Approach Vol, veh/h		935			422			1201			861	
Approach Delay, s/veh		36.5			35.1			19.3			15.9	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.1	41.1	11.6	17.0	9.7	39.5	15.4	13.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.5	33.7	11.8	35.0	5.2	35.0	11.8	35.0
Max Q Clear Time (g_c+I1), s	4.5	14.8	6.8	9.7	5.6	8.2	10.7	5.0
Green Ext Time (p_c), s	0.0	6.6	0.3	2.9	0.0	4.8	0.2	1.2

Intersection Summary	
HCM 6th Ctrl Delay	25.1
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Intersection	
Int Delay, s/veh	1.3

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	10	826	869	44	23	48
Future Vol, veh/h	10	826	869	44	23	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	100	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	860	905	46	24	50

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	951	0	-	0	1808	928
Stage 1	-	-	-	-	928	-
Stage 2	-	-	-	-	880	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	722	-	-	-	87	325
Stage 1	-	-	-	-	385	-
Stage 2	-	-	-	-	406	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	722	-	-	-	85	325
Mov Cap-2 Maneuver	-	-	-	-	85	-
Stage 1	-	-	-	-	375	-
Stage 2	-	-	-	-	406	-

Approach	SE	NW	SW
HCM Control Delay, s	0.1	0	32.7
HCM LOS			D

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1	SWLn2
Capacity (veh/h)	-	-	722	-	85	325
HCM Lane V/C Ratio	-	-	0.014	-	0.282	0.154
HCM Control Delay (s)	-	-	10.1	0	63.2	18.1
HCM Lane LOS	-	-	B	A	F	C
HCM 95th %tile Q(veh)	-	-	0	-	1	0.5

Lane Group	SEL	SET	NWL	NWT	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations										
Traffic Volume (vph)	76	0	1	0	43	1301	2	9	1113	140
Future Volume (vph)	76	0	1	0	43	1301	2	9	1113	140
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		8		2			6	
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	2	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	22.5	22.5	22.5	22.5	67.5	67.5	67.5	67.5	67.5	67.5
Total Split (%)	25.0%	25.0%	25.0%	25.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	Min	Min	Min	Min	Min	Min
Act Effct Green (s)		11.1		11.0	72.8	72.8	72.8	72.8	72.8	72.8
Actuated g/C Ratio		0.12		0.12	0.81	0.81	0.81	0.81	0.81	0.81
v/c Ratio		0.58		0.02	0.18	0.89	0.00	0.09	0.76	0.11
Control Delay		41.4		4.0	5.7	18.7	0.0	5.9	11.2	1.2
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		41.4		4.0	5.7	18.7	0.0	5.9	11.2	1.2
LOS		D		A	A	B	A	A	B	A
Approach Delay		41.4		4.0		18.3			10.1	
Approach LOS		D		A		B			B	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 89.7	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 15.4	Intersection LOS: B
Intersection Capacity Utilization 88.8%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 3: Riverside Dr & Joy St

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	76	0	32	1	0	4	43	1301	2	9	1113	140
Future Volume (veh/h)	76	0	32	1	0	4	43	1301	2	9	1113	140
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	78	0	33	1	0	4	44	1341	2	9	1147	144
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	181	4	42	72	20	126	283	1456	1234	189	1456	1234
Arrive On Green	0.10	0.00	0.10	0.10	0.00	0.10	0.78	0.78	0.78	0.78	0.78	0.78
Sat Flow, veh/h	994	38	437	125	204	1315	427	1870	1585	407	1870	1585
Grp Volume(v), veh/h	111	0	0	5	0	0	44	1341	2	9	1147	144
Grp Sat Flow(s),veh/h/ln	1469	0	0	1644	0	0	427	1870	1585	407	1870	1585
Q Serve(g_s), s	5.1	0.0	0.0	0.0	0.0	0.0	4.7	40.2	0.0	1.3	25.2	1.6
Cycle Q Clear(g_c), s	5.3	0.0	0.0	0.2	0.0	0.0	29.9	40.2	0.0	41.5	25.2	1.6
Prop In Lane	0.70		0.30	0.20		0.80	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	226	0	0	218	0	0	283	1456	1234	189	1456	1234
V/C Ratio(X)	0.49	0.00	0.00	0.02	0.00	0.00	0.16	0.92	0.00	0.05	0.79	0.12
Avail Cap(c_a), veh/h	453	0	0	457	0	0	326	1644	1393	230	1644	1393
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	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.7	0.0	0.0	29.4	0.0	0.0	13.1	6.2	1.8	22.4	4.5	1.9
Incr Delay (d2), s/veh	1.6	0.0	0.0	0.0	0.0	0.0	0.3	8.3	0.0	0.1	2.4	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(50%),veh/ln	1.9	0.0	0.0	0.1	0.0	0.0	0.4	8.4	0.0	0.1	4.1	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.3	0.0	0.0	29.4	0.0	0.0	13.3	14.5	1.8	22.5	6.9	2.0
LnGrp LOS	C	A	A	C	A	A	B	B	A	C	A	A
Approach Vol, veh/h		111			5			1387			1300	
Approach Delay, s/veh		33.3			29.4			14.5			6.5	
Approach LOS		C			C			B			A	

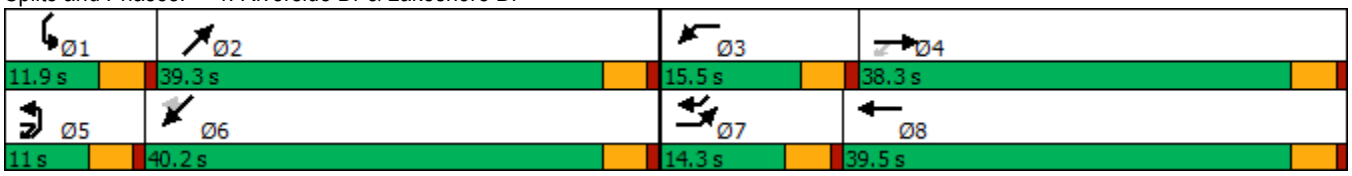
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		60.3		11.4		60.3		11.4				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		63.0		18.0		63.0		18.0				
Max Q Clear Time (g_c+I1), s		42.2		7.3		43.5		2.2				
Green Ext Time (p_c), s		13.6		0.3		10.2		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			11.5									
HCM 6th LOS			B									

Lane Group	EBL	EBT	EBR	WBL	WBT	NEL	NET	SWL	SWT	SWR
Lane Configurations										
Traffic Volume (vph)	316	296	205	322	355	198	775	71	643	432
Future Volume (vph)	316	296	205	322	355	198	775	71	643	432
Turn Type	Prot	NA	pm+ov	Prot	NA	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	5	2	1	6	7
Permitted Phases			4							6
Detector Phase	7	4	5	3	8	5	2	1	6	7
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	37.5	9.5	9.5	39.5	9.5	37.5	9.5	39.5	9.5
Total Split (s)	14.3	38.3	11.0	15.5	39.5	11.0	39.3	11.9	40.2	14.3
Total Split (%)	13.6%	36.5%	10.5%	14.8%	37.6%	10.5%	37.4%	11.3%	38.3%	13.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	Max	None
Act Effct Green (s)	9.8	12.4	23.4	11.0	13.6	6.5	37.3	7.1	35.7	50.0
Actuated g/C Ratio	0.12	0.15	0.28	0.13	0.16	0.08	0.45	0.08	0.43	0.60
v/c Ratio	0.81	0.58	0.43	0.74	0.51	0.77	0.52	0.49	0.42	0.28
Control Delay	53.9	37.8	19.4	46.4	31.4	58.5	16.9	48.6	16.3	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.9	37.8	19.4	46.4	31.4	58.5	16.9	48.6	16.3	2.7
LOS	D	D	B	D	C	E	B	D	B	A
Approach Delay		39.4			38.0		23.1		15.4	
Approach LOS		D			D		C		B	

Intersection Summary	
Cycle Length: 105	
Actuated Cycle Length: 83.7	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 26.9	Intersection LOS: C
Intersection Capacity Utilization 59.4%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 4: Riverside Dr & Lakeshore Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	316	296	205	322	355	62	198	775	351	71	643	432
Future Volume (veh/h)	316	296	205	322	355	62	198	775	351	71	643	432
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	326	305	211	332	366	64	204	799	362	73	610	480
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	400	600	390	411	756	129	266	1538	692	94	1580	1706
Arrive On Green	0.12	0.17	0.17	0.12	0.17	0.17	0.08	0.45	0.45	0.05	0.42	0.42
Sat Flow, veh/h	3456	3554	1585	3456	4393	747	3456	3444	1551	1781	3741	3170
Grp Volume(v), veh/h	326	305	211	332	281	149	204	790	371	73	610	480
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1702	1736	1728	1702	1591	1781	1870	1585
Q Serve(g_s), s	7.8	6.6	9.8	7.9	6.3	6.6	4.9	14.1	14.2	3.4	9.5	7.0
Cycle Q Clear(g_c), s	7.8	6.6	9.8	7.9	6.3	6.6	4.9	14.1	14.2	3.4	9.5	7.0
Prop In Lane	1.00		1.00	1.00		0.43	1.00		0.97	1.00		1.00
Lane Grp Cap(c), veh/h	400	600	390	411	586	299	266	1520	710	94	1580	1706
V/C Ratio(X)	0.82	0.51	0.54	0.81	0.48	0.50	0.77	0.52	0.52	0.78	0.39	0.28
Avail Cap(c_a), veh/h	401	1421	756	450	1409	719	266	1520	710	156	1580	1706
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.5	31.9	27.7	36.3	31.6	31.7	38.3	16.9	16.9	39.5	16.9	10.6
Incr Delay (d2), s/veh	12.2	0.7	1.2	9.8	0.6	1.3	12.7	1.3	2.7	12.7	0.7	0.4
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(50%),veh/ln	3.8	2.7	3.6	3.7	2.5	2.7	2.5	5.2	5.2	1.8	3.9	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.7	32.6	28.9	46.1	32.2	33.0	51.0	18.1	19.6	52.3	17.6	11.0
LnGrp LOS	D	C	C	D	C	C	D	B	B	D	B	B
Approach Vol, veh/h		842			762			1365			1163	
Approach Delay, s/veh		37.9			38.4			23.5			17.1	
Approach LOS		D			D			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.0	42.2	14.6	18.8	11.0	40.2	14.3	19.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	7.4	34.8	11.0	33.8	6.5	35.7	9.8	35.0
Max Q Clear Time (g_c+I1), s	5.4	16.2	9.9	11.8	6.9	11.5	9.8	8.6
Green Ext Time (p_c), s	0.0	7.4	0.1	2.5	0.0	6.3	0.0	2.6

Intersection Summary	
HCM 6th Ctrl Delay	27.4
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

APPENDIX D

SIGNAL WARRANT ANALYSIS WORKSHEETS

EXISTING CONDITIONS

EXISTING CONDITIONS PEAK HOUR VOLUME WARRANT
URBAN CONDITIONS

Peak Hour: **AM**

Major Street: **Lakeshore Drive**

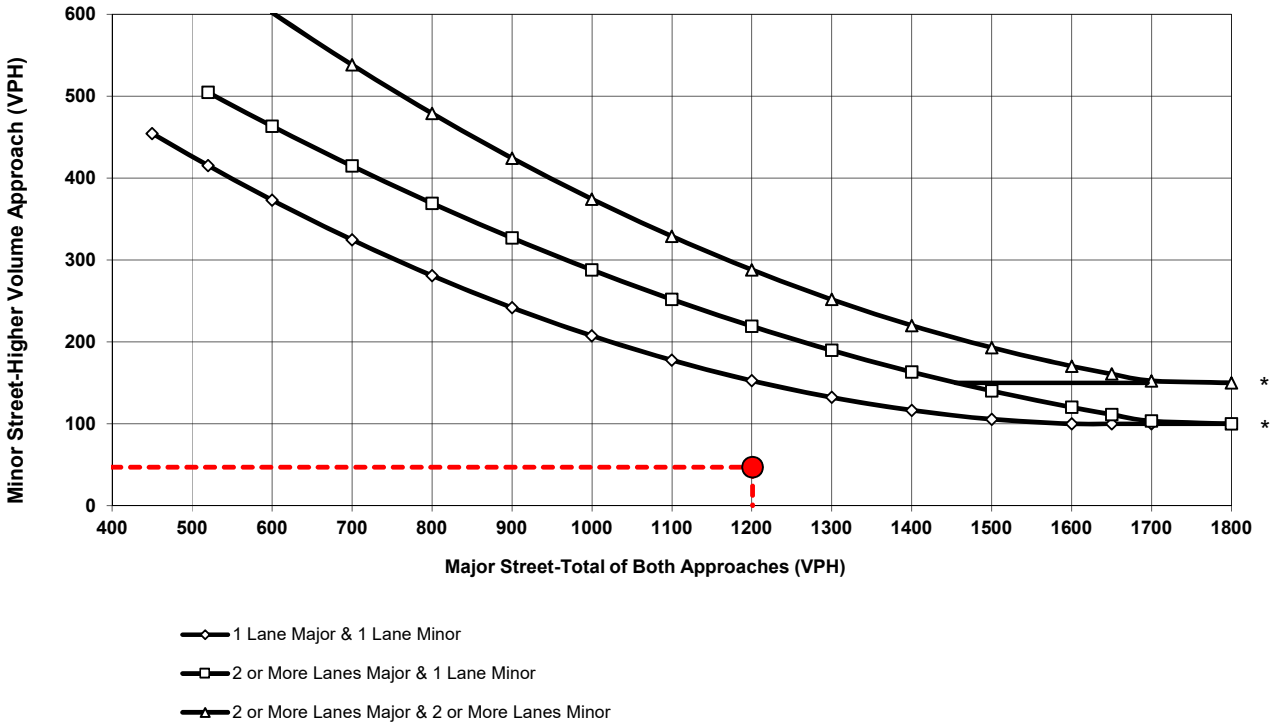
Minor Street: **Gunnerson Street**

Total of Both Approaches (VPH): **1201**
Number of Approach Lanes: **1**

Higher Volume Approach (VPH): **47**
Number of Approach Lanes: **1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-3. Peak Hour Warrant (Urban)



* Note:
150 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2 and 3 (Mar 9, 2018)

Existing Conditions
AM Peak Hour Volume Warrant
Gunnerson Street/Lakeshore Drive

EXISTING CONDITIONS PEAK HOUR VOLUME WARRANT
URBAN CONDITIONS

Peak Hour: **PM**

Major Street: **Lakeshore Drive**

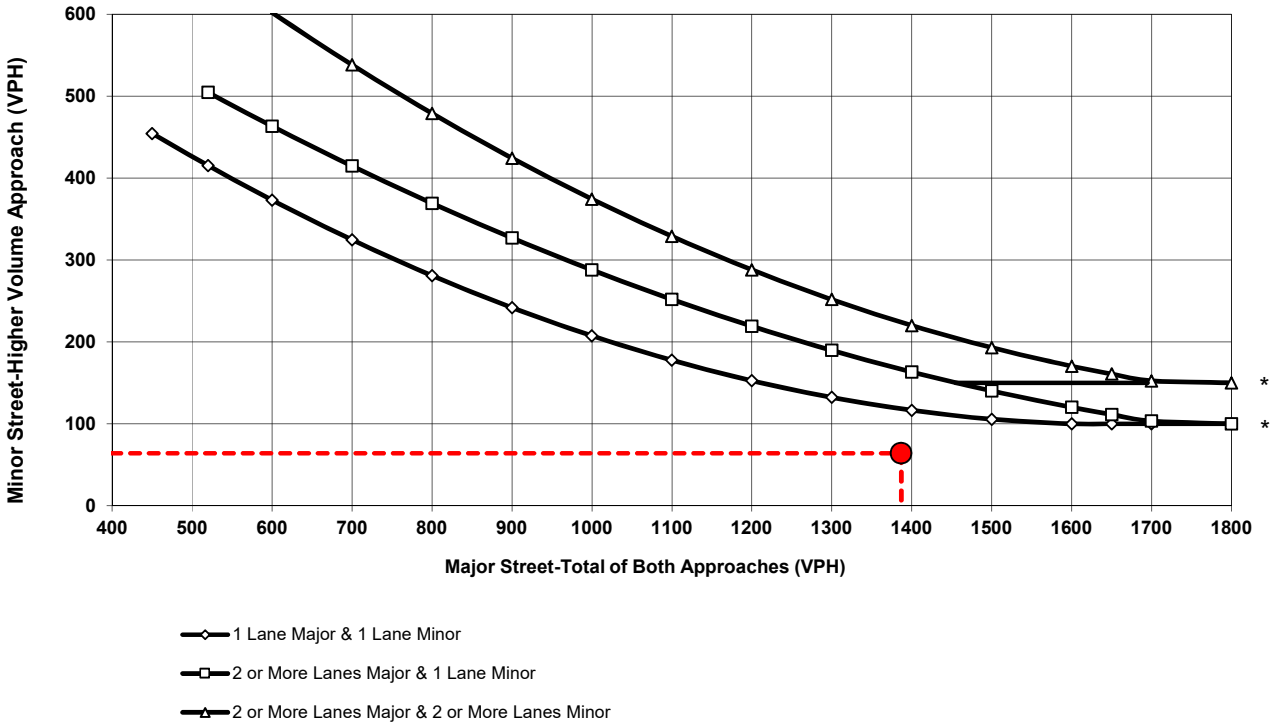
Minor Street: **Gunnerson Street**

Total of Both Approaches (VPH): **1387**
Number of Approach Lanes: **1**

Higher Volume Approach (VPH): **64**
Number of Approach Lanes: **1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-3. Peak Hour Warrant (Urban)



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Source: MUTCD 2014 California Supplement Including Revisions 1, 2 and 3 (Mar 9, 2018)

Existing Conditions
PM Peak Hour Volume Warrant
Gunnerson Street/Lakeshore Drive

EXISTING CONDITIONS PEAK HOUR VOLUME WARRANT
URBAN CONDITIONS

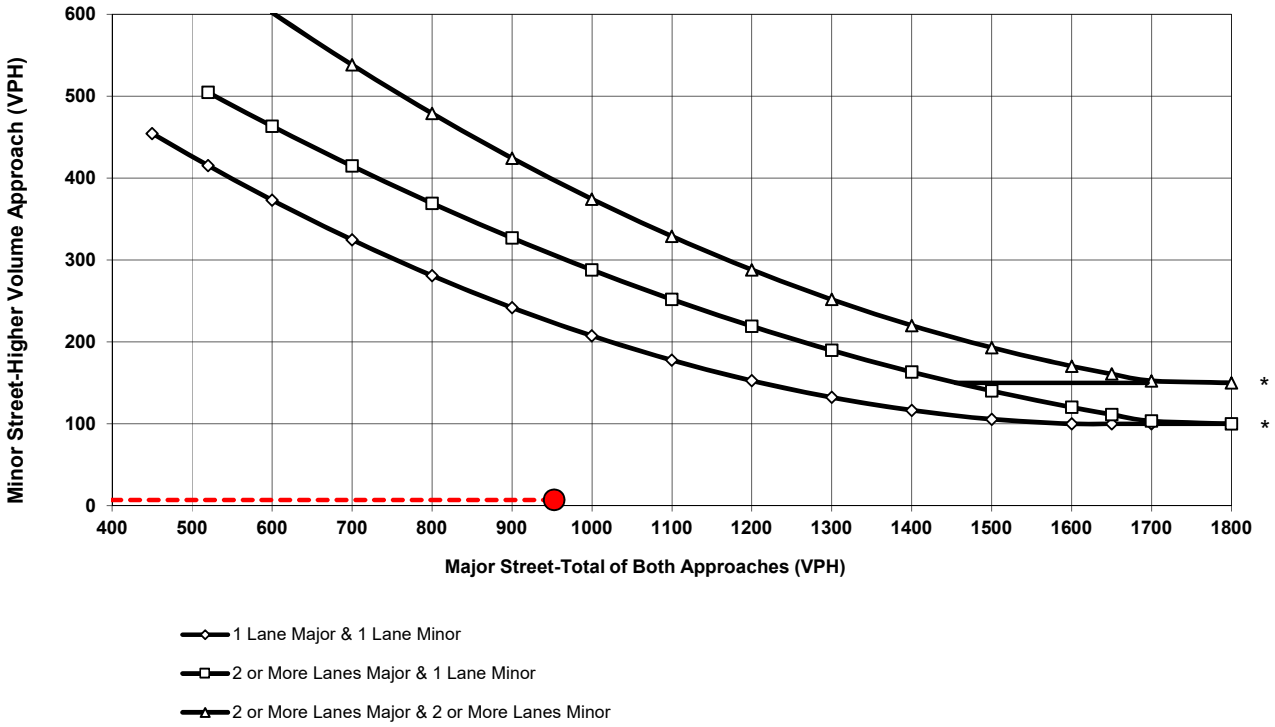
Peak Hour: **AM**

Major Street: **Lakeshore Drive** **Minor Street:** **Manning Street**

Total of Both Approaches (VPH): **953** Higher Volume Approach (VPH): **7**
Number of Approach Lanes: **1** Number of Approach Lanes: **1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-3. Peak Hour Warrant (Urban)



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Source: MUTCD 2014 California Supplement Including Revisions 1, 2 and 3 (Mar 9, 2018)

Existing Conditions
AM Peak Hour Volume Warrant
Manning Street/Lakeshore Drive

EXISTING CONDITIONS PEAK HOUR VOLUME WARRANT
URBAN CONDITIONS

Peak Hour: PM

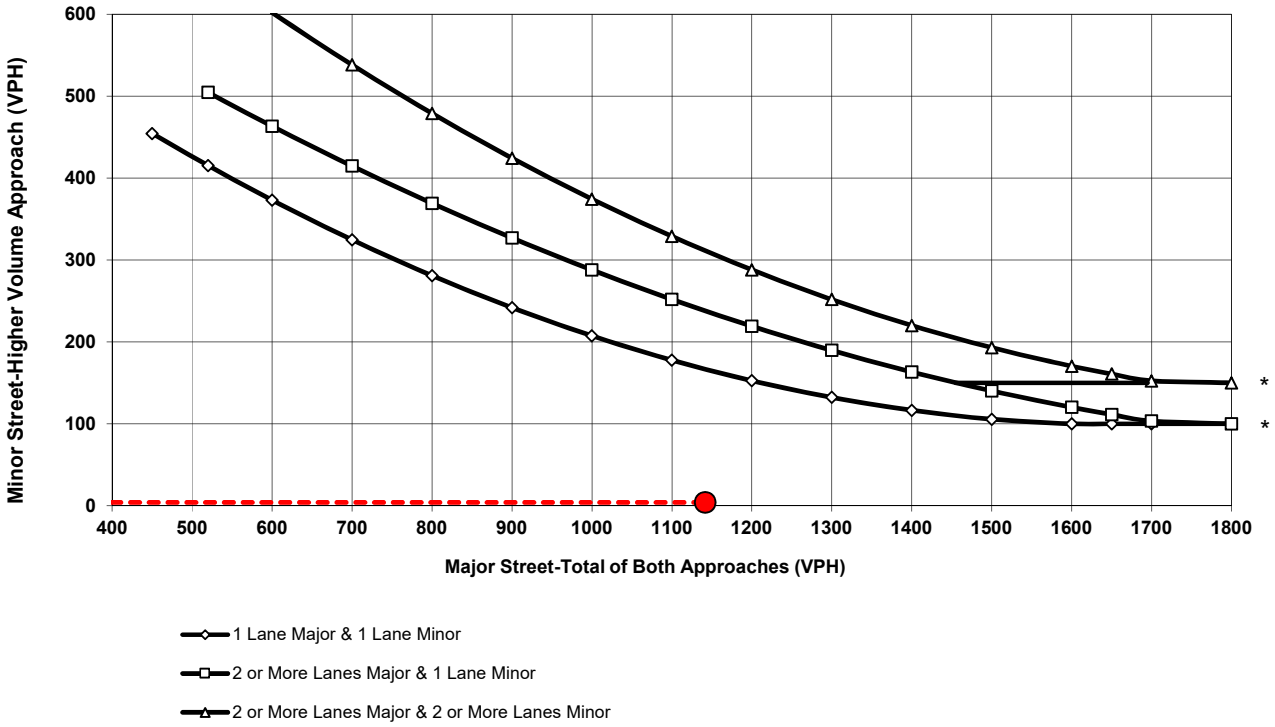
Major Street: Lakeshore Drive

Minor Street: Manning Street

Total of Both Approaches (VPH):	1142	Higher Volume Approach (VPH):	4
Number of Approach Lanes:	1	Number of Approach Lanes:	1

SIGNAL WARRANT NOT SATISFIED

Figure 4C-3. Peak Hour Warrant (Urban)



* Note:
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Source: MUTCD 2014 California Supplement Including Revisions 1, 2 and 3 (Mar 9, 2018)

Existing Conditions
PM Peak Hour Volume Warrant
Manning Street/Lakeshore Drive

EXISTING CONDITIONS PEAK HOUR VOLUME WARRANT
URBAN CONDITIONS

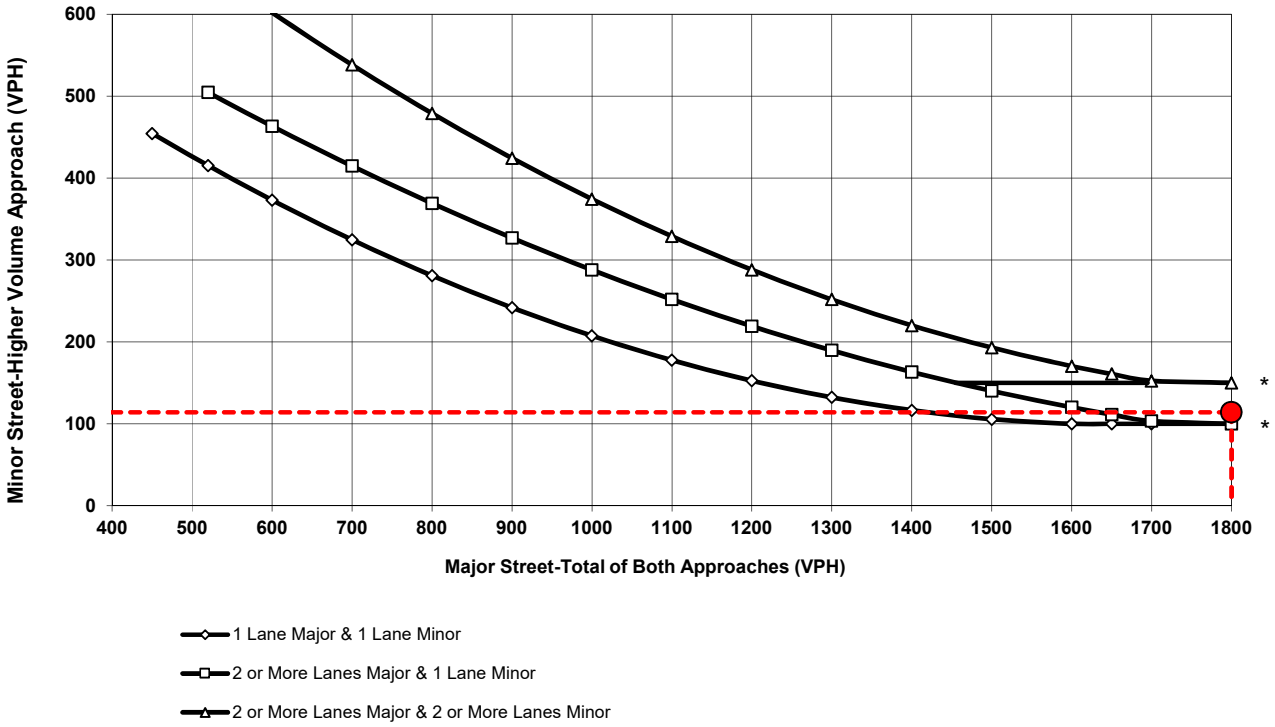
Peak Hour: **AM**

Major Street: **Riverside Drive** **Minor Street:** **Joy Street**

Total of Both Approaches (VPH):	**1860**	Higher Volume Approach (VPH):	**114**
Number of Approach Lanes:	**1**	Number of Approach Lanes:	**1**

SIGNAL WARRANT SATISFIED

Figure 4C-3. Peak Hour Warrant (Urban)



* Note:
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Source: MUTCD 2014 California Supplement Including Revisions 1, 2 and 3 (Mar 9, 2018)

Existing Conditions
AM Peak Hour Volume Warrant
Riverside Drive/Joy Street

EXISTING CONDITIONS PEAK HOUR VOLUME WARRANT
URBAN CONDITIONS

Peak Hour: PM

Major Street: Riverside Drive

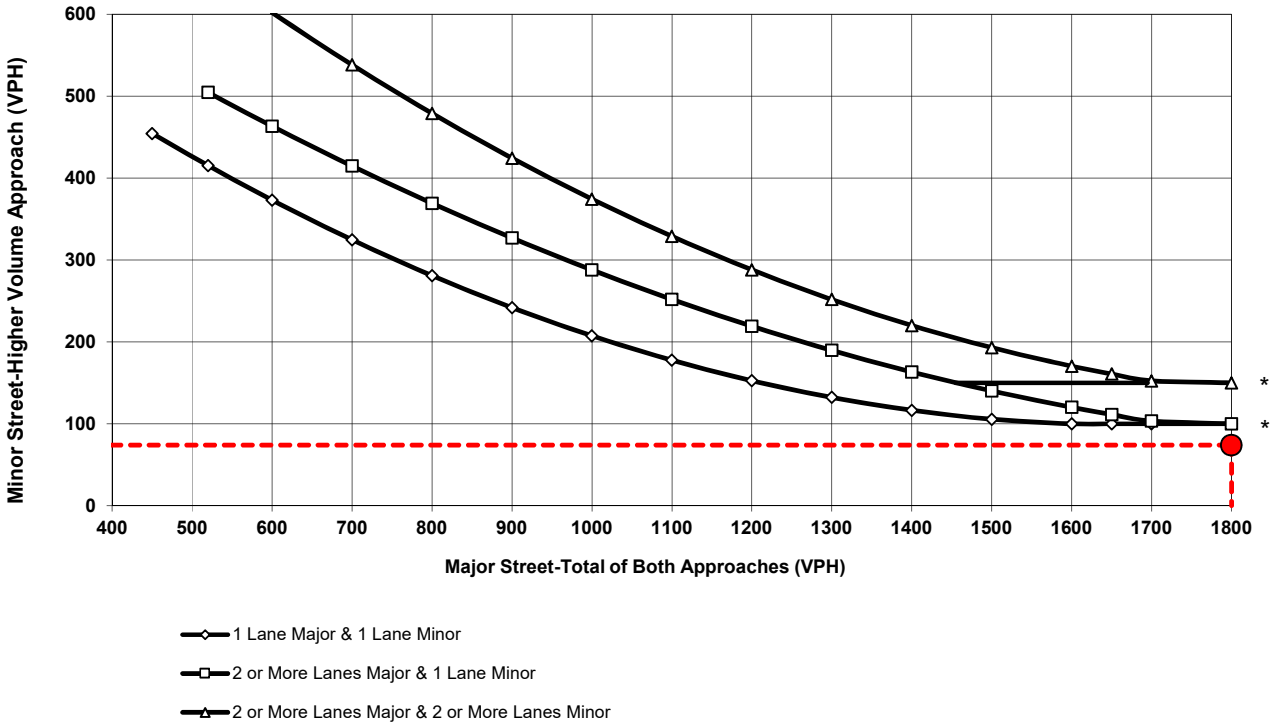
Minor Street: Joy Street

Total of Both Approaches (VPH): 2233
Number of Approach Lanes: 1

Higher Volume Approach (VPH): 74
Number of Approach Lanes: 1

SIGNAL WARRANT NOT SATISFIED

Figure 4C-3. Peak Hour Warrant (Urban)



* Note:
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Source: MUTCD 2014 California Supplement Including Revisions 1, 2 and 3 (Mar 9, 2018)

Existing Conditions
PM Peak Hour Volume Warrant
Riverside Drive/Joy Street

EP CONDITIONS

EP CONDITIONS PEAK HOUR VOLUME WARRANT
URBAN CONDITIONS

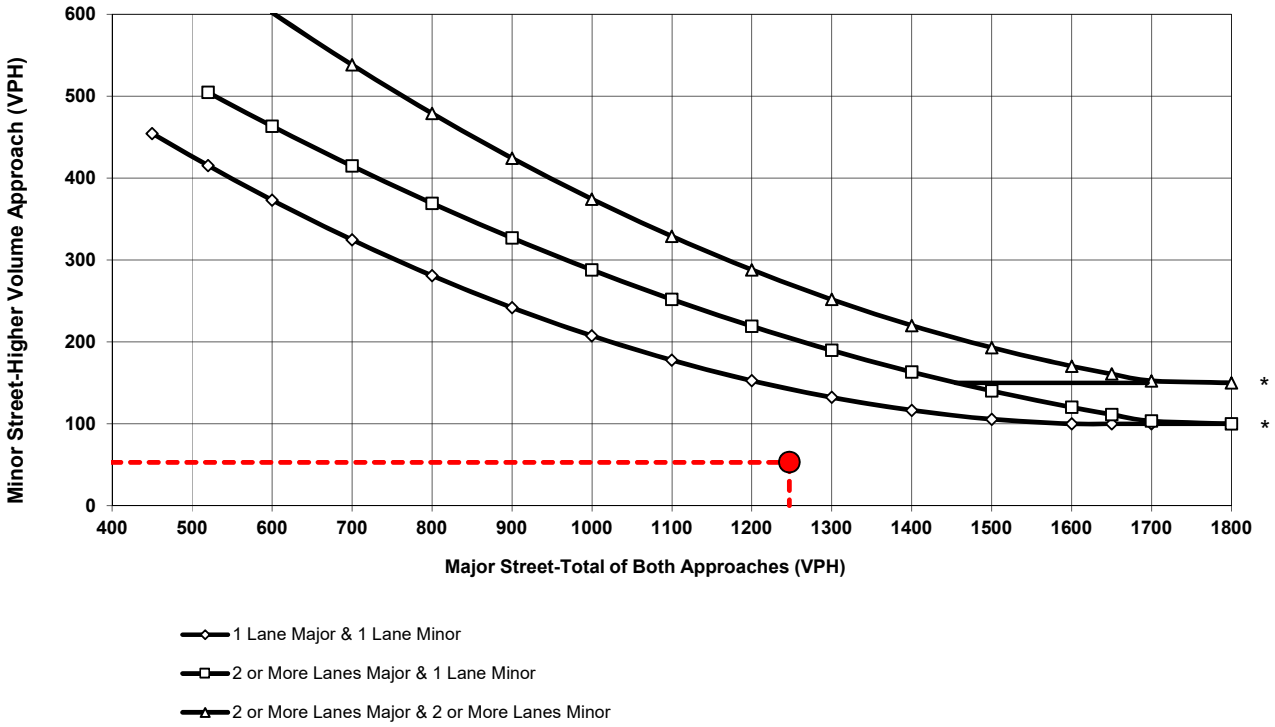
Peak Hour: **AM**

Major Street: **Lakeshore Drive** **Minor Street:** **Gunnerson Street**

Total of Both Approaches (VPH): **1247** Higher Volume Approach (VPH): **53**
Number of Approach Lanes: **1** Number of Approach Lanes: **1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-3. Peak Hour Warrant (Urban)



* Note:
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Source: MUTCD 2014 California Supplement Including Revisions 1, 2 and 3 (Mar 9, 2018)

EP Conditions
AM Peak Hour Volume Warrant
Gunnerson Street/Lakeshore Drive

EP CONDITIONS PEAK HOUR VOLUME WARRANT
URBAN CONDITIONS

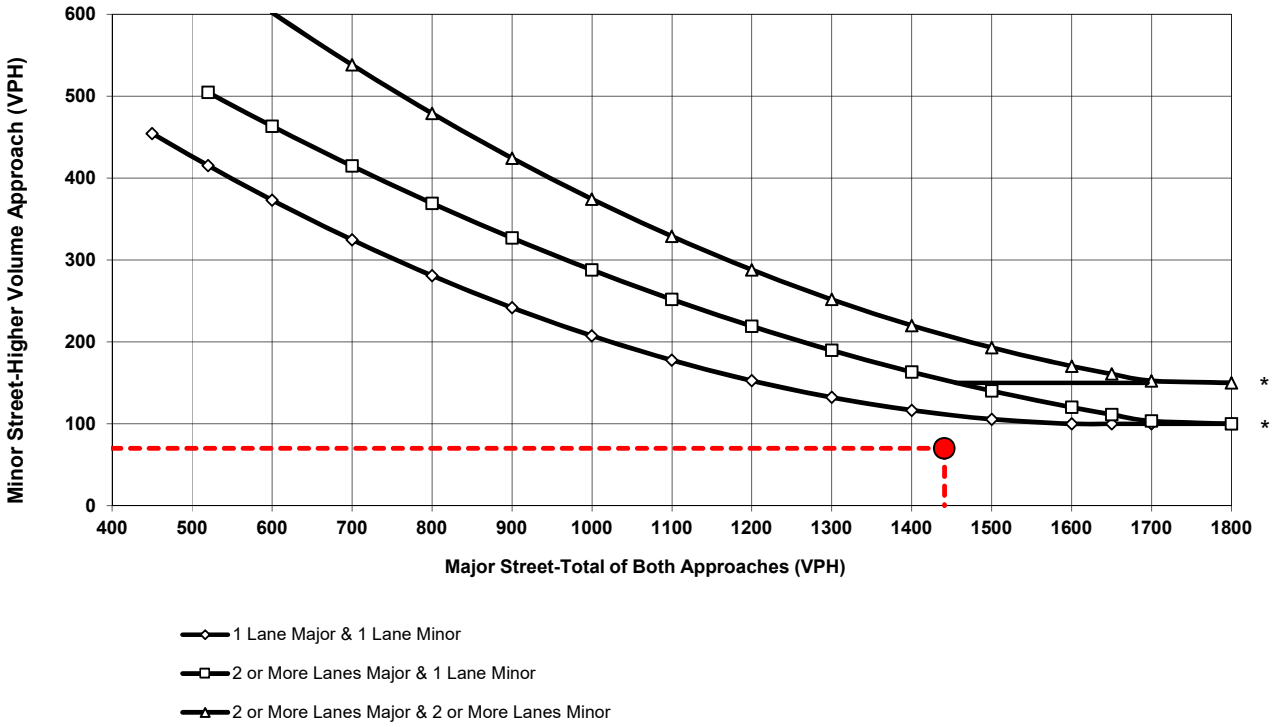
Peak Hour: **PM**

Major Street: **Lakeshore Drive** **Minor Street:** **Gunnerson Street**

Total of Both Approaches (VPH):	**1441**	Higher Volume Approach (VPH):	**70**
Number of Approach Lanes:	**1**	Number of Approach Lanes:	**1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-3. Peak Hour Warrant (Urban)



* Note:
150 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2 and 3 (Mar 9, 2018)

EP Conditions
PM Peak Hour Volume Warrant
Gunnerson Street/Lakeshore Drive

EP CONDITIONS PEAK HOUR VOLUME WARRANT
URBAN CONDITIONS

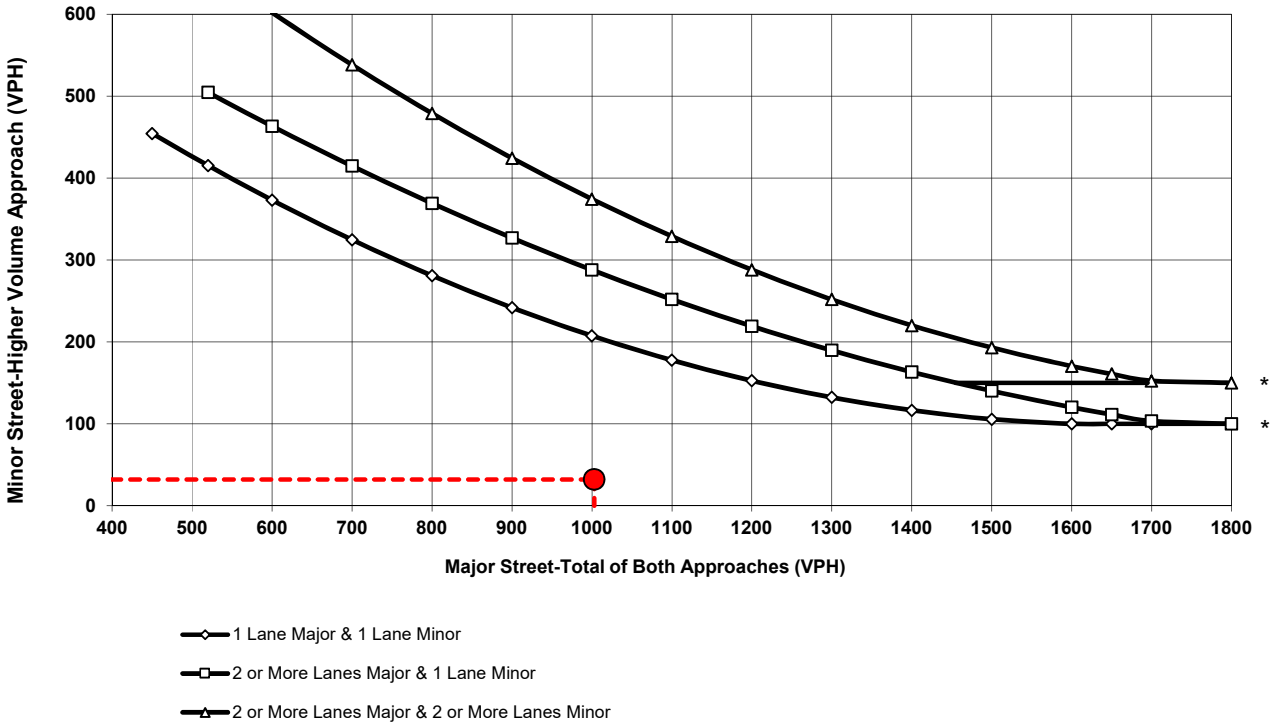
Peak Hour: **AM**

Major Street: **Lakeshore Drive** **Minor Street:** **Manning Street**

Total of Both Approaches (VPH):	**1003**	Higher Volume Approach (VPH):	**32**
Number of Approach Lanes:	**1**	Number of Approach Lanes:	**1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-3. Peak Hour Warrant (Urban)



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150 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2 and 3 (Mar 9, 2018)

EP Conditions
AM Peak Hour Volume Warrant
Manning Street/Lakeshore Drive

EP CONDITIONS PEAK HOUR VOLUME WARRANT
URBAN CONDITIONS

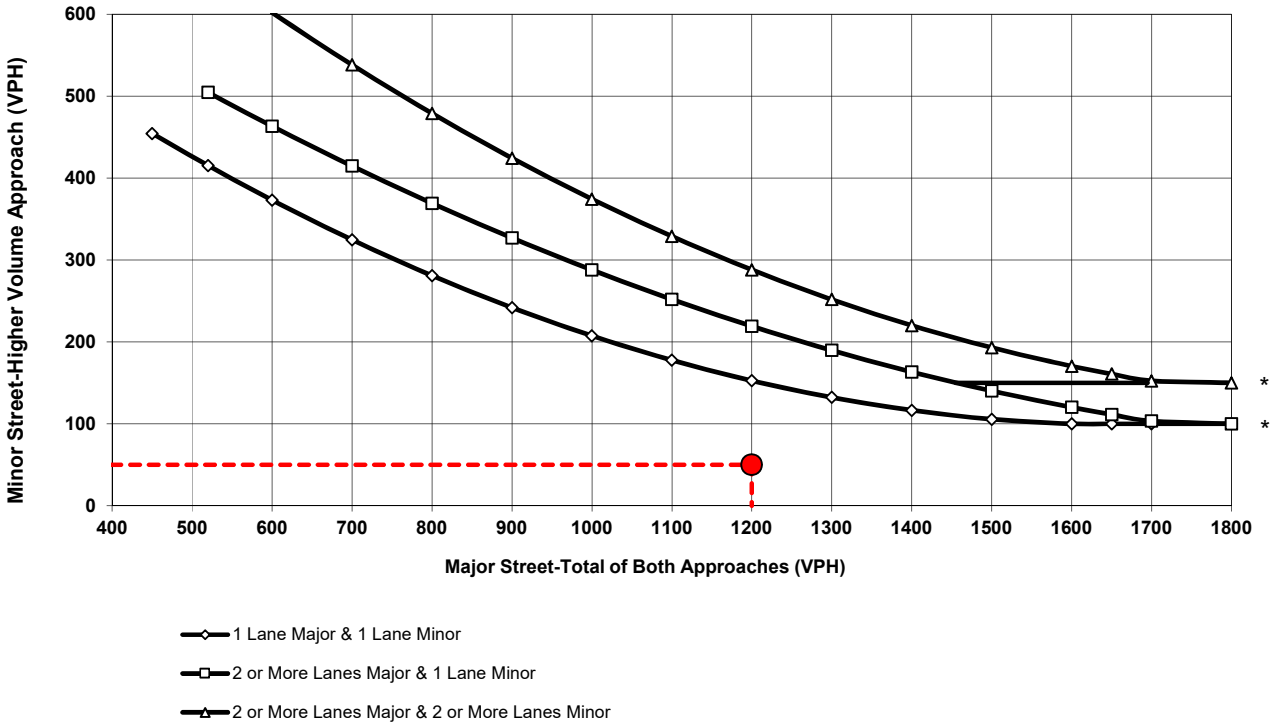
Peak Hour: **PM**

Major Street: **Lakeshore Drive** **Minor Street:** **Manning Street**

Total of Both Approaches (VPH): **1200** Higher Volume Approach (VPH): **50**
Number of Approach Lanes: **1** Number of Approach Lanes: **1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-3. Peak Hour Warrant (Urban)



* Note:
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Source: MUTCD 2014 California Supplement Including Revisions 1, 2 and 3 (Mar 9, 2018)

EP Conditions
PM Peak Hour Volume Warrant
Manning Street/Lakeshore Drive

EP CONDITIONS PEAK HOUR VOLUME WARRANT
URBAN CONDITIONS

Peak Hour: AM

Major Street: Riverside Drive

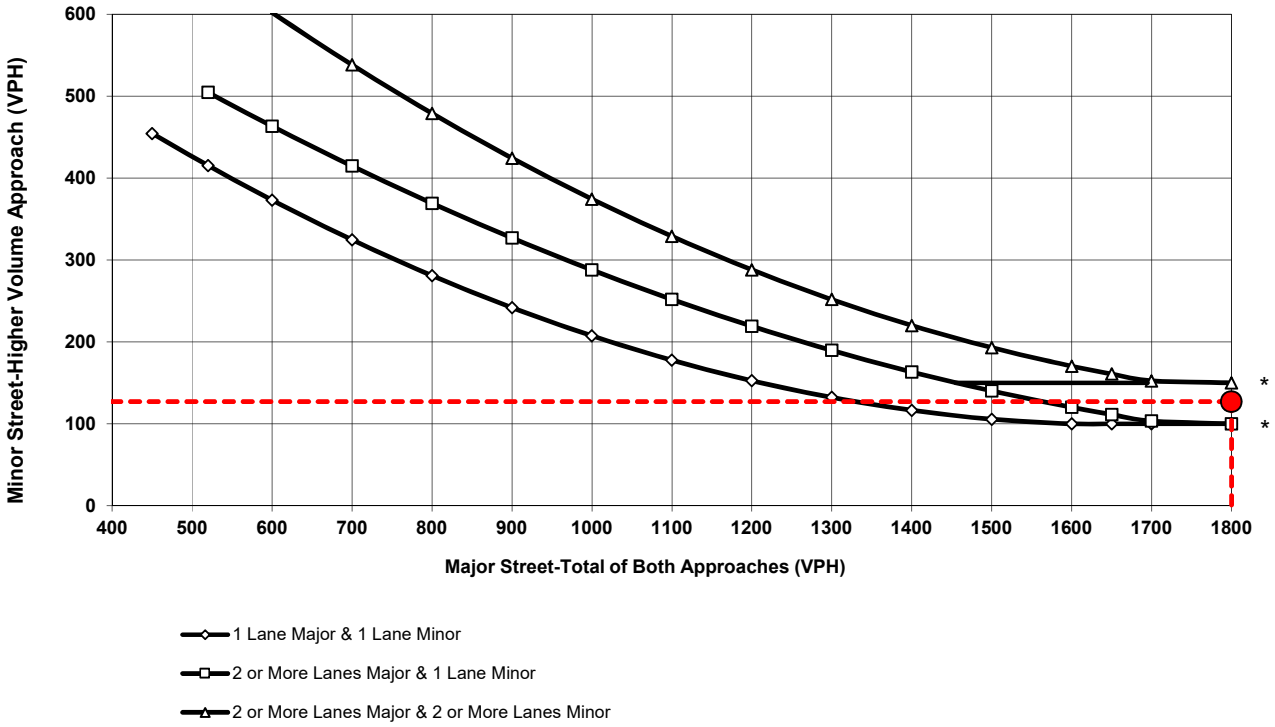
Minor Street: Joy Street

Total of Both Approaches (VPH): 1900
Number of Approach Lanes: 1

Higher Volume Approach (VPH): 127
Number of Approach Lanes: 1

SIGNAL WARRANT SATISFIED

Figure 4C-3. Peak Hour Warrant (Urban)



* Note:
150 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2 and 3 (Mar 9, 2018)

EP Conditions
AM Peak Hour Volume Warrant
Riverside Drive/Joy Street

EP CONDITIONS PEAK HOUR VOLUME WARRANT
URBAN CONDITIONS

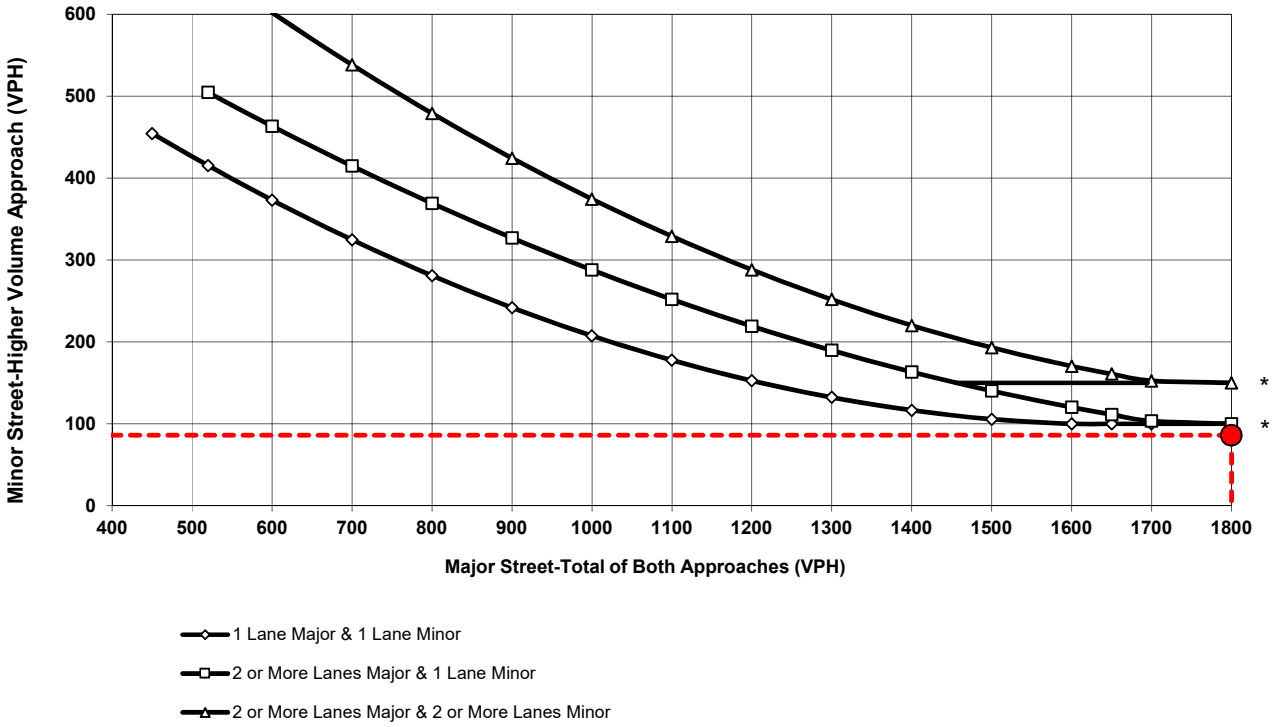
Peak Hour: **PM**

Major Street: **Riverside Drive** **Minor Street:** **Joy Street**

Total of Both Approaches (VPH): **2281** Higher Volume Approach (VPH): **86**
Number of Approach Lanes: **1** Number of Approach Lanes: **1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-3. Peak Hour Warrant (Urban)



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Source: MUTCD 2014 California Supplement Including Revisions 1, 2 and 3 (Mar 9, 2018)

EP Conditions
PM Peak Hour Volume Warrant
Riverside Drive/Joy Street

EAP CONDITIONS

EAP CONDITIONS PEAK HOUR VOLUME WARRANT
URBAN CONDITIONS

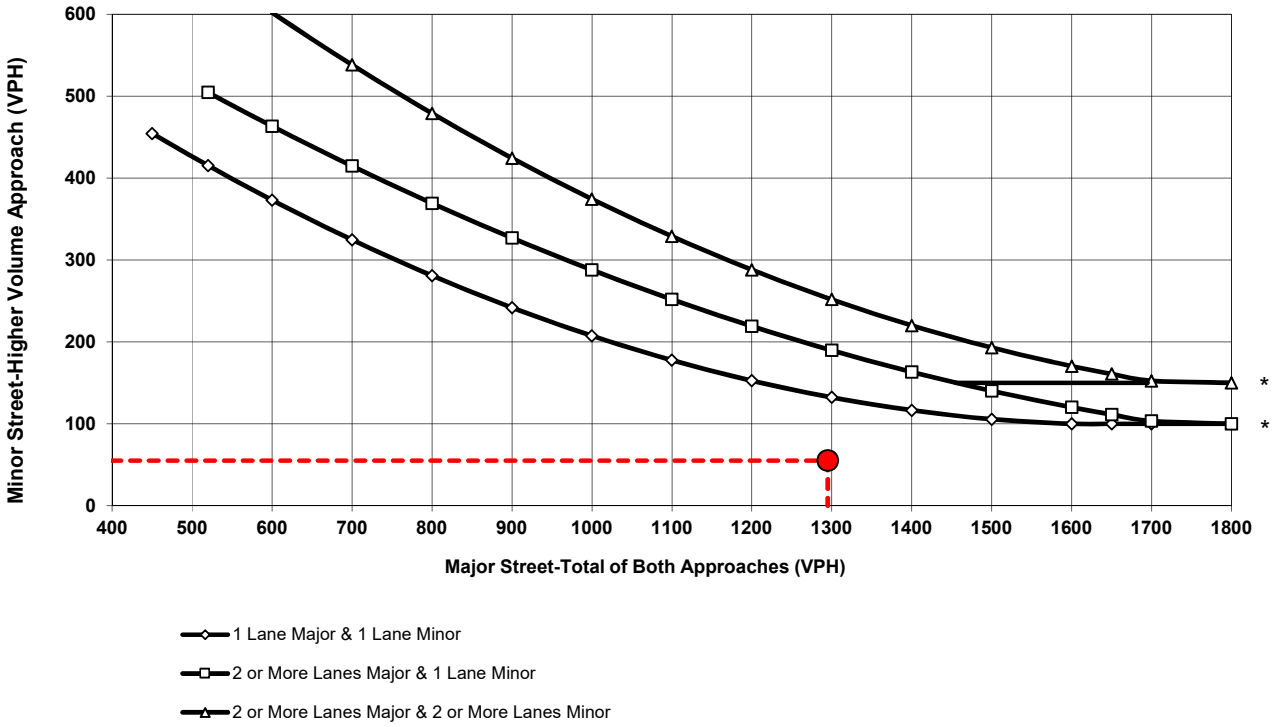
Peak Hour: **AM**

Major Street: **Lakeshore Drive** **Minor Street:** **Gunnerson Street**

Total of Both Approaches (VPH): **1295** Higher Volume Approach (VPH): **55**
Number of Approach Lanes: **1** Number of Approach Lanes: **1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-3. Peak Hour Warrant (Urban)



* Note:
150 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2 and 3 (Mar 9, 2018)

EAP Conditions
AM Peak Hour Volume Warrant
Gunnerson Street/Lakeshore Drive

EAP CONDITIONS PEAK HOUR VOLUME WARRANT
URBAN CONDITIONS

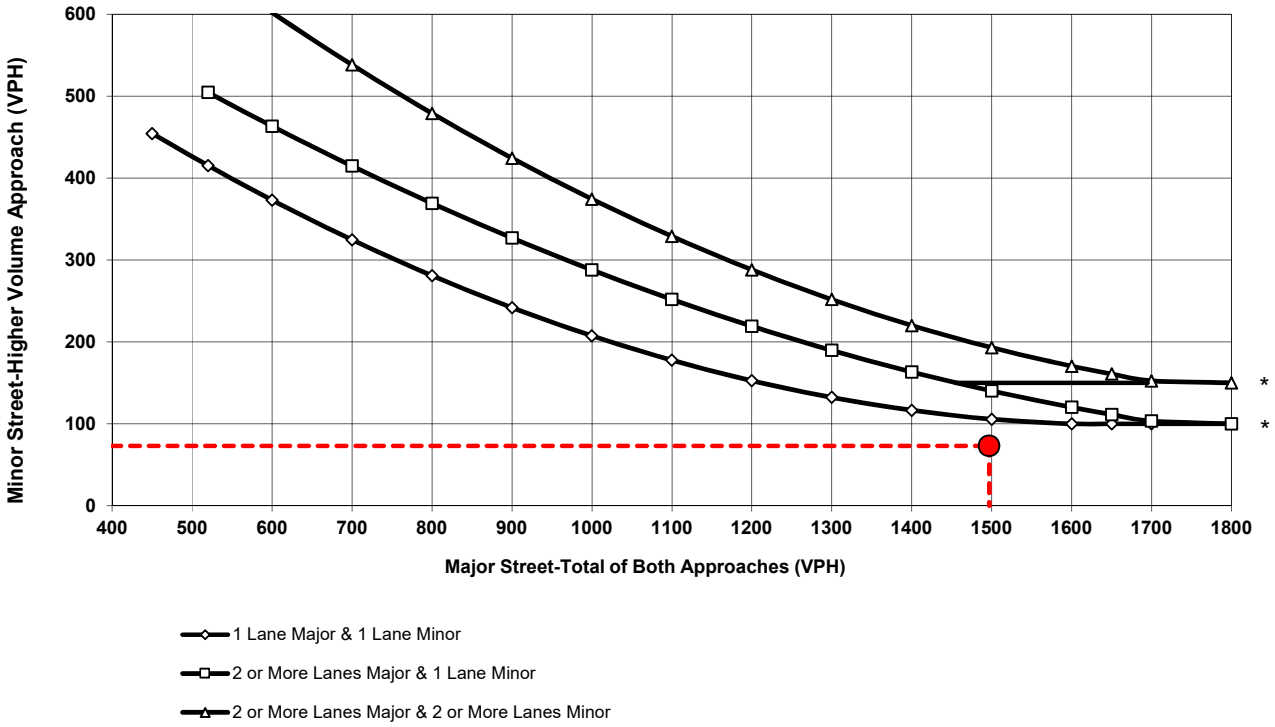
Peak Hour: **PM**

Major Street: **Lakeshore Drive** **Minor Street:** **Gunnerson Street**

Total of Both Approaches (VPH):	**1497**	Higher Volume Approach (VPH):	**73**
Number of Approach Lanes:	**1**	Number of Approach Lanes:	**1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-3. Peak Hour Warrant (Urban)



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Source: MUTCD 2014 California Supplement Including Revisions 1, 2 and 3 (Mar 9, 2018)

EAP Conditions
PM Peak Hour Volume Warrant
Gunnerson Street/Lakeshore Drive

EAP CONDITIONS PEAK HOUR VOLUME WARRANT
URBAN CONDITIONS

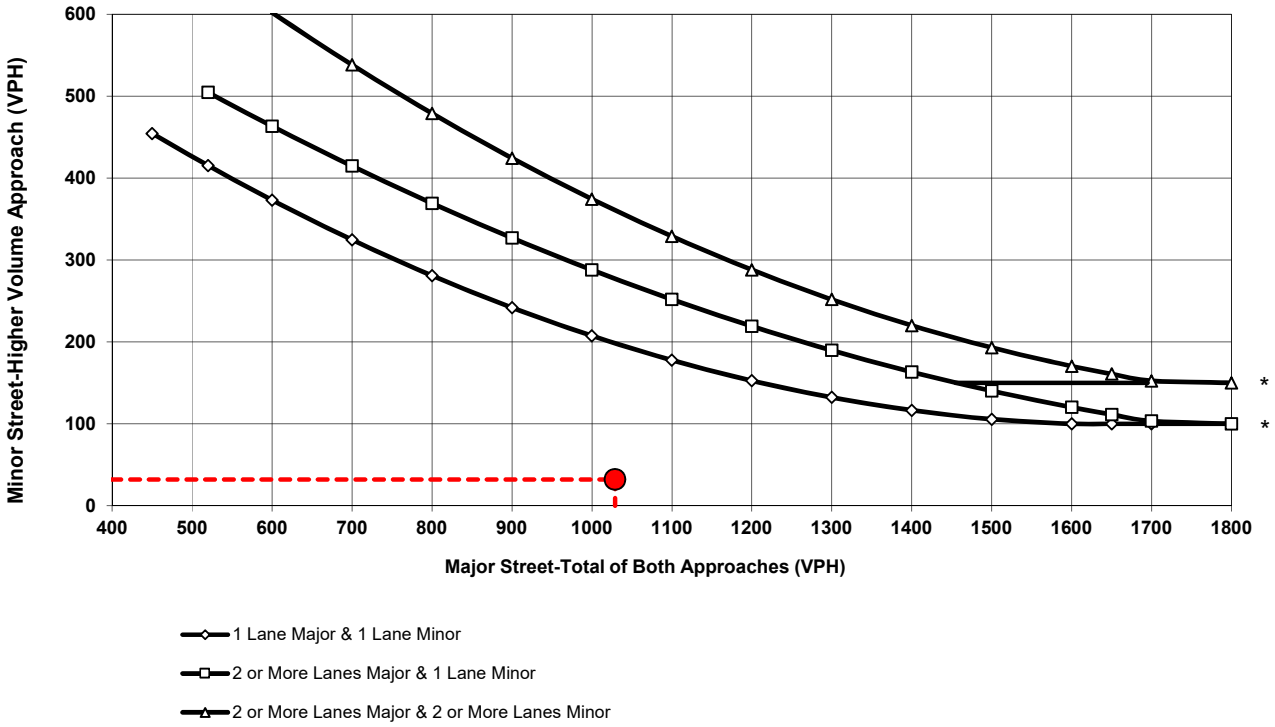
Peak Hour: **AM**

Major Street: **Lakeshore Drive** **Minor Street:** **Manning Street**

Total of Both Approaches (VPH): **1029** Higher Volume Approach (VPH): **32**
Number of Approach Lanes: **1** Number of Approach Lanes: **1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-3. Peak Hour Warrant (Urban)



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Source: MUTCD 2014 California Supplement Including Revisions 1, 2 and 3 (Mar 9, 2018)

EAP Conditions
AM Peak Hour Volume Warrant
Manning Street/Lakeshore Drive

EAP CONDITIONS PEAK HOUR VOLUME WARRANT
URBAN CONDITIONS

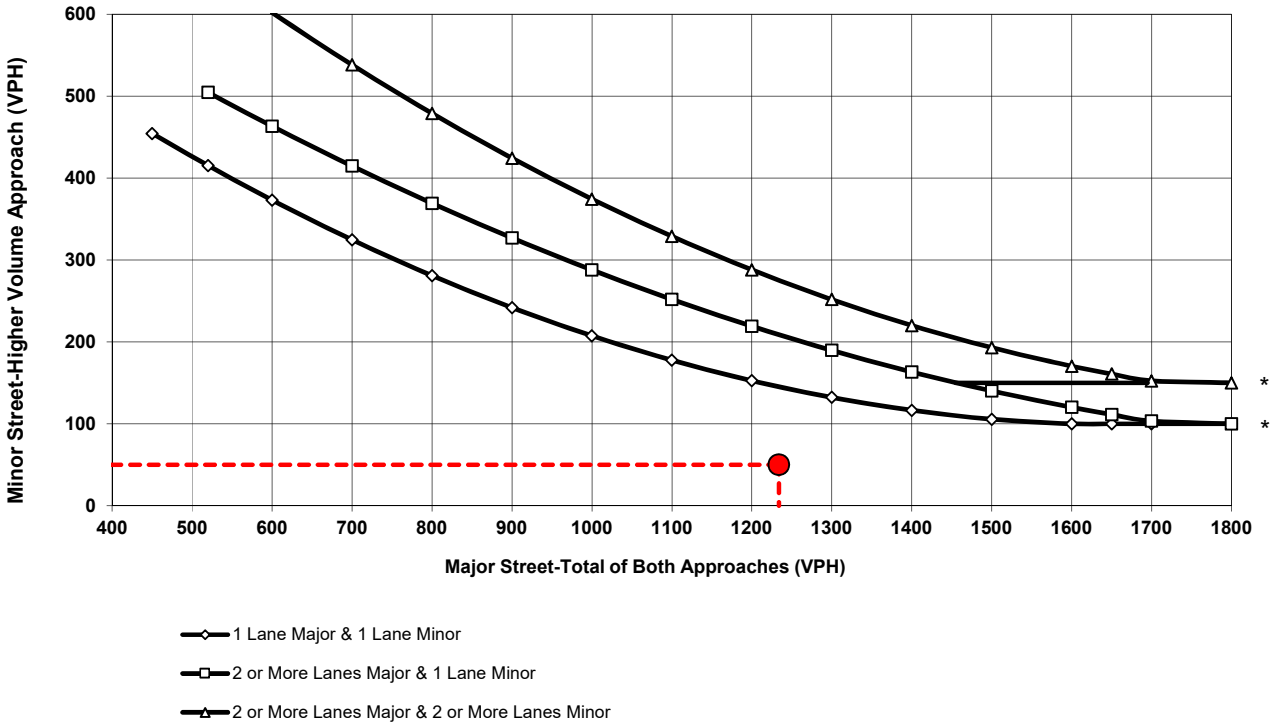
Peak Hour: **PM**

Major Street: **Lakeshore Drive** **Minor Street:** **Manning Street**

Total of Both Approaches (VPH): **1234** Higher Volume Approach (VPH): **50**
Number of Approach Lanes: **1** Number of Approach Lanes: **1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-3. Peak Hour Warrant (Urban)



* Note:
150 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2 and 3 (Mar 9, 2018)

EAP Conditions
PM Peak Hour Volume Warrant
Manning Street/Lakeshore Drive

EAP CONDITIONS PEAK HOUR VOLUME WARRANT
URBAN CONDITIONS

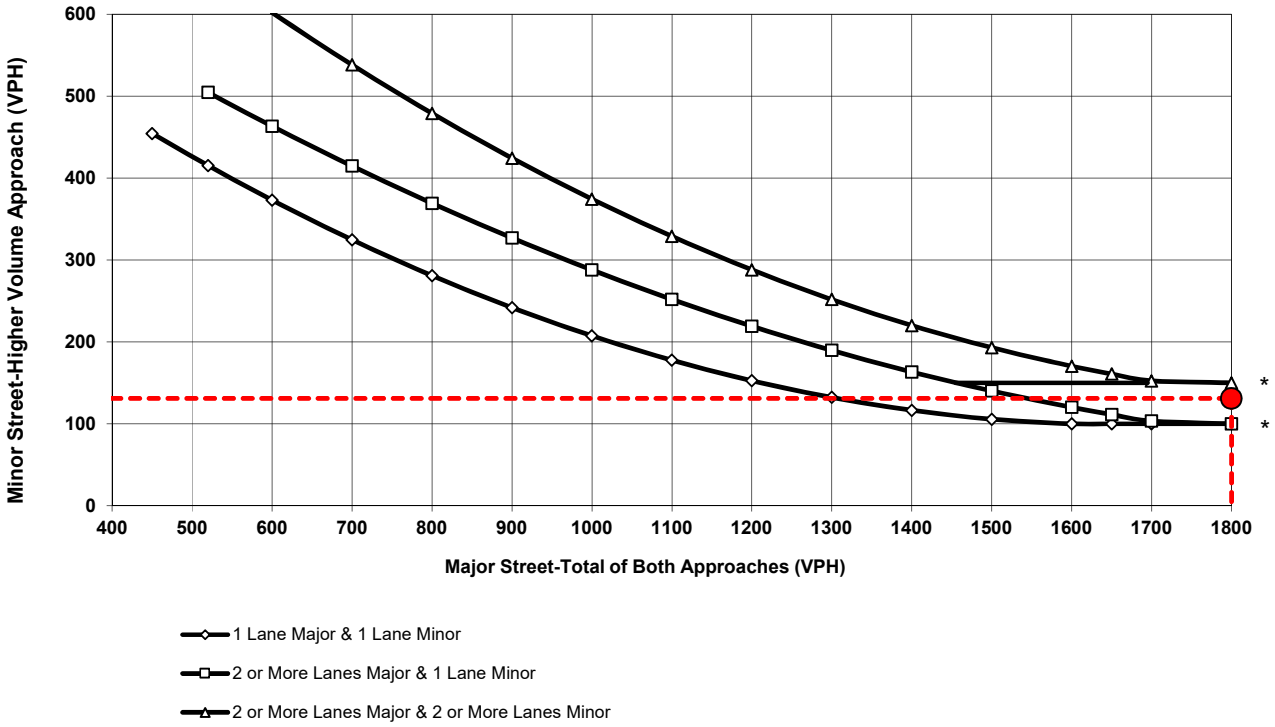
Peak Hour: **AM**

Major Street: **Riverside Drive** **Minor Street:** **Joy Street**

Total of Both Approaches (VPH):	**1974**	Higher Volume Approach (VPH):	**131**
Number of Approach Lanes:	**1**	Number of Approach Lanes:	**1**

SIGNAL WARRANT SATISFIED

Figure 4C-3. Peak Hour Warrant (Urban)



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Source: MUTCD 2014 California Supplement Including Revisions 1, 2 and 3 (Mar 9, 2018)

EAP Conditions
AM Peak Hour Volume Warrant
Riverside Drive/Joy Street

EAP CONDITIONS PEAK HOUR VOLUME WARRANT
URBAN CONDITIONS

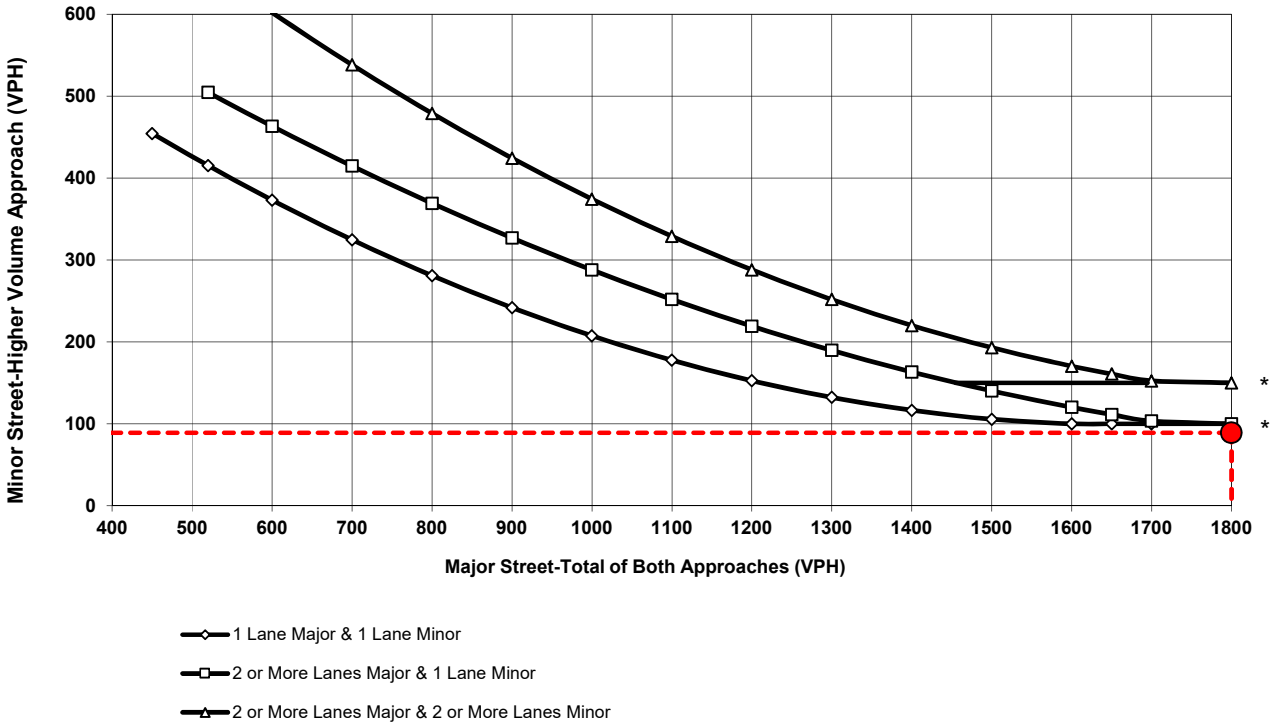
Peak Hour: **PM**

Major Street: **Riverside Drive** **Minor Street:** **Joy Street**

Total of Both Approaches (VPH):	**2371**	Higher Volume Approach (VPH):	**89**
Number of Approach Lanes:	**1**	Number of Approach Lanes:	**1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-3. Peak Hour Warrant (Urban)



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Source: MUTCD 2014 California Supplement Including Revisions 1, 2 and 3 (Mar 9, 2018)

EAP Conditions
PM Peak Hour Volume Warrant
Riverside Drive/Joy Street

EAPC CONDITIONS

EAPC CONDITIONS PEAK HOUR VOLUME WARRANT
URBAN CONDITIONS

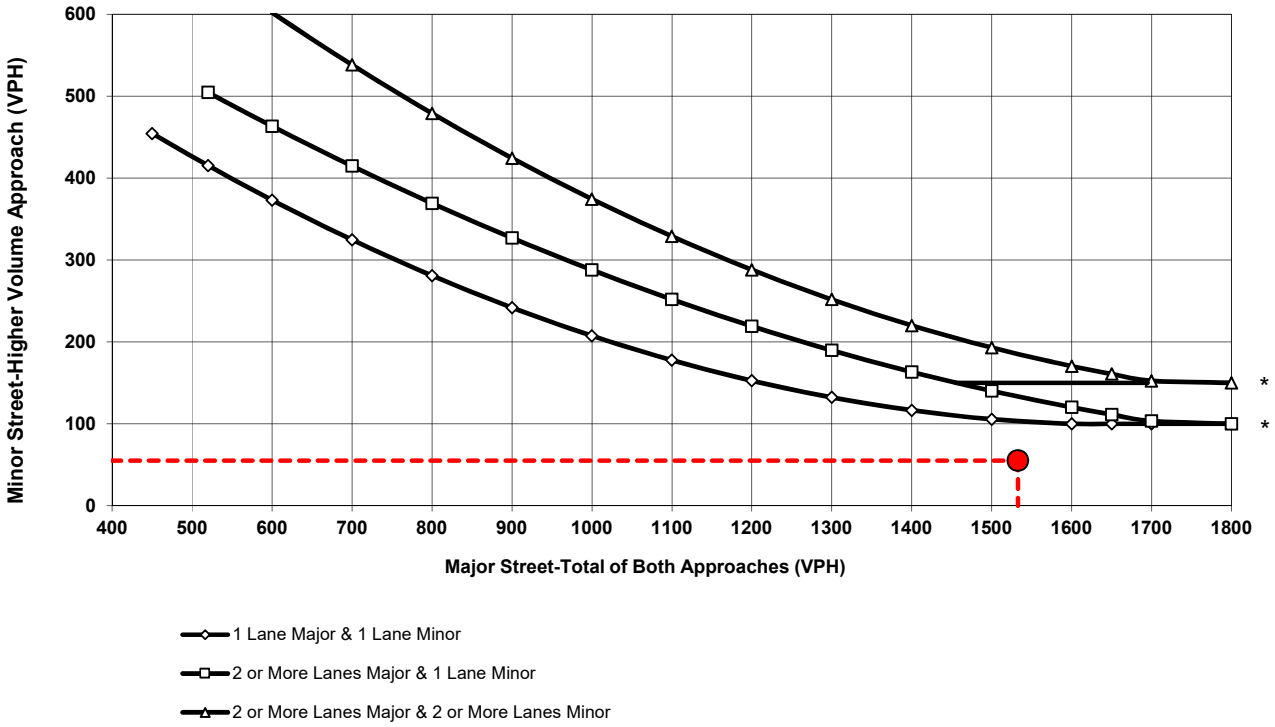
Peak Hour: **AM**

Major Street: **Lakeshore Drive** **Minor Street:** **Gunnerson Street**

Total of Both Approaches (VPH): **1533** Higher Volume Approach (VPH): **55**
Number of Approach Lanes: **1** Number of Approach Lanes: **1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-3. Peak Hour Warrant (Urban)



* Note:
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Source: MUTCD 2014 California Supplement Including Revisions 1, 2 and 3 (Mar 9, 2018)

EAPC Conditions
AM Peak Hour Volume Warrant
Gunnerson Street/Lakeshore Drive

EAPC CONDITIONS PEAK HOUR VOLUME WARRANT
URBAN CONDITIONS

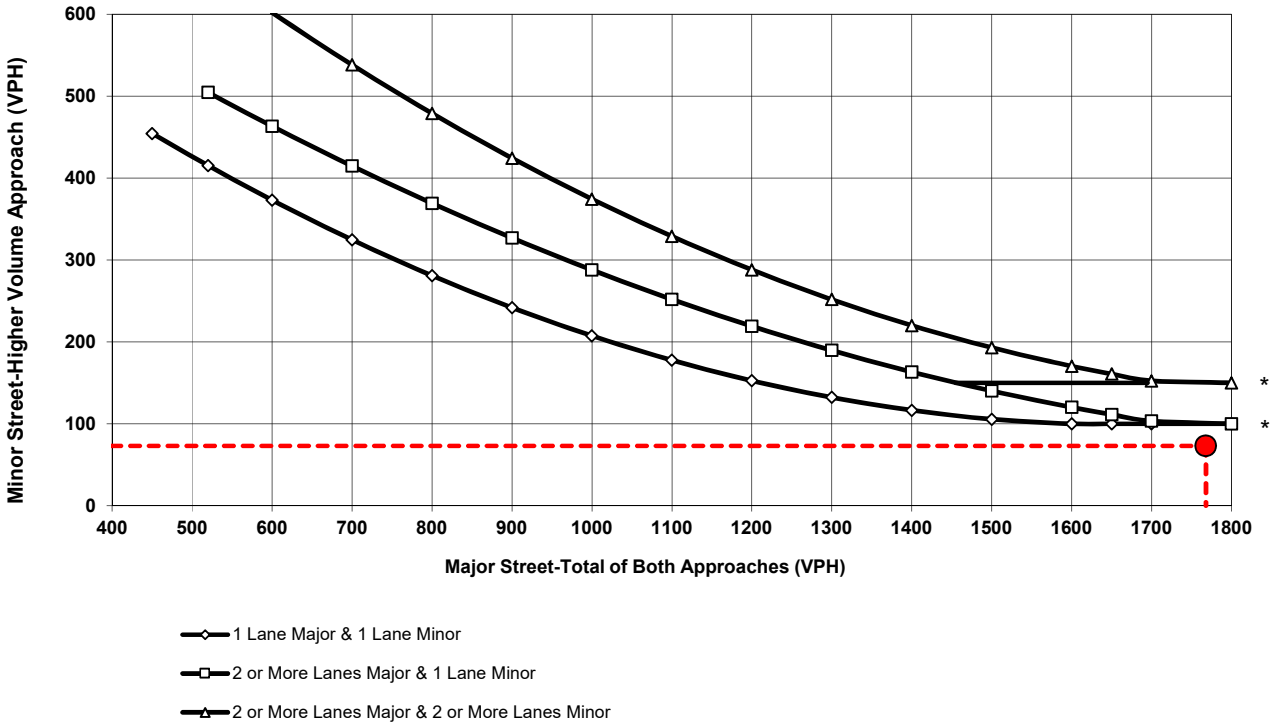
Peak Hour: **PM**

Major Street: **Lakeshore Drive** **Minor Street:** **Gunnerson Street**

Total of Both Approaches (VPH): **1768** Higher Volume Approach (VPH): **73**
Number of Approach Lanes: **1** Number of Approach Lanes: **1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-3. Peak Hour Warrant (Urban)



* Note:
150 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2014 California Supplement Including Revisions 1, 2 and 3 (Mar 9, 2018)

EAPC Conditions
PM Peak Hour Volume Warrant
Gunnerson Street/Lakeshore Drive

EAPC CONDITIONS PEAK HOUR VOLUME WARRANT
URBAN CONDITIONS

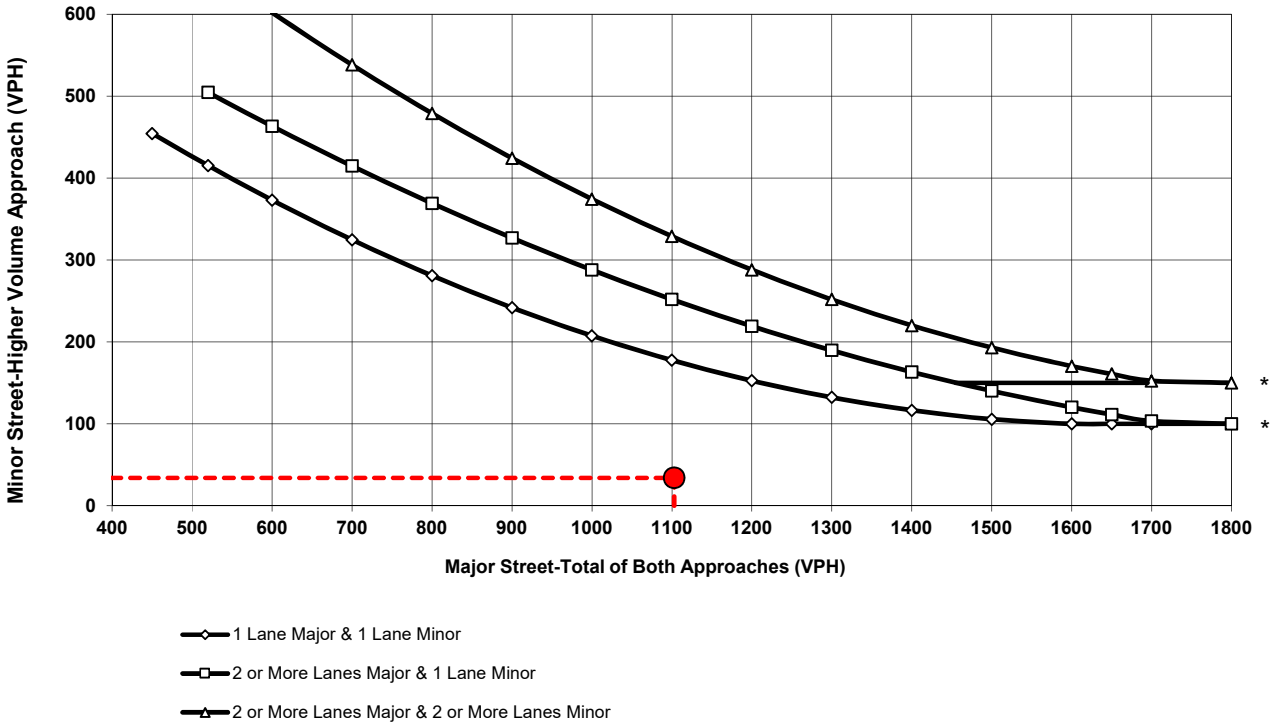
Peak Hour: **AM**

Major Street: **Lakeshore Drive** **Minor Street:** **Manning Street**

Total of Both Approaches (VPH): **1103** Higher Volume Approach (VPH): **34**
Number of Approach Lanes: **1** Number of Approach Lanes: **1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-3. Peak Hour Warrant (Urban)



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Source: MUTCD 2014 California Supplement Including Revisions 1, 2 and 3 (Mar 9, 2018)

EAPC Conditions
AM Peak Hour Volume Warrant
Manning Street/Lakeshore Drive

EAPC CONDITIONS PEAK HOUR VOLUME WARRANT
URBAN CONDITIONS

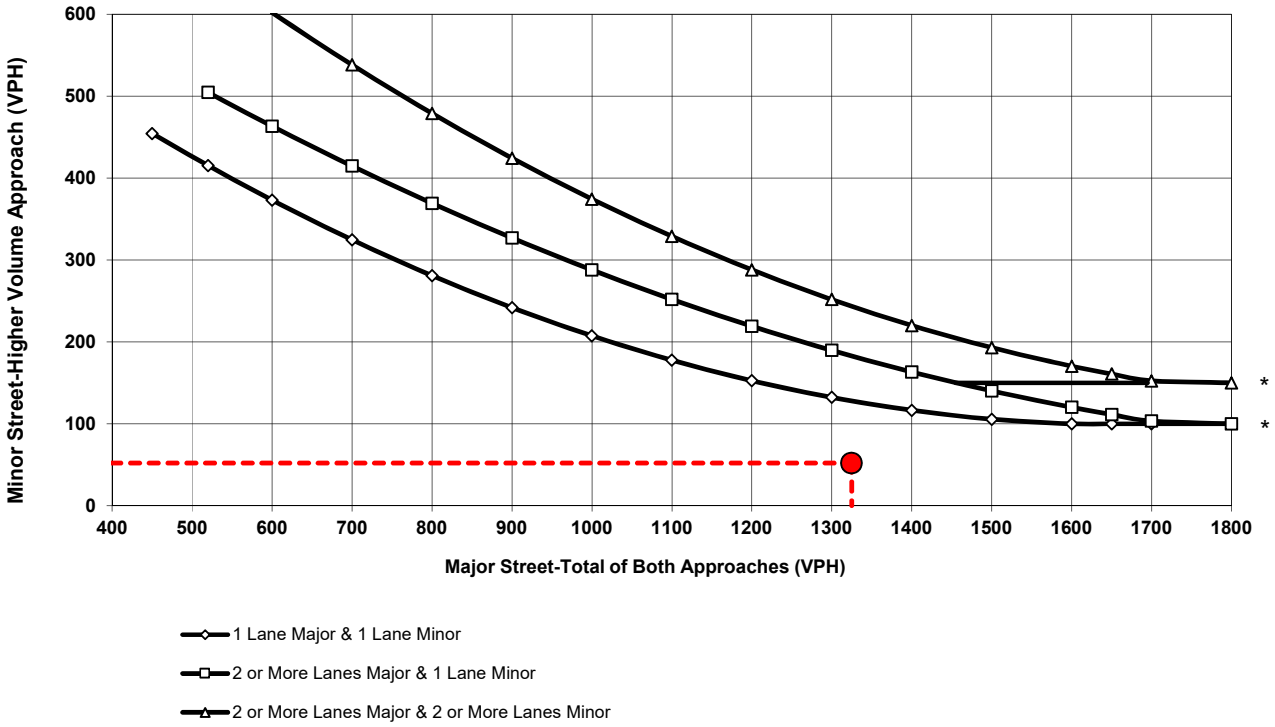
Peak Hour: **PM**

Major Street: **Lakeshore Drive** **Minor Street:** **Manning Street**

Total of Both Approaches (VPH): **1325** Higher Volume Approach (VPH): **52**
Number of Approach Lanes: **1** Number of Approach Lanes: **1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-3. Peak Hour Warrant (Urban)



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Source: MUTCD 2014 California Supplement Including Revisions 1, 2 and 3 (Mar 9, 2018)

EAPC Conditions
PM Peak Hour Volume Warrant
Manning Street/Lakeshore Drive

EAPC CONDITIONS PEAK HOUR VOLUME WARRANT
URBAN CONDITIONS

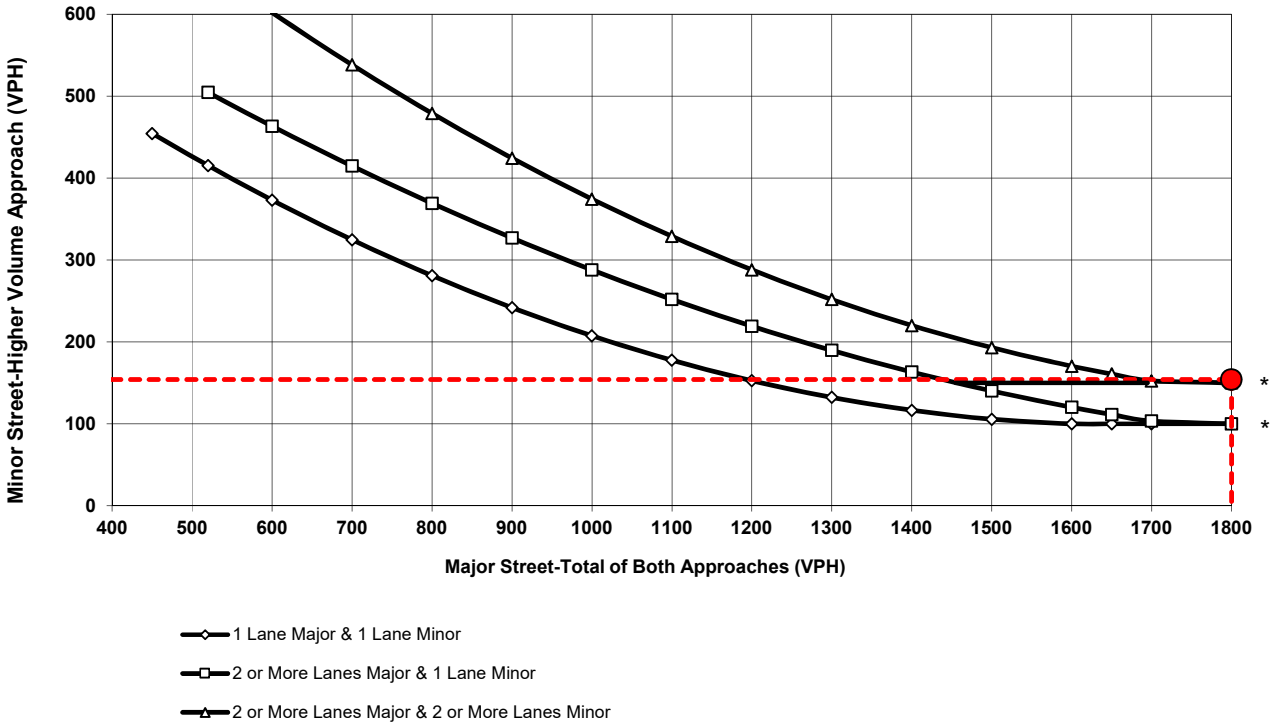
Peak Hour: **AM**

Major Street: **Riverside Drive** **Minor Street:** **Joy Street**

Total of Both Approaches (VPH): **2214** Higher Volume Approach (VPH): **154**
Number of Approach Lanes: **1** Number of Approach Lanes: **1**

SIGNAL WARRANT SATISFIED

Figure 4C-3. Peak Hour Warrant (Urban)



* Note:
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Source: MUTCD 2014 California Supplement Including Revisions 1, 2 and 3 (Mar 9, 2018)

EAPC Conditions
AM Peak Hour Volume Warrant
Riverside Drive/Joy Street

EAPC CONDITIONS PEAK HOUR VOLUME WARRANT
URBAN CONDITIONS

Peak Hour: PM

Major Street: Riverside Drive

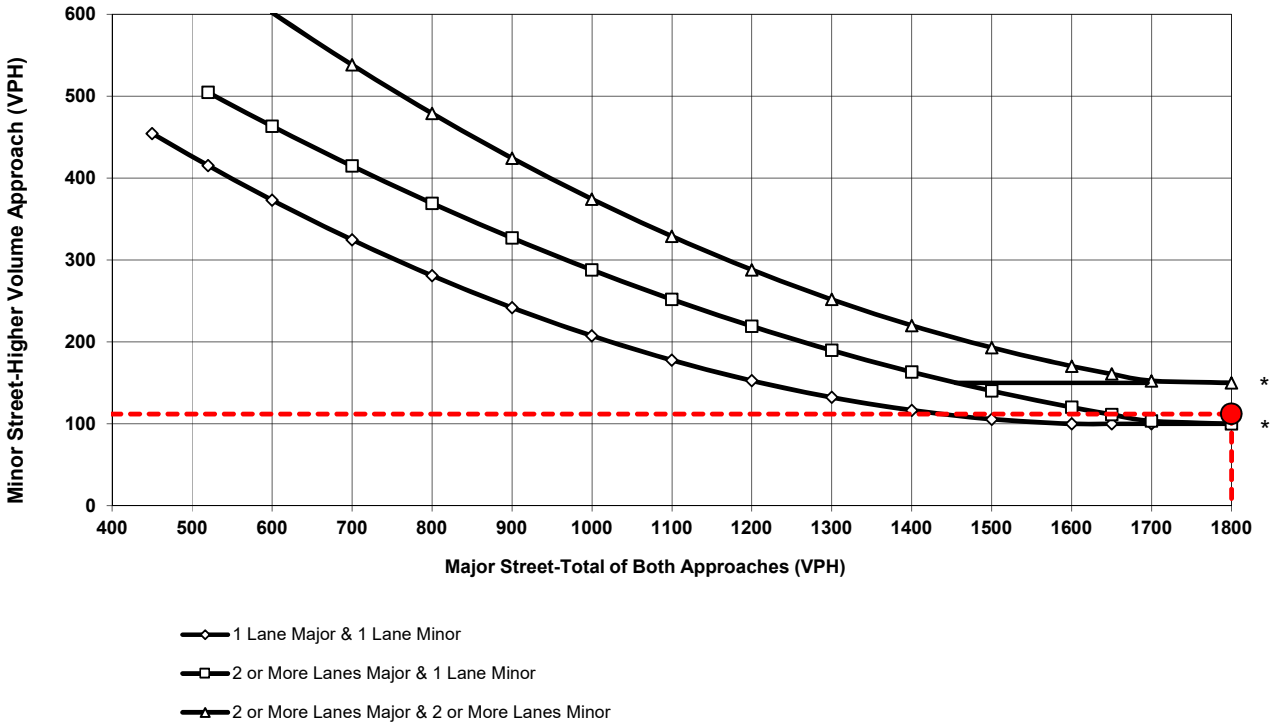
Minor Street: Joy Street

Total of Both Approaches (VPH): 2626
Number of Approach Lanes: 1

Higher Volume Approach (VPH): 112
Number of Approach Lanes: 1

SIGNAL WARRANT SATISFIED

Figure 4C-3. Peak Hour Warrant (Urban)



* Note:
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Source: MUTCD 2014 California Supplement Including Revisions 1, 2 and 3 (Mar 9, 2018)

EAPC Conditions
PM Peak Hour Volume Warrant
Riverside Drive/Joy Street

APPENDIX E

SHARED PARKING ANALYSIS SHEETS

Table
Project: The Lakeshore Plaza
Description: Lake Elsinore

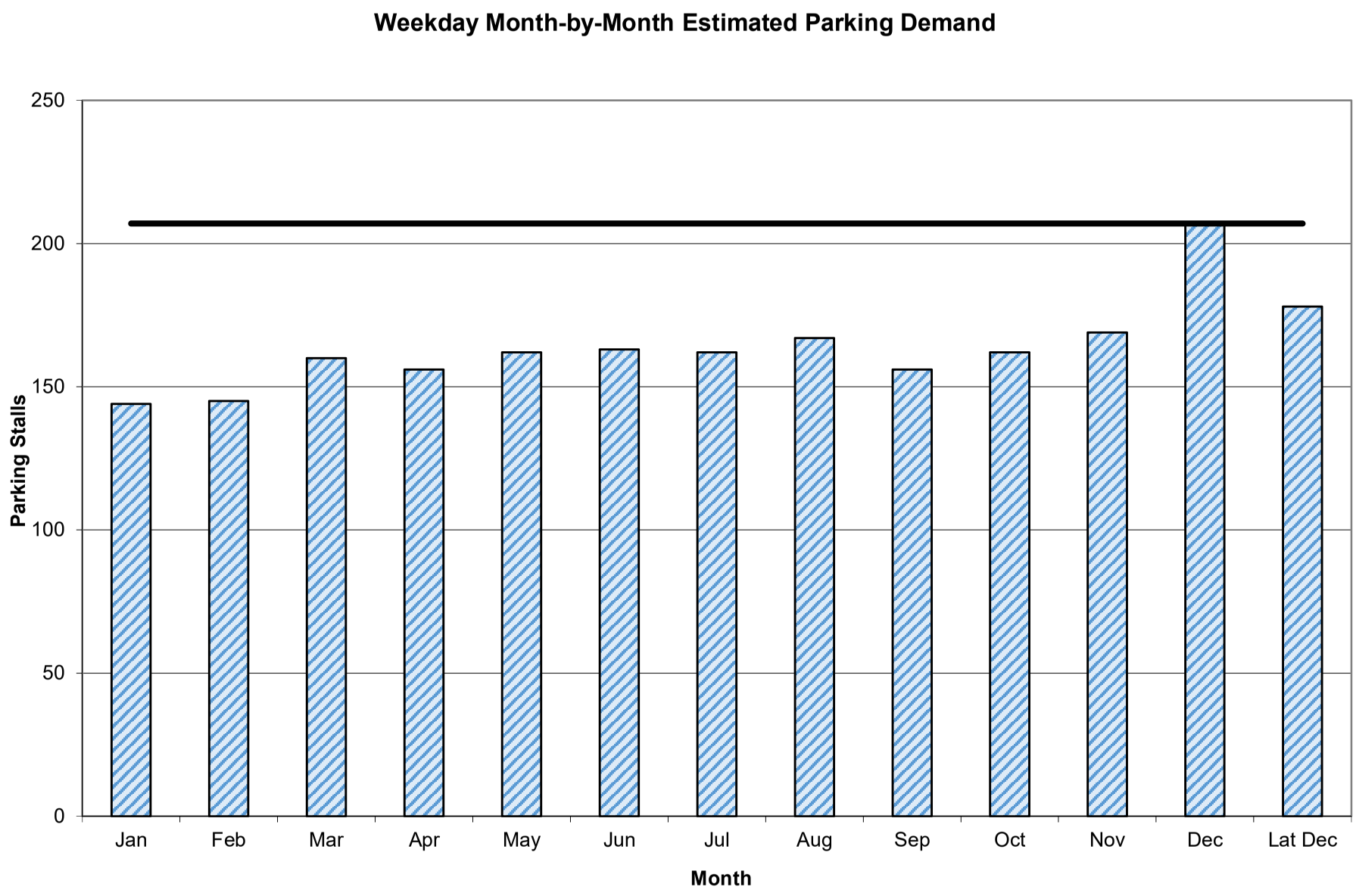
7/30/2019

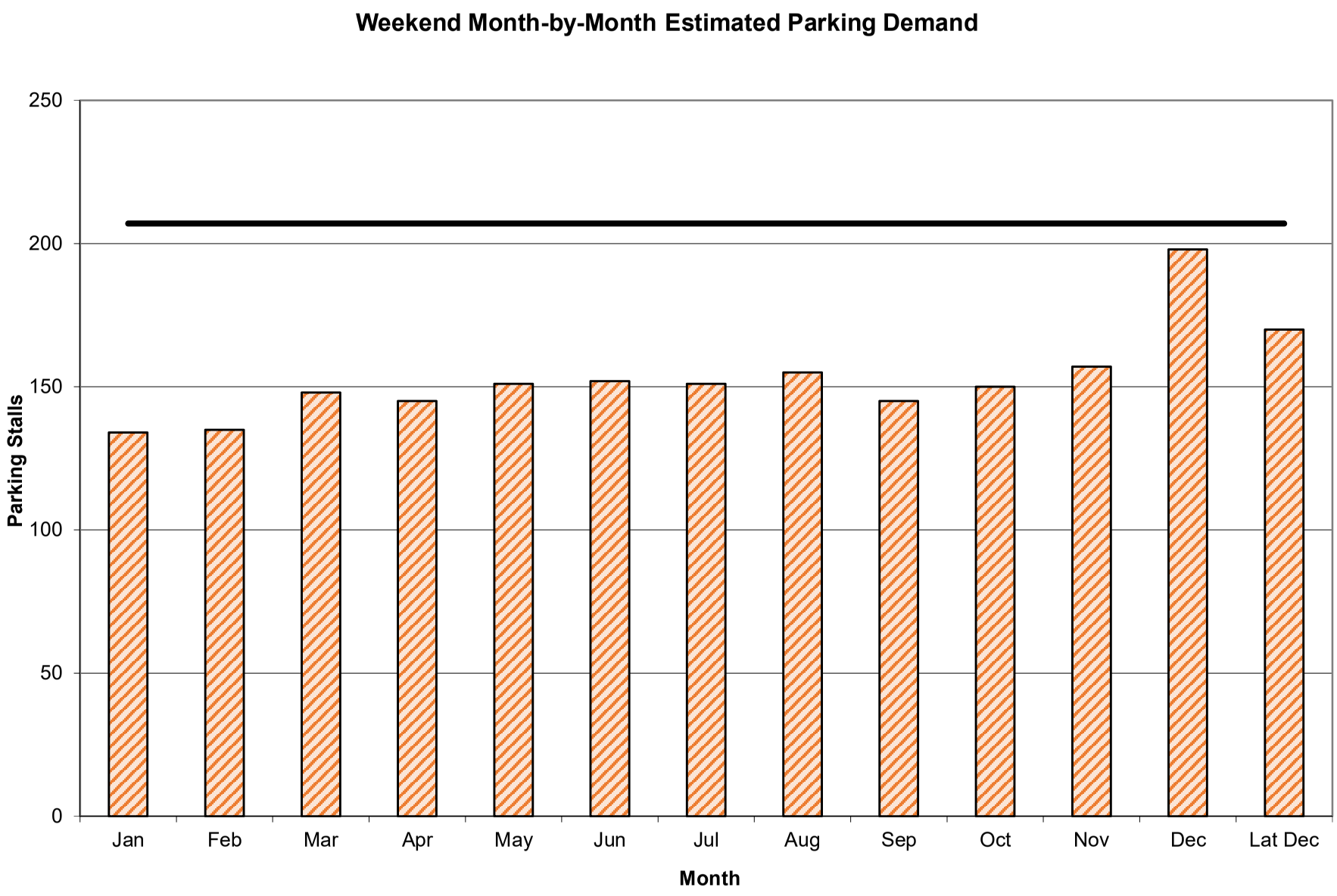
SHARED PARKING DEMAND SUMMARY

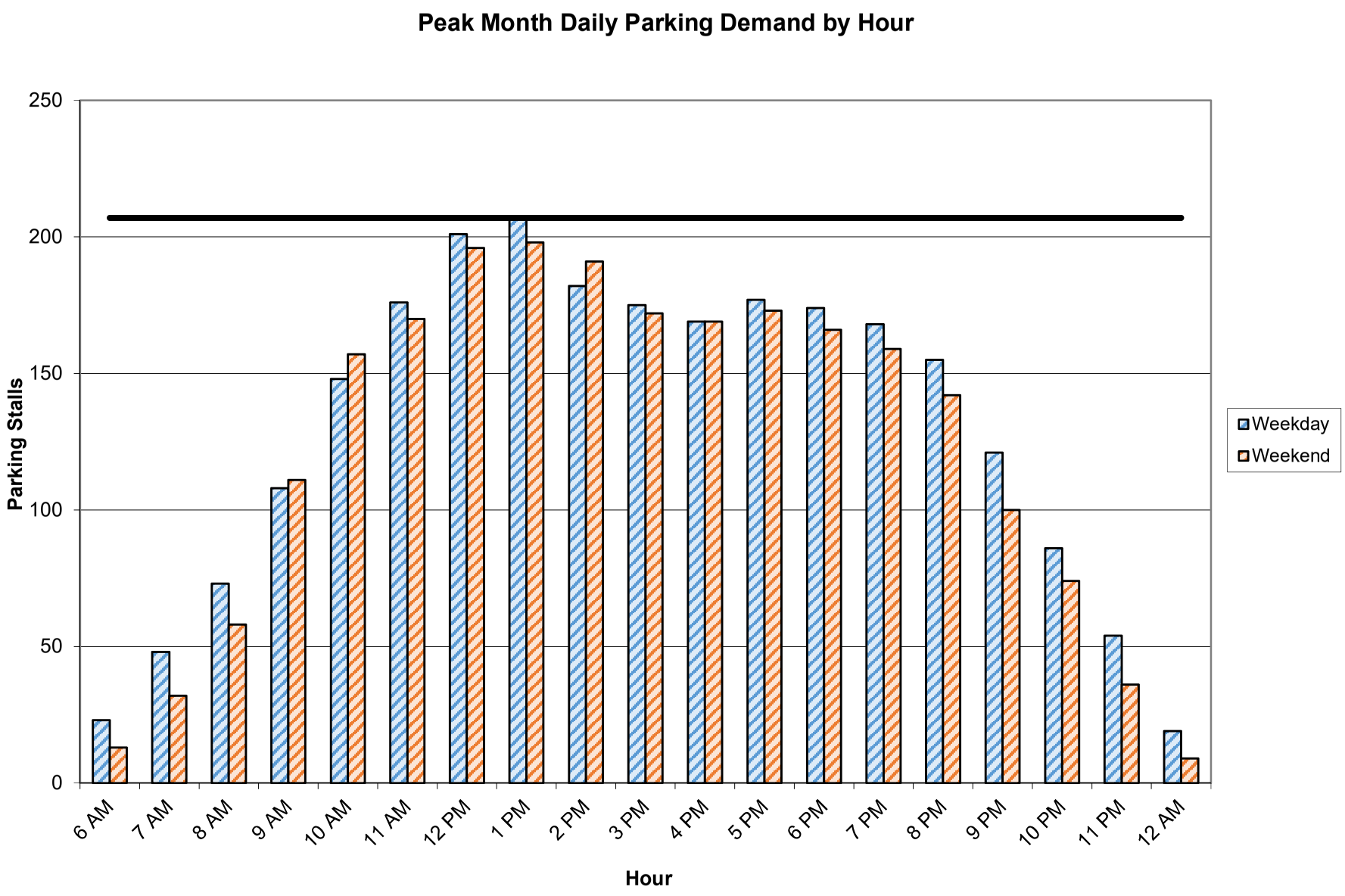
PEAK MONTH: DECEMBER -- PEAK PERIOD: 1 PM, WEEKDAY

			Weekday					Weekend					Weekday			Weekend		
	Project Data																	
Land Use	Quantity	Unit	Base Rate	Mode Adj	Non-Captive Ratio	Project Rate	Unit	Base Rate	Mode Adj	Non-Captive Ratio	Project Rate	Unit	Peak Hr Adj 1 PM	Peak Mo Adj December	Estimated Parking Demand	Peak Hr Adj 1 PM	Peak Mo Adj December	Estimated Parking Demand
Community Shopping Center (<400 ksf)	36,120	sf GLA	3.20	1.00	1.00	3.20	/ksf GLA	3.20	1.00	1.00	3.20	/ksf GLA	1.00	1.00	116	0.95	1.00	110
Employee			0.80	0.85	1.00	0.68	/ksf GLA	0.80	0.85	1.00	0.68	/ksf GLA	1.00	1.00	25	1.00	1.00	25
Family Restaurant	7,000	sf GLA	9.00	1.00	1.00	9.00	/ksf GLA	9.00	1.00	1.00	9.00	/ksf GLA	0.90	1.00	57	0.85	1.00	54
Employee			1.45	0.85	1.00	1.24	/ksf GLA	1.45	0.85	1.00	1.24	/ksf GLA	1.00	1.00	9	1.00	1.00	9
													Customer		173	Customer		164
													Employee		34	Employee		34
													Reserved		0	Reserved		0
													Total		207	Total		198

ULI base data have been modified from default values.


Weekday Month-by-Month Estimated Parking Demand
250
200
150
100
50
0
Parking Stalls
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Lat Dec
Month


Weekend Month-by-Month Estimated Parking Demand
250
200
150
100
50
0
Parking Stalls
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Lat Dec
Month


Peak Month Daily Parking Demand by Hour
250
200
150
100
50
0
Parking Stalls
6 AM
7 AM
8 AM
9 AM
10 AM
11 AM
12 PM
1 PM
2 PM
3 PM
4 PM
5 PM
6 PM
7 PM
8 PM
9 PM
10 PM
11 PM
12 AM
Hour
Weekday
Weekend

17.148.030 Number of parking spaces required.

The following minimum numbers of off-street parking spaces shall be provided in accordance with this chapter for all new buildings or uses and when any building or use is altered, extended, changed, or intensified.

A. In commercial districts and generally for commercial uses, including offices, except in the Commercial Manufacturing District, one parking space shall be provided for each 250 square feet of gross floor area, unless otherwise specified in subsection (E) of this section.

B. In the Commercial Manufacturing District, one parking space shall be provided for each 400 square feet of unit area up to 20,000 square feet, plus one space for each 1,000 square feet of unit area over 20,000 square feet, plus one space for each 1,000 square feet of outside sales, display or storage area, unless otherwise specified in subsection (E) of this section. Parking in this district shall be based on the individual unit size into which a building is divided and the cumulative total of spaces required for the individual units shall be the required parking for a building.

C. In manufacturing districts; except the Commercial Manufacturing District, one parking space shall be provided for each 500 square feet of unit area for up to 20,000 square feet, plus one space for each 1,000 square feet of unit area over 20,000 square feet, and one parking space for every 1,000 square feet of warehousing floor area, unless otherwise specified in subsection (E) of this section.

D. Parking Study. A request to reduce the number of required parking spaces may be made to the Planning Commission concurrent with the design review of a commercial or industrial project or with a proposed change of use within a commercial or industrial building when the applicant determines that the actual number of needed parking spaces is less than that required by the code. A request for a parking determination will be by an established fee and will require a separate application.

1. In order for the Planning Commission to grant a parking determination, findings shall be made. Said findings may include but shall not be limited to the following:

a. A parking study supports the finding that the number of parking spaces actually needed for a development and/or use is less than that required by the code.

b. Adequate off-street parking will be provided for the proposed use.

c. Traffic safety and pedestrian safety will not be affected by the modification of the parking requirements.

d. Reduced parking will not affect the health, safety and welfare of the public.

e. Alternative transportation programs exist such as ride sharing, mass transit, etc., that reduce the actual number of parking spaces needed.

f. Only a predetermined portion of the building on the parcel is to be occupied.

g. Sufficient area exists on site for expansion of the parking area should the occupancy or use of the structure change.

h. That space that would otherwise be dedicated for parking could be utilized for a purpose that enhances the project.

i. The parking determination has been conditioned to ensure compliance with the findings and the intent of this chapter and to ensure that additional parking spaces will be provided per code requirements should demand for parking increase on site.

2. A parking determination granting reduced parking requirements may be revoked at any time if there is evidence of insufficient on-site parking, i.e., “spill over” parking onto a public right-of-way or onto an adjacent lot. Upon revocation of a parking determination approval the applicant will be required to submit a new application for a parking determination or provide on-site parking per code requirements.

E. For the following uses the minimum number of parking spaces required shall be as specified below. The required parking shall be the cumulative total for all uses on the same site.

1. For residential uses:

a. Single-Family Detached Dwellings. Two spaces per dwelling unit in a garage, plus two open spaces, which may be located in the driveway in a tandem position, in front of the garage door.

In lieu of the two open spaces in the driveway, one open space per dwelling unit may be provided elsewhere on the lot or in a common area in a planned unit development.

b. For multifamily and attached single-family dwellings, duplexes:

(1) For studio and one-bedroom units: one covered space, plus two-thirds open space per dwelling unit;

(2) For two or more bedrooms: one covered space, plus one and one-third open space per dwelling unit.

2. Auditoriums, churches, theaters and places of assembly: one space per each three seats. Where there are no fixed seats, one space per 21 square feet of floor area in places of assembly. Where fixed seats consist of pews or benches, 18 lineal inches of pew or bench shall be considered one seat.

3. Boardinghouses, fraternities and group living quarters: one space per resident.

4. Bowling alleys: four spaces per lane.

5. Clubs, discos, ballrooms, cabarets, cocktail lounges, dance halls, lodges, and incidental dancing areas and similar facilities where dancing is the principal use of the area: one

parking space for every 30 square feet of dance floor area, plus required parking for any dining, assembly or office uses.

6. Game courts, such as tennis and racquetball: two spaces for each court.

7. Golf courses: four spaces per hole.

8. Golf driving ranges: one space per tee.

9. Hospitals, acute care: one space per licensed bed.

10. Hospitals, convalescent homes and sanitariums, nursing homes, rest homes, retirement homes and similar establishments: one space for each three licensed beds.

11. Hotels and motels: one space per room or suite, plus one space per every three employees on the largest workshift, plus one space per three persons to the maximum capacity of each public meeting and/or banquet room, plus 50 percent of the spaces otherwise required for accessory uses (e.g., restaurants and bars).

12. Outdoor display, sales, and storage areas: one space for each 1,000 square feet.

13. Restaurants and other eating, drinking, and food establishments: one space for each 45 square feet of customer area, plus one space for each 200 square feet of noncustomer area.

14. Schools, Private.

a. Elementary and junior high: one space per teacher and staff member, plus one space per two classrooms;

b. Senior high: one space per teacher and staff member on the largest shift, plus five spaces for every classroom;

c. College: one space per staff member on the largest shift, plus 10 spaces per classroom;

d. Commercial or trade schools: one space per two students, plus one space per employee (including faculty) at capacity class attendance period;

e. Day care/preschool: one space for each employee plus one space for each 10 children the facility is designed to accommodate.

15. Vehicle repair and service: three spaces for each service bay, plus one space for each 250 square feet of office, sales, and storage areas.

16. Medical uses (including offices for doctors, dentists, and chiropractors): one space for each 175 square feet of gross floor area. [Ord. 1350 § 4, 2016; Ord. 1191 § 3, 2006; Ord. 884 § 1, 1990; Ord. 830 § 1, 1988; Ord. 772 § 17.66.030, 1986. Code 1987 § 17.66.030].